

UIC- I - ____008__

WDW-1

**QUARTERLY
REPORTING**

Chavez, Carl J, EMNRD

From: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Sent: Wednesday, July 26, 2017 4:19 PM
To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD; Denton, Scott; O'Brien, Robert (Bob) K.; Combs, Robert; Holder, Mike
Cc: Dade, Lewis (Randy)
Subject: 2nd Quarter Injection Report; WDW-1, WDW-2, WDW-3; Navajo Refining Company, L.L.C.
Attachments: 2nd Quarter Injection Report 2017.pdf; 2nd Quarter Analytical_Final_v1.pdf

Please find attached the 2nd Quarter Injection Report and Analytical Data. If there are any questions, please feel free to contact me. Thanks, Randy



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July 26, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6779

RE: 2017 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the second quarter 2017 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the second quarter, the average injection pressure for all three wells was 1214 psig and the average flows were 133 gpm for WDW-1, 106 gpm for WDW-2 and 146 gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from April 1, 2017 to June 30, 2017. We have disposed a total of 1,198,349 barrels of fluid into the three wells during the second quarter of 2017. The volume per well is:

- 410,408 barrels into WDW-1
- 330,960 barrels into WDW-2
- 456,981 barrels into WDW-3

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

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.):
Environmental File:
1,2,3

R. O'Brien, R Orosco, R Combs, M. Holder, L Dade
Injection Wells/Reports C-115 & Quarterly/2017/2nd quarter/2017-7-26 2nd QTR Inj. Rpt. for Wells WDW-

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • <http://www.hollyfrontier.com>

2017 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1														
Apr-17	1,045	1,400	1,200	125	141	100	550	731	356	4,286	4,834	3,429	128,571	38,766,265
May-17	1,046	1,400	1,367	139	142	132	570	677	464	4,766	4,869	4,526	142,980	39,037,816
Jun-17	983	1,400	925	135	149	80	552	895	141	4,629	5,108	2,743	138,857	39,176,673
														Previous Quarter
														25,527,251
30-015-20894 WDW-2														
Apr-17	1,383	1,400	1,165	101	119	65	319	490	203	3,463	4,080	2,229	103,886	25,631,137
May-17	1,313	1,400	1,211	113	124	79	372	568	248	3,874	4,251	2,709	120,094	25,751,231
Jun-17	1,267	1,400	928	104	127	0	335	657	220	3,566	4,354	0	106,980	25,858,211
														Previous Quarter
														16,175,602
30-015-26575 WDW-3														
Apr-17	1,344	1,400	1,200	146	165	121	588	706	458	5,006	5,657	4,149	150,180	16,325,782
May-17	1,301	1,400	1,222	159	168	123	610	755	435	5,451	5,760	4,217	168,981	16,494,763
Jun-17	1,246	1,400	933	134	167	8	624	941	246	4,594	5,726	274	137,820	16,632,583
														Previous Quarter
														81,667,467
Total Injected Fluids:														

Monthly Avg.			Monthly Avg.			Total BBLs			Beginning Volume			Ending Volume		
WDW-1	1,025		133			WDW1	410,408		38,766,265			39,176,673		
WDW-2	1,321		106			WDW2	330,960		25,527,251			25,858,211		
WDW-3	1,297		146			WDW3	456,981		16,175,602			16,632,583		
							1,198,349		80,469,118			81,667,467		



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

July 05, 2017

Scott Denton

Navajo Refining Company

P.O. Box 159

Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly WDW-1, 2, &3 Inj Well

OrderNo.: 1705791

Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/16/2017 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1705791

Date Reported: 7/5/2017

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 5/12/2017 3:09:00 PM

Lab ID: 1705791-001

Matrix: AQUEOUS

Received Date: 5/16/2017 9:35:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: LGT
Fluoride	5.8	0.50	*	mg/L	5	5/17/2017 5:26:02 AM
Chloride	330	25		mg/L	50	5/23/2017 3:47:22 PM
Bromide	0.76	0.50		mg/L	5	5/27/2017 2:44:30 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	5/17/2017 5:26:02 AM
Sulfate	1200	25		mg/L	50	5/23/2017 3:47:22 PM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	5/23/2017 3:59:47 PM
EPA METHOD 7470: MERCURY						Analyst: MED
Mercury	ND	0.00020		mg/L	1	5/31/2017 12:02:25 PM
MERCURY, TCLP						Analyst: pmf
Mercury	ND	0.020		mg/L	1	5/30/2017 3:43:27 PM
EPA METHOD 6010B: TCLP METALS						Analyst: MED
Arsenic	ND	5.0		mg/L	1	5/31/2017 10:22:06 AM
Barium	ND	100		mg/L	1	5/30/2017 12:18:52 PM
Cadmium	ND	1.0		mg/L	1	5/30/2017 12:18:52 PM
Chromium	ND	5.0		mg/L	1	5/30/2017 12:18:52 PM
Lead	ND	5.0		mg/L	1	5/30/2017 12:18:52 PM
Selenium	ND	1.0		mg/L	1	5/30/2017 12:18:52 PM
Silver	ND	5.0		mg/L	1	5/30/2017 12:18:52 PM
EPA 6010B: METALS						Analyst: MED
Aluminum	1.0	0.020		mg/L	1	5/31/2017 10:47:21 AM
Antimony	ND	0.050		mg/L	1	5/30/2017 12:47:54 PM
Arsenic	ND	0.020		mg/L	1	5/26/2017 11:12:52 AM
Barium	ND	0.020		mg/L	1	5/26/2017 11:12:52 AM
Beryllium	ND	0.0030		mg/L	1	5/30/2017 12:47:54 PM
Cadmium	ND	0.0020		mg/L	1	5/26/2017 11:12:52 AM
Calcium	170	5.0		mg/L	5	5/31/2017 10:58:14 AM
Chromium	ND	0.0060		mg/L	1	5/26/2017 11:12:52 AM
Cobalt	ND	0.0060		mg/L	1	5/30/2017 12:47:54 PM
Copper	ND	0.0060		mg/L	1	5/30/2017 12:47:54 PM
Iron	1.3	0.050		mg/L	1	5/30/2017 12:47:54 PM
Lead	ND	0.0050		mg/L	1	5/26/2017 11:12:52 AM
Magnesium	55	5.0		mg/L	5	5/31/2017 10:58:14 AM
Manganese	0.14	0.0020		mg/L	1	5/30/2017 12:47:54 PM
Nickel	ND	0.010		mg/L	1	5/30/2017 12:47:54 PM
Potassium	39	1.0		mg/L	1	5/30/2017 12:47:54 PM
Selenium	ND	0.050		mg/L	1	5/26/2017 11:12:52 AM
Silver	ND	0.0050		mg/L	1	5/26/2017 11:12:52 AM

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1705791

Date Reported: 7/5/2017

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 5/12/2017 3:09:00 PM

Lab ID: 1705791-001

Matrix: AQUEOUS

Received Date: 5/16/2017 9:35:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA 6010B: METALS						Analyst: MED
Sodium	560	10		mg/L	10	6/7/2017 9:41:39 AM
Thallium	ND	0.050		mg/L	1	5/30/2017 12:47:54 PM
Vanadium	ND	0.050		mg/L	1	5/30/2017 12:47:54 PM
Zinc	0.046	0.020		mg/L	1	5/30/2017 12:47:54 PM
SM2510B: SPECIFIC CONDUCTANCE						Analyst: JRR
Conductivity	3600	1.0		µmhos/cm	1	5/18/2017 3:14:06 PM
SM4500-H+B: PH						Analyst: JRR
pH	7.51		H	pH units	1	5/18/2017 3:14:06 PM
SM2320B: ALKALINITY						Analyst: JRR
Bicarbonate (As CaCO ₃)	199.3	20.00		mg/L CaCO ₃	1	5/18/2017 3:14:06 PM
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	5/18/2017 3:14:06 PM
Total Alkalinity (as CaCO ₃)	199.3	20.00		mg/L CaCO ₃	1	5/18/2017 3:14:06 PM
SPECIFIC GRAVITY						Analyst: LGT
Specific Gravity	1.000	0			1	5/26/2017 10:30:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	2480	40.0	*D	mg/L	1	5/17/2017 5:54:00 PM

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

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

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number 170517053-001 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 3:09 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
2-Butanone	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
2-hexanone	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Acetone	20.3	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Acetonitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Acrolein	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number 170517053-001 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 3:09 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromoform	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromomethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Carbon disulfide	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloroform	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloromethane	1.05	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloroprene	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Ethylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Iodomethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Isobutanol	ND	ug/L	100	5/26/2017	SAT	EPA 8260C	
m+p-Xylene	ND	ug/L	1	5/26/2017	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address: 4901 HAWKINS NE SUITE D
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Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number 170517053-001 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 3:09 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
o-Xylene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Propionitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Styrene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Toluene	1.09	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
trans-1,2-Dichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Trichlorofluoromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,3-Trichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,4-Trichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,4-Trimethylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,3,5-Trimethylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,3-Butadiene	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
1,3-Dichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,4-Dioxane	ND	ug/L	20	5/26/2017	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Address: 4901 HAWKINS NE SUITE D
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Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number	170517053-001	Sampling Date	5/12/2017	Date/Time Received	5/17/2017 11:20 AM
Client Sample ID	1705791-001D / WDW-1,2,&3 EFFLUENT			Sampling Time	3:09 PM
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2-Chloroethyl vinyl ether	ND	ug/L	5.0	5/26/2017	SAT	EPA 8260C	
2-Chlorotoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
2-isopropyltoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
4-Chlorotoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Cyclohexane	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Diethyl ether	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Diisopropyl ether (DIPE)	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	5	5/26/2017	SAT	EPA 8260C	
Ethyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Ethyl tert-butyl ether	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Freon-113	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Hexachlorobutadiene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Isopropyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Isopropylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Methyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Methylcyclohexane	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
methyl-t-butyl ether (MTBE)	ND	ug/L	10	5/26/2017	SAT	EPA 8260C	
n-Amyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Naphthalene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
n-Butylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
n-Hexane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Nitrobenzene	ND	ug/L	5	5/26/2017	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number 170517053-001 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-001D / WDW-1,2,&3 EFFLUENT **Sampling Time** 3:09 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
n-Propylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Pentachloroethane	ND	ug/L	5	5/26/2017	SAT	EPA 8260C	
p-isopropyltoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
sec-Butylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
t-Amyl methyl ether	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
t-Butyl alcohol	ND	ug/L	5.0	5/26/2017	SAT	EPA 8260C	
tert-Butylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Tetrahydrofuran	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	

Surrogate Data

Sample Number	Surrogate Standard	Method	Percent Recovery	Control Limits
170517053-001	1,2-Dichlorobenzene-d4	EPA 8260C	104.0	70-130
	1,2-Dichlorobenzene-d4	EPA 8260C	121.6	70-130
	4-Bromofluorobenzene	EPA 8260C	109.6	70-130
	4-Bromofluorobenzene	EPA 8260C	99.6	70-130
	Toluene-d8	EPA 8260C	98.8	70-130
	Toluene-d8	EPA 8260C	96.4	70-130

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Batch #: 170517053

Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109

Project Name: 1705791

Attn: ANDY FREEMAN

Analytical Results Report

Sample Number	170517053-004	Sampling Date	5/12/2017	Date/Time Received	5/17/2017 11:20 AM
Client Sample ID	1705791-002A / TRIP BLANK			Sampling Time	
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1,1-Trichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1,2-Trichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1-Dichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1-Dichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,1-dichloropropene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,3-Trichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dibromoethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dichloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2-Dichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,3-Dichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,4-Dichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
2,2-Dichloropropane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
2-Butanone	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
2-hexanone	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Acetone	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Acetonitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Acrolein	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Acrylonitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Allyl Chloride	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	

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Project Name: 1705791

Analytical Results Report

Sample Number	170517053-004	Sampling Date	5/12/2017	Date/Time Received	5/17/2017 11:20 AM
Client Sample ID	1705791-002A / TRIP BLANK			Sampling Time	
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Benzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromochloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromodichloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromoform	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromomethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Carbon disulfide	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Carbon Tetrachloride	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloroethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloroform	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Chloroprene	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
cis-1,2-dichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
cis-1,3-Dichloropropene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Dibromochloromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Dibromomethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Dichlorodifluoromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Ethyl methacrylate	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Ethylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Iodomethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Isobutanol	ND	ug/L	100	5/26/2017	SAT	EPA 8260C	
m+p-Xylene	ND	ug/L	1	5/26/2017	SAT	EPA 8260C	
Methacrylonitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	

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Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number 170517053-004 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-002A / TRIP BLANK **Sampling Time**
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Methyl Methacrylate	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Methylene chloride	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
o-Xylene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Propionitrile	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Styrene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Tetrachloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Toluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
trans-1,2-Dichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
trans-1,3-Dichloropropene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Trichloroethene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Trichlorofluoromethane	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Vinyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Vinyl Chloride	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,3-Trichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,4-Trichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,2,4-Trimethylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,3,5-Trimethylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,3-Dichlorobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
1,4-Dioxane	ND	ug/L	20	5/26/2017	SAT	EPA 8260C	
2-Chloroethyl vinyl ether	ND	ug/L	5.0	5/26/2017	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
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Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number	170517053-004	Sampling Date	5/12/2017	Date/Time Received	5/17/2017 11:20 AM
Client Sample ID	1705791-002A / TRIP BLANK			Sampling Time	
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
2-Chlorotoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
4-Chlorotoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Bromobenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Cyclohexane	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Diethyl ether	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Diisopropyl ether (DIPE)	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Epichlorohydrin	ND	ug/L	5	5/26/2017	SAT	EPA 8260C	
Ethyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Ethyl tert-butyl ether	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Freon-113	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Hexachlorobutadiene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Isopropyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Isopropylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Methyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Methylcyclohexane	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
methyl-t-butyl ether (MTBE)	ND	ug/L	10	5/26/2017	SAT	EPA 8260C	
n-Amyl acetate	ND	ug/L	2.0	5/26/2017	SAT	EPA 8260C	
Naphthalene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
n-Butylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
n-Hexane	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
Nitrobenzene	ND	ug/L	5	5/26/2017	SAT	EPA 8260C	
n-Propylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Pentachloroethane	ND	ug/L	5	5/26/2017	SAT	EPA 8260C	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
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Project Name: 1705791

Analytical Results Report

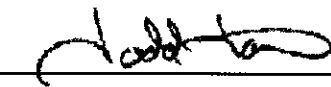
Sample Number 170517053-004 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-002A / TRIP BLANK **Sampling Time**
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
p-isopropyltoluene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
sec-Butylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
t-Amyl methyl ether	ND	ug/L	2.5	5/26/2017	SAT	EPA 8260C	
t-Butyl alcohol	ND	ug/L	5.0	5/26/2017	SAT	EPA 8260C	
tert-Butylbenzene	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	
Tetrahydrofuran	ND	ug/L	0.5	5/26/2017	SAT	EPA 8260C	

Surrogate Data

Sample Number	Surrogate Standard	Method	Percent Recovery	Control Limits
170517053-004	1,2-Dichlorobenzene-d4	EPA 8260C	103.2	70-130
	1,2-Dichlorobenzene-d4	EPA 8260C	105.2	70-130
	4-Bromofluorobenzene	EPA 8260C	99.6	70-130
	4-Bromofluorobenzene	EPA 8260C	92.0	70-130
	Toluene-d8	EPA 8260C	96.4	70-130
	Toluene-d8	EPA 8260C	93.2	70-130

Authorized Signature



Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA-ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:CERT0095; FL(NELAP): E871099

Wednesday, July 05, 2017

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Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Trichloroethene	9.83	ug/L	10	98.3	80-120	5/25/2017	5/26/2017
Toluene	10.1	ug/L	10	101.0	80-120	5/25/2017	5/26/2017
Tetrachloroethene	10.0	ug/L	10	100.0	80-120	5/25/2017	5/26/2017
o-Xylene	10.9	ug/L	10	109.0	80-120	5/25/2017	5/26/2017
Ethylbenzene	10.6	ug/L	10	106.0	80-120	5/25/2017	5/26/2017
Chlorobenzene	9.99	ug/L	10	99.9	80-120	5/25/2017	5/26/2017
Benzene	9.99	ug/L	10	99.9	80-120	5/25/2017	5/26/2017
1,1-Dichloroethene	10.0	ug/L	10	100.0	80-120	5/25/2017	5/26/2017

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Trichloroethene	9.67	ug/L	10	96.7	1.6	0-25	5/25/2017	5/26/2017
Toluene	10.2	ug/L	10	102.0	1.0	0-25	5/25/2017	5/26/2017
Tetrachloroethene	9.89	ug/L	10	98.9	1.1	0-25	5/25/2017	5/26/2017
o-Xylene	11.1	ug/L	10	111.0	1.8	0-25	5/25/2017	5/26/2017
Ethylbenzene	10.6	ug/L	10	106.0	0.0	0-25	5/25/2017	5/26/2017
Chlorobenzene	9.75	ug/L	10	97.5	2.4	0-25	5/25/2017	5/26/2017
Benzene	9.94	ug/L	10	99.4	0.5	0-25	5/25/2017	5/26/2017
1,1-Dichloroethene	10.1	ug/L	10	101.0	1.0	0-25	5/25/2017	5/26/2017

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,1,1,2-Tetrachloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,1,1-Trichloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,1,2,2-Tetrachloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,1,2-Trichloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,1-Dichloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,1-Dichloroethene	ND	ug/L	0.5	5/25/2017	5/26/2017
1,1-dichloropropene	ND	ug/L	0.5	5/25/2017	5/26/2017
1,2,3-Trichloropropane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,2-Dibromo-3-chloropropane(DBCP)	ND	ug/L	0.5	5/25/2017	5/26/2017
1,2-Dibromoethane	ND	ug/L	0.5	5/25/2017	5/26/2017

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2-Dichlorobenzene	ND	ug/L	0.5	5/25/2017	5/26/2017
1,2-Dichloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,2-Dichloropropane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,3-Dichloropropane	ND	ug/L	0.5	5/25/2017	5/26/2017
1,4-Dichlorobenzene	ND	ug/L	0.5	5/25/2017	5/26/2017
2,2-Dichloropropane	ND	ug/L	0.5	5/25/2017	5/26/2017
2-Butanone	ND	ug/L	2.5	5/25/2017	5/26/2017
2-hexanone	ND	ug/L	0.5	5/25/2017	5/26/2017
Acetone	ND	ug/L	2.5	5/25/2017	5/26/2017
Acetonitrile	ND	ug/L	0.5	5/25/2017	5/26/2017
Acrolein	ND	ug/L	2.5	5/25/2017	5/26/2017
Acrylonitrile	ND	ug/L	2.5	5/25/2017	5/26/2017
Allyl Chloride	ND	ug/L	0.5	5/25/2017	5/26/2017
Benzene	ND	ug/L	0.5	5/25/2017	5/26/2017
Bromochloromethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Bromodichloromethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Bromoform	ND	ug/L	0.5	5/25/2017	5/26/2017
Bromomethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Carbon disulfide	ND	ug/L	0.5	5/25/2017	5/26/2017
Carbon Tetrachloride	ND	ug/L	0.5	5/25/2017	5/26/2017
Chlorobenzene	ND	ug/L	0.5	5/25/2017	5/26/2017
Chloroethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Chloroform	ND	ug/L	0.5	5/25/2017	5/26/2017
Chloromethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Chloroprene	ND	ug/L	0.5	5/25/2017	5/26/2017
cis-1,2-dichloroethene	ND	ug/L	0.5	5/25/2017	5/26/2017
cis-1,3-Dichloropropene	ND	ug/L	0.5	5/25/2017	5/26/2017
Dibromochloromethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Dibromomethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Dichlorodifluoromethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Ethyl methacrylate	ND	ug/L	2.5	5/25/2017	5/26/2017
Ethylbenzene	ND	ug/L	0.5	5/25/2017	5/26/2017
Iodomethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Isobutanol	ND	ug/L	10	5/25/2017	5/26/2017
m+p-Xylene	ND	ug/L	1	5/25/2017	5/26/2017
Methacrylonitrile	ND	ug/L	2.5	5/25/2017	5/26/2017
Methyl ethyl ketone (MEK)	ND	ug/L	2.5	5/25/2017	5/26/2017

Comments:

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Methyl isobutyl ketone (MIBK)	ND	ug/L	2.5	5/25/2017	5/26/2017
Methyl Methacrylate	ND	ug/L	2.5	5/25/2017	5/26/2017
Methylene chloride	ND	ug/L	2.5	5/25/2017	5/26/2017
o-Xylene	ND	ug/L	0.5	5/25/2017	5/26/2017
Propionitrile	ND	ug/L	2.5	5/25/2017	5/26/2017
Styrene	ND	ug/L	0.5	5/25/2017	5/26/2017
Tetrachloroethene	ND	ug/L	0.5	5/25/2017	5/26/2017
Toluene	ND	ug/L	0.5	5/25/2017	5/26/2017
trans-1,2-Dichloroethene	ND	ug/L	0.5	5/25/2017	5/26/2017
trans-1,3-Dichloropropene	ND	ug/L	0.5	5/25/2017	5/26/2017
trans-1-4-Dichloro-2-butene	ND	ug/L	0.5	5/25/2017	5/26/2017
Trichloroethene	ND	ug/L	0.5	5/25/2017	5/26/2017
Trichlorofluoromethane	ND	ug/L	0.5	5/25/2017	5/26/2017
Vinyl acetate	ND	ug/L	0.5	5/25/2017	5/26/2017
Vinyl Chloride	ND	ug/L	0.5	5/25/2017	5/26/2017

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

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Client: HALL ENVIRONMENTAL ANALYSIS LAB **Batch #:** 170517053
Address: 4901 HAWKINS NE SUITE D **Project Name:** 1705791
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Analytical Results Report

Sample Number 170517053-002 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-001E / WDW-1,2,&3 EFFLUENT **Extraction Date** 5/17/2017
Matrix Water **Sampling Time** 3:09 PM
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,1-Biphenyl	ND	ug/L	1	6/13/2017	HSW	EPA 8270D	
3-Methylcholanthrene	ND	ug/L	0.02	6/13/2017	HSW	EPA 8270D	
Atrazine	ND	ug/L	1	6/13/2017	HSW	EPA 8270D	
Benzaldehyde	6.44	ug/L	1	6/13/2017	HSW	EPA 8270D	
Caprolactam	ND	ug/L	1	6/13/2017	HSW	EPA 8270D	
Dibenzo(a,h)pyrene	ND	ug/L	0.02	6/13/2017	HSW	EPA 8270D	
Dibenzo(a,i)pyrene	ND	ug/L	0.02	6/13/2017	HSW	EPA 8270D	
Dibenzofuran	ND	ug/L	1	6/13/2017	HSW	EPA 8270D	
Nitrofen	ND	ug/L	1	6/13/2017	HSW	EPA 8270D	
n-nitrosodibutylamine	ND	ug/L	1	6/13/2017	HSW	EPA 8270D	
1,2,4,5-Tetrachlorobenzene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
1,4-Dioxane	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
1-Methylnaphthalene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2-Chlorophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2-Methylphenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2-Nitroaniline	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
2-Nitrophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
3-Nitroaniline	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
4-Chloroaniline	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number	170517053-002	Sampling Date	5/12/2017	Date/Time Received	5/17/2017 11:20 AM
Client Sample ID	1705791-001E / WDW-1,2,&3 EFFLUENT			Extraction Date	5/17/2017
Matrix	Water	Sampling Time	3:09 PM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
4-Nitroaniline	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
4-Nitrophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Acenaphthene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Acenaphthylene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Acetophenone	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Anthracene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Benzo(g,h,i)perylene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
bis(2-Chloroethyl)ether	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Butylbenzylphthalate	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Carbazole	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Chrysene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
Dibenzofuran	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Diethylphthalate	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Dimethylphthalate	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Fluoranthene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Fluorene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Hexachlorobenzene	ND	ug/L	2	5/23/2017	HSW	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Hexachloroethane	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	5/23/2017	HSW	EPA 8270D	
Isophorone	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Naphthalene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Nitrobenzene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
n-Nitroso-di-n-propylamine	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
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Client: HALL ENVIRONMENTAL ANALYSIS LAB **Batch #:** 170517053
Address: 4901 HAWKINS NE SUITE D **Project Name:** 1705791
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Analytical Results Report

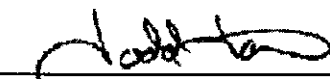
Sample Number	170517053-002	Sampling Date	5/12/2017	Date/Time Received	5/17/2017 11:20 AM
Client Sample ID	1705791-001E / WDW-1,2,&3 EFFLUENT			Extraction Date	5/17/2017
Matrix	Water	Sampling Time	3:09 PM		
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
n-Nitrosodiphenylamine	ND	ug/L	4	5/23/2017	HSW	EPA 8270D	
o-Toluidine	ND	ug/L	4	5/23/2017	HSW	EPA 8270D	
Pentachlorophenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Phenanthrene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Phenol	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Pyrene	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	
Pyridine	ND	ug/L	10	5/23/2017	HSW	EPA 8270D	

Surrogate Data

Sample Number	170517053-002			
Surrogate Standard	Method	Percent Recovery	Control Limits	
2,4,6-Tribromophenol	EPA 8270D	116.0	63-122	
2-Fluorobiphenyl	EPA 8270D	78.8	58-112	
2-Fluorophenol	EPA 8270D	47.6	47-109	
Nitrobenzene-d5	EPA 8270D	74.0	58-110	
Phenol-d5	EPA 8270D	72.2	52-105	
Terphenyl-d14	EPA 8270D	97.2	22-133	
Terphenyl-d14	EPA 8270D	76.4	22-133	

Authorized Signature



Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Wednesday, July 05, 2017

Page 3 of 3

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Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.25	ug/L	5	85.0	45-139	5/17/2017	5/22/2017
Phenol	3.87	ug/L	5	77.4	45-134	5/17/2017	5/22/2017
Pentachlorophenol	7.25	ug/L	5	145.0	22-155	5/17/2017	5/22/2017
n-Nitroso-di-n-propylamine	4.05	ug/L	5	81.0	46-135	5/17/2017	5/22/2017
bis(2-Ethylhexyl)phthalate	4.91	ug/L	5	98.2	43-168	5/17/2017	5/22/2017
Acenaphthene	4.50	ug/L	5	90.0	36-131	5/17/2017	5/22/2017
4-Nitrophenol	4.66	ug/L	5	93.2	19-141	5/17/2017	5/22/2017
4-Chloro-3-methylphenol	4.95	ug/L	5	99.0	42-139	5/17/2017	5/22/2017
2-Chlorophenol	3.93	ug/L	5	78.6	50-131	5/17/2017	5/22/2017
2,4-Dinitrotoluene	4.74	ug/L	5	94.8	49-145	5/17/2017	5/22/2017

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.13	ug/L	5	82.6	2.9	0-36	5/17/2017	5/22/2017
Phenol	3.66	ug/L	5	73.2	5.6	0-35	5/17/2017	5/22/2017
Pentachlorophenol	7.91	ug/L	5	158.2	8.7	0-47	5/17/2017	5/22/2017
n-Nitroso-di-n-propylamine	3.76	ug/L	5	75.2	7.4	0-38	5/17/2017	5/22/2017
bis(2-Ethylhexyl)phthalate	4.85	ug/L	5	97.0	1.2	0-50	5/17/2017	5/22/2017
Acenaphthene	4.34	ug/L	5	86.8	3.6	0-23	5/17/2017	5/22/2017
4-Nitrophenol	5.08	ug/L	5	101.6	8.6	0-50	5/17/2017	5/22/2017
4-Chloro-3-methylphenol	5.12	ug/L	5	102.4	3.4	0-33	5/17/2017	5/22/2017
2-Chlorophenol	3.75	ug/L	5	75.0	4.7	0-50	5/17/2017	5/22/2017
2,4-Dinitrotoluene	4.79	ug/L	5	95.8	1.0	0-47	5/17/2017	5/22/2017

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1-Methylnaphthalene	ND	ug/L	0.5	5/17/2017	5/22/2017
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2,4,5-Trichlorophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2,4,6-Trichlorophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2,4-Dichlorophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2,4-Dimethylphenol	ND	ug/L	0.5	5/17/2017	5/22/2017

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB

Batch #: 170517053

Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109

Project Name: 1705791

Attn: ANDY FREEMAN

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
2,4-Dinitrophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2,4-Dinitrotoluene	ND	ug/L	0.5	5/17/2017	5/22/2017
2,6-Dinitrotoluene	ND	ug/L	0.5	5/17/2017	5/22/2017
2-Chloronaphthalene	ND	ug/L	0.5	5/17/2017	5/22/2017
2-Chlorophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2-Methylnaphthalene	ND	ug/L	0.5	5/17/2017	5/22/2017
2-Methylphenol	ND	ug/L	0.5	5/17/2017	5/22/2017
2-Nitroaniline	ND	ug/L	0.5	5/17/2017	5/22/2017
2-Nitrophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
3,3'-Dichlorobenzidine	ND	ug/L	0.5	5/17/2017	5/22/2017
3-Nitroaniline	ND	ug/L	0.5	5/17/2017	5/22/2017
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	5/17/2017	5/22/2017
4-Bromophenyl-phenylether	ND	ug/L	0.5	5/17/2017	5/22/2017
4-Chloro-3-methylphenol	ND	ug/L	0.5	5/17/2017	5/22/2017
4-Chloroaniline	ND	ug/L	0.5	5/17/2017	5/22/2017
4-Chlorophenyl-phenylether	ND	ug/L	0.5	5/17/2017	5/22/2017
4-Nitroaniline	ND	ug/L	0.5	5/17/2017	5/22/2017
4-Nitrophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
Acenaphthene	ND	ug/L	0.5	5/17/2017	5/22/2017
Acenaphthylene	ND	ug/L	0.5	5/17/2017	5/22/2017
Anthracene	ND	ug/L	0.5	5/17/2017	5/22/2017
Benzo(ghi)perylene	ND	ug/L	0.5	5/17/2017	5/22/2017
Benzo[a]anthracene	ND	ug/L	0.5	5/17/2017	5/22/2017
Benzo[a]pyrene	ND	ug/L	0.5	5/17/2017	5/22/2017
Benzo[b]fluoranthene	ND	ug/L	0.5	5/17/2017	5/22/2017
Benzo[k]fluoranthene	ND	ug/L	0.5	5/17/2017	5/22/2017
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	5/17/2017	5/22/2017
bis(2-Chloroethyl)ether	ND	ug/L	0.5	5/17/2017	5/22/2017
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	5/17/2017	5/22/2017
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	5/17/2017	5/22/2017
Butylbenzylphthalate	ND	ug/L	0.5	5/17/2017	5/22/2017
Carbazole	ND	ug/L	0.5	5/17/2017	5/22/2017
Chrysene	ND	ug/L	0.5	5/17/2017	5/22/2017
Dibenz[a,h]anthracene	ND	ug/L	0.5	5/17/2017	5/22/2017
Dibenzofuran	ND	ug/L	0.5	5/17/2017	5/22/2017
Diethylphthalate	ND	ug/L	0.5	5/17/2017	5/22/2017
Dimethylphthalate	ND	ug/L	0.5	5/17/2017	5/22/2017

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB

Batch #: 170517053

Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109

Project Name: 1705791

Attn: ANDY FREEMAN

Analytical Results Report Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Di-n-butylphthalate	ND	ug/L	0.5	5/17/2017	5/22/2017
Di-n-octylphthalate	ND	ug/L	0.5	5/17/2017	5/22/2017
Fluoranthene	ND	ug/L	0.5	5/17/2017	5/22/2017
Fluorene	ND	ug/L	0.5	5/17/2017	5/22/2017
Hexachlorobenzene	ND	ug/L	0.5	5/17/2017	5/22/2017
Hexachlorobutadiene	ND	ug/L	0.5	5/17/2017	5/22/2017
Hexachlorocyclopentadiene	ND	ug/L	0.5	5/17/2017	5/22/2017
Hexachloroethane	ND	ug/L	0.5	5/17/2017	5/22/2017
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	5/17/2017	5/22/2017
Isophorone	ND	ug/L	0.5	5/17/2017	5/22/2017
Naphthalene	ND	ug/L	0.5	5/17/2017	5/22/2017
Nitrobenzene	ND	ug/L	0.5	5/17/2017	5/22/2017
n-Nitroso-di-n-propylamine	ND	ug/L	0.5	5/17/2017	5/22/2017
n-Nitrosodiphenylamine	ND	ug/L	0.5	5/17/2017	5/22/2017
Pentachlorophenol	ND	ug/L	0.5	5/17/2017	5/22/2017
Phenanthrene	ND	ug/L	0.5	5/17/2017	5/22/2017
Phenol	ND	ug/L	0.5	5/17/2017	5/22/2017
Pyrene	ND	ug/L	0.5	5/17/2017	5/22/2017
Pyridine	ND	ug/L	0.5	5/17/2017	5/22/2017

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report

Sample Number 170517053-003 **Sampling Date** 5/12/2017 **Date/Time Received** 5/17/2017 11:20 AM
Client Sample ID 1705791-001F / WDW-1,2,&3 EFFLUENT **Sampling Time** 3:09 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	0.0291	mg/L	0.01	5/22/2017	JEK	SW846 CH7	
Flashpoint	>200	°F		5/30/2017	GPB	EPA 1010	
pH	7.49	ph Units		5/18/2017	KMC	EPA 150.1	
Reactive sulfide	ND	mg/L	0.36	5/25/2017	KMC	SW846 CH7	

Authorized Signature



Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
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Attn: ANDY FREEMAN

Batch #: 170517053
Project Name: 1705791

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Sulfide	0.180	mg/L	0.2	90.0	70-130	5/25/2017	5/25/2017
Cyanide (reactive)	0.528	mg/L	0.5	105.6	80-120	5/19/2017	5/22/2017

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
170519012-001	Sulfide	0.483	1.93	mg/L	1.61	89.9	70-130	5/25/2017	5/25/2017
170512012-001	Cyanide (reactive)	ND	0.549	mg/L	0.5	109.8	80-120	5/19/2017	5/22/2017

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (reactive)	0.498	mg/L	0.5	99.6	9.7	0-25	5/19/2017	5/22/2017

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide (reactive)	ND	mg/L	1	5/19/2017	5/22/2017
Sulfide	ND	mg/L	0.1	5/25/2017	5/25/2017

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A42849		RunNo: 42849							
Prep Date:	Analysis Date: 5/16/2017		SeqNo: 1348068		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A42849		RunNo: 42849							
Prep Date:	Analysis Date: 5/16/2017		SeqNo: 1348069		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	91.9	90	110			
Phosphorus, Orthophosphate (As P	4.6	0.50	5.000	0	91.2	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R43017		RunNo: 43017							
Prep Date:	Analysis Date: 5/23/2017		SeqNo: 1353804		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R43017		RunNo: 43017							
Prep Date:	Analysis Date: 5/23/2017		SeqNo: 1353805		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.8	90	110			

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A43119		RunNo: 43119							
Prep Date:	Analysis Date: 5/26/2017		SeqNo: 1357100		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	ND	0.10								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	LCS	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	A43119	RunNo:	43119					
Prep Date:		Analysis Date:	5/26/2017	SeqNo:	1357101	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.3	0.10	2.500	0	93.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	MB-32032	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	32032	RunNo:	43161					
Prep Date:	5/31/2017	Analysis Date:	5/31/2017	SeqNo:	1358624	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-32032	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	32032	RunNo:	43161					
Prep Date:	5/31/2017	Analysis Date:	5/31/2017	SeqNo:	1358625	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	MB-32014		SampType:	MBLK		TestCode:	MERCURY, TCLP			
Client ID:	PBW		Batch ID:	32014		RunNo:	43138			
Prep Date:	5/30/2017		Analysis Date:	5/30/2017		SeqNo:	1357534	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	LCS-32014		SampType:	LCS		TestCode:	MERCURY, TCLP			
Client ID:	LCSW		Batch ID:	32014		RunNo:	43138			
Prep Date:	5/30/2017		Analysis Date:	5/30/2017		SeqNo:	1357535	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	98.5	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID MB-31998	SampType: MBLK		TestCode: EPA Method 6010B: TCLP Metals							
Client ID: PBW	Batch ID: 31998		RunNo: 43133							
Prep Date: 5/26/2017	Analysis Date: 5/30/2017		SeqNo: 1357386	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID LCS-31998	SampType: LCS		TestCode: EPA Method 6010B: TCLP Metals							
Client ID: LCSW	Batch ID: 31998		RunNo: 43133							
Prep Date: 5/26/2017	Analysis Date: 5/30/2017		SeqNo: 1357387	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	105	80	120			
Cadmium	ND	1.0	0.5000	0	106	80	120			
Chromium	ND	5.0	0.5000	0	104	80	120			
Lead	ND	5.0	0.5000	0	99.9	80	120			
Selenium	ND	1.0	0.5000	0	93.5	80	120			
Silver	ND	5.0	0.1000	0	102	80	120			

Sample ID 1705791-001CMS	SampType: MS		TestCode: EPA Method 6010B: TCLP Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: 31998		RunNo: 43133							
Prep Date: 5/26/2017	Analysis Date: 5/30/2017		SeqNo: 1357389	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.03173	102	75	125			
Cadmium	ND	1.0	0.5000	0	107	75	125			
Chromium	ND	5.0	0.5000	0	102	75	125			
Lead	ND	5.0	0.5000	0.005750	96.4	75	125			
Selenium	ND	1.0	0.5000	0	97.0	75	125			
Silver	ND	5.0	0.1000	0	104	75	125			

Sample ID 1705791-001CMSD	SampType: MSD		TestCode: EPA Method 6010B: TCLP Metals							
Client ID: WDW-1,2,&3 Effluen	Batch ID: 31998		RunNo: 43133							
Prep Date: 5/26/2017	Analysis Date: 5/30/2017		SeqNo: 1357390	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0.03173	104	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	107	75	125	0	20	
Chromium	ND	5.0	0.5000	0	102	75	125	0	20	
Lead	ND	5.0	0.5000	0.005750	96.8	75	125	0	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	1705791-001CMSD	SampType:	MSD	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31998	RunNo:	43133					
Prep Date:	5/26/2017	Analysis Date:	5/30/2017	SeqNo:	1357390	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	96.3	75	125	0	20	
Silver	ND	5.0	0.1000	0	105	75	125	0	20	

Sample ID	MB-31998	SampType: MBLK			TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID: 31998			RunNo: 43149					
Prep Date:	5/26/2017	Analysis Date: 5/31/2017			SeqNo: 1358133		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID	LCS-31998	SampType: LCS			TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	LCSW	Batch ID: 31998			RunNo: 43149					
Prep Date:	5/26/2017	Analysis Date: 5/31/2017			SeqNo: 1358134		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	102	80	120			

Sample ID	1705791-001CMS	SampType:	MS	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31998	RunNo:	43149					
Prep Date:	5/26/2017	Analysis Date:	5/31/2017	SeqNo:	1358136	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	113	75	125			

Sample ID	1705791-001CMSD	SampType:	MSD	TestCode:	EPA Method 6010B: TCLP Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31998	RunNo:	43149					
Prep Date:	5/26/2017	Analysis Date:	5/31/2017	SeqNo:	1358137	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	113	75	125	0	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	MB-31978		SampType:	MBLK		TestCode:	EPA 6010B: Metals			
Client ID:	PBW		Batch ID:	31978		RunNo:	43100			
Prep Date:	5/25/2017		Analysis Date:	5/26/2017		SeqNo:	1356797	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-31978		SampType:	LCS		TestCode:	EPA 6010B: Metals			
Client ID:	LCSW		Batch ID:	31978		RunNo:	43100			
Prep Date:	5/25/2017		Analysis Date:	5/26/2017		SeqNo:	1356798	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.50	0.020	0.5000	0	101	80	120			
Barium	0.53	0.020	0.5000	0	105	80	120			
Cadmium	0.53	0.0020	0.5000	0	106	80	120			
Chromium	0.52	0.0060	0.5000	0	104	80	120			
Lead	0.50	0.0050	0.5000	0	101	80	120			
Selenium	0.50	0.050	0.5000	0	100	80	120			
Silver	0.10	0.0050	0.1000	0	103	80	120			

Sample ID	1705791-001BMS		SampType:	MS		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	31978		RunNo:	43100			
Prep Date:	5/25/2017		Analysis Date:	5/26/2017		SeqNo:	1356800	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.56	0.020	0.5000	0.01997	109	75	125			
Barium	0.55	0.020	0.5000	0.01857	105	75	125			
Cadmium	0.55	0.0020	0.5000	0	109	75	125			
Chromium	0.52	0.0060	0.5000	0	104	75	125			
Lead	0.50	0.0050	0.5000	0	100	75	125			
Selenium	0.51	0.050	0.5000	0	101	75	125			
Silver	0.11	0.0050	0.1000	0	106	75	125			

Sample ID	1705791-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	31978		RunNo:	43100			
Prep Date:	5/25/2017		Analysis Date:	5/26/2017		SeqNo:	1356801	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.56	0.020	0.5000	0.01997	108	75	125	0.856	20	
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Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	1705791-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	31978		RunNo:	43100			
Prep Date:	5/25/2017		Analysis Date:	5/26/2017		SeqNo:	1356801		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.54	0.020	0.5000	0.01857	105	75	125	0.514	20	
Cadmium	0.54	0.0020	0.5000	0	108	75	125	1.02	20	
Chromium	0.52	0.0060	0.5000	0	103	75	125	1.33	20	
Lead	0.50	0.0050	0.5000	0	99.6	75	125	0.519	20	
Selenium	0.53	0.050	0.5000	0	106	75	125	4.26	20	
Silver	0.11	0.0050	0.1000	0	106	75	125	0.565	20	

Sample ID	MB-31978		SampType:	MBLK		TestCode:	EPA 6010B: Metals			
Client ID:	PBW		Batch ID:	31978		RunNo:	43133			
Prep Date:	5/25/2017		Analysis Date:	5/30/2017		SeqNo:	1357403		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Beryllium	ND	0.0030								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-31978		SampType:	LCS		TestCode:	EPA 6010B: Metals			
Client ID:	LCSW		Batch ID:	31978		RunNo:	43133			
Prep Date:	5/25/2017		Analysis Date:	5/30/2017		SeqNo:	1357404		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.58	0.020	0.5000	0	117	80	120			
Antimony	0.51	0.050	0.5000	0	101	80	120			
Beryllium	0.52	0.0030	0.5000	0	105	80	120			
Calcium	52	1.0	50.00	0	103	80	120			
Cobalt	0.51	0.0060	0.5000	0	102	80	120			
Copper	0.53	0.0060	0.5000	0	107	80	120			
Iron	0.52	0.050	0.5000	0	104	80	120			
Magnesium	51	1.0	50.00	0	103	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	LCS-31978		SampType: LCS		TestCode: EPA 6010B: Metals					
Client ID:	LCSW		Batch ID: 31978		RunNo: 43133					
Prep Date:	5/25/2017		Analysis Date: 5/30/2017		SeqNo: 1357404		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.52	0.0020	0.5000	0	104	80	120			
Nickel	0.51	0.010	0.5000	0	102	80	120			
Potassium	50	1.0	50.00	0	101	80	120			
Thallium	0.54	0.050	0.5000	0	108	80	120			
Vanadium	0.52	0.050	0.5000	0	105	80	120			
Zinc	0.51	0.020	0.5000	0	102	80	120			

Sample ID	1705791-001BMS		SampType: MS		TestCode: EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen		Batch ID: 31978		RunNo: 43133					
Prep Date:	5/25/2017		Analysis Date: 5/30/2017		SeqNo: 1357406		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	75	125			
Beryllium	0.52	0.0030	0.5000	0	103	75	125			
Cobalt	0.50	0.0060	0.5000	0.002170	99.7	75	125			
Copper	0.56	0.0060	0.5000	0	113	75	125			
Iron	1.8	0.050	0.5000	1.316	96.4	75	125			
Manganese	0.65	0.0020	0.5000	0.1387	102	75	125			
Nickel	0.50	0.010	0.5000	0.004210	98.4	75	125			
Potassium	87	1.0	50.00	38.51	97.8	75	125			
Thallium	0.54	0.050	0.5000	0.03563	101	75	125			
Vanadium	0.53	0.050	0.5000	0.01117	104	75	125			
Zinc	0.53	0.020	0.5000	0.04639	97.2	75	125			

Sample ID	1705791-001BMSD		SampType: MSD		TestCode: EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen		Batch ID: 31978		RunNo: 43133					
Prep Date:	5/25/2017		Analysis Date: 5/30/2017		SeqNo: 1357407		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.50	0.050	0.5000	0	100	75	125	0.174	20	
Beryllium	0.51	0.0030	0.5000	0	103	75	125	0.471	20	
Cobalt	0.50	0.0060	0.5000	0.002170	100	75	125	0.554	20	
Copper	0.56	0.0060	0.5000	0	112	75	125	0.550	20	
Iron	1.8	0.050	0.5000	1.316	95.8	75	125	0.150	20	
Manganese	0.65	0.0020	0.5000	0.1387	102	75	125	0.116	20	
Nickel	0.50	0.010	0.5000	0.004210	99.5	75	125	1.16	20	
Potassium	88	1.0	50.00	38.51	98.5	75	125	0.355	20	
Thallium	0.52	0.050	0.5000	0.03563	97.7	75	125	2.85	20	
Vanadium	0.53	0.050	0.5000	0.01117	103	75	125	0.319	20	
Zinc	0.54	0.020	0.5000	0.04639	98.7	75	125	1.38	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	1705791-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31978	RunNo:	43149					
Prep Date:	5/25/2017	Analysis Date:	5/31/2017	SeqNo:	1358323	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.8	0.020	0.5000	1.036	150	75	125			S

Sample ID	1705791-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31978	RunNo:	43149					
Prep Date:	5/25/2017	Analysis Date:	5/31/2017	SeqNo:	1358324	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.8	0.020	0.5000	1.036	145	75	125	1.44	20	S

Sample ID	1705791-001BPS	SampType:	PS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31978	RunNo:	43149					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1358325	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	1.6	0.020	0.5000	1.036	121	80	120			S

Sample ID	1705791-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31978	RunNo:	43149					
Prep Date:	5/25/2017	Analysis Date:	5/31/2017	SeqNo:	1358327	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	110	5.0	50.00	54.76	105	75	125			

Sample ID	1705791-001BMSD	SampType:	MSD	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	31978	RunNo:	43149					
Prep Date:	5/25/2017	Analysis Date:	5/31/2017	SeqNo:	1358328	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	110	5.0	50.00	54.76	112	75	125	3.14	20	

Sample ID	MB-31978	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	31978	RunNo:	43311					
Prep Date:	5/25/2017	Analysis Date:	6/7/2017	SeqNo:	1363473	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	LCS-31978		SampType: LCS		TestCode: EPA 6010B: Metals					
Client ID:	LCSW		Batch ID: 31978		RunNo: 43311					
Prep Date:	5/25/2017		Analysis Date: 6/7/2017		SeqNo: 1363474		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	50	1.0	50.00	0	99.8	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID mb-1	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R42905			RunNo: 42905						
Prep Date:	Analysis Date: 5/18/2017			SeqNo: 1350182		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID lcs-1	SampType: lcs			TestCode: SM2320B: Alkalinity						
Client ID: LCSW	Batch ID: R42905			RunNo: 42905						
Prep Date:	Analysis Date: 5/18/2017			SeqNo: 1350183		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.32	20.00	80.00	0	97.9	90	110			

Sample ID lcsd-1	SampType: lcsd			TestCode: SM2320B: Alkalinity						
Client ID: LCSS02	Batch ID: R42905			RunNo: 42905						
Prep Date:	Analysis Date: 5/18/2017			SeqNo: 1350184		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.08	20.00	80.00	0	97.6	90	110	0.307	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705791

05-Jul-17

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

Sample ID	MB-31769		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 31769		RunNo: 42866					
Prep Date:	5/16/2017		Analysis Date: 5/17/2017		SeqNo: 1348678		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-31769		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 31769		RunNo: 42866					
Prep Date:	5/16/2017		Analysis Date: 5/17/2017		SeqNo: 1348679		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

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



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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1705791

RcptNo: 1

Received By: Erin Melendrez 5/16/2017 9:35:00 AM

Completed By: Ashley Gallegos 5/16/2017 10:23:38 AM

Reviewed By:

aj

5/16/17

UAG

AG

Chain of Custody

1. Custody seals intact on sample bottles? Yes No Not Present ✓
2. Is Chain of Custody complete? Yes ✓ No Not Present
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples? Yes ✓ No NA
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ✓ No NA
6. Sample(s) in proper container(s)? Yes ✓ No
7. Sufficient sample volume for indicated test(s)? Yes ✓ No
8. Are samples (except VOA and ONG) properly preserved? Yes ✓ No
9. Was preservative added to bottles? Yes No ✓ NA
10. VOA vials have zero headspace? Yes ✓ No No VOA Vials
11. Were any sample containers received broken? Yes No ✓
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ✓ No
13. Are matrices correctly identified on Chain of Custody? Yes ✓ No
14. Is it clear what analyses were requested? Yes ✓ No
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ✓ No
of preserved bottles checked for pH: 2, 1
(≤ 2 or >12 unless noted)
Adjusted? No
Checked by: RE

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes No NA ✓

Person Notified:

Date

By Whom:

Via:

eMail

Phone

Fax

In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.3	Good	Yes			



Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment



Project Name	WDWA-1, 2, & 3 Qrtly Inj Well
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	5/12/17 @ 3:03 pm
End Date and Time	5/12/17 @ 3:18 pm

Sample Type	
Grab	☒
Time Weighted Composite	☐
Flow Weighted Composite	☐
Parts / Sample Intervals	
One	

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐
Type of Sampler	
Directly to sample jars	

Outfall / Sample Location: Waste water effluent pumps to injection wells.

☒ P-849 sample point (first from east) ☐ P-855 sample point (third from east)
☐ P-854 sample point (second from east) ☒ P-857 sample point (fourth from east)

Container	Size	Material	# of Containers	Preservatives							Other	Analysis and/or Method Requested
				Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4		
1			3	X			X					Specific Gravity, HCO ₃ , CO ₃ , Cl, SO ₄ , TDS, pH, cond., FI, Cation/anion bal., Br, Eh/40 CFR 136.3
2			1			X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')
3			3		X							SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')
4			2	X								R.C.140 CFR part 261
5			2	X								Metals/SW-846 Mhnd 6010, 7470 (see attached list 'Metals')
6			2	X								Ca, K, Mg, Na/40 CFR 136.3
7			1	X								TCLP Metals, only /40 CFR Part 261/ SW-846 Method 1311
8												
9												
10												

Field Data (Weather, Observations, Etc): 5/12/17 Temp: 77.0° F, Humidity 25%, Wind Direction Variable, Wind Speed 5.8 mph, Conditions Clear
Date and Time:

Field Temp: 39.2°C Field pH: 7.37

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐



Navajo Refining Company, LLC
501 E. Main
Anesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Quarterly RO Reject Sample Details Attachment



Project Name	Quarterly RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	5/12/17 @ 3:28 pm
End Date and Time	5/12/17 @ 3:54 pm

Sample Type	Grab ☒
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

Parts / Sample Intervals	One
--------------------------	-----

Type of Sampler	Directly to sample jars
-----------------	-------------------------

Outfall / Sample Location: ☐ North Field R.O. Reject Discharge ☒ South Field R.O. Reject Discharge

Container	Size	Material	# of Containers	Neat (None)	Preservatives					Other	Analysis and/or Method Requested
					HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	
1	500ml	Plastic	2	X			X				pH, Cl, F, SO4, NO2/NO3, TDS
2	40ml	VOA	3		X						8015 GRO
3	500ml	Plastic	1			X					6020 total metals, 7470 Hg
4	125ml	Plastic	1			X					6020 Dissolved Metals
5	500ml	Plastic	2					X			Cyanide
6	1L	Plastic	3			X					Radium 226/228
7	40ml	VOA	2		X						8260 see attached list
8	1L	Glass	1	X							8270 see attached list
9	1L	Glass	2	X							8082 PCDs
10	40ml	VOA	2	X							8015 DRO
11	40ml	VOA	2		X						Radium 226/228

Field Data (Weather, Observations, Etc): 5/12/2017 Temp 78.8 °F, Humidity 26%, Wind Dir. SE, Wind Speed 9.2 mph, Conditions Clear

Date and Time: Field Temp: 25.0°C Field pH: 7.68

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐



February 20, 2017

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7014 3490 0000 6269 6458

RE: 2016 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2016 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

Over the fourth quarter, the average injection pressure for all three wells was 1241 psig and the average flows were 117gpm for WDW-1, 94gpm for WDW-2 and 126gpm for WDW-3. There were no significant losses from the glycol expansion tanks Well Annulus Monitoring System (WAMS). The quarterly effluent analyses indicated parameters are within permit limits.

This report covers the period from October 1, 2016 to December 31, 2016. We have disposed a total of 1,050,057 barrels of fluid into the three wells during the fourth quarter of 2016. The volume per well is:

- 364,259 barrels into WDW-1
- 292,360 barrels into WDW-2
- 393,438 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please contact Scott Denton at 575-748-5487.

Respectfully,

Scott Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Enc.

Electronic cc (w/enc.):
Environmental File:
1,2,3

R Orosco, R Combs, S Denton, L Dade
Injection Wells/Reports C-115 & Quarterly/2016/4th quarter/2017-02-20 4th QTR Inj. Rpt. for Wells WDW-1,2,3

HollyFrontier Navajo Refining LLC
501 East Main • Artesia, NM 88210
(575) 748-3311 • <http://www.hollyfrontier.com>

2016 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure Av (psig)	Maximum Annular Pressure Mx (psig)	Minimum Annular Pressure Mn (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
30-015-27592 WDW-1														
Previous Quarter														38,780,147
Oct-16	1,211	1,400	1,312	111	125	98	232	421	116	3,805	4,286	3,360	117,527	38,897,674
Nov-16	1,222	1,326	1,175	112	130	102	232	360	127	3,840	4,457	3,497	115,049	39,012,723
Dec-16	1,320	1,400	1,173	128	145	82	343	682	159	4,389	4,971	2,811	131,683	39,144,406
30-015-20894 WDW-2														
Previous Quarter														25,516,942
Oct-16	1,209	1,400	1,132	83	94	60	290	407	217	2,846	3,223	2,057	87,824	25,604,766
Nov-16	1,201	1,325	1,122	80	107	55	327	502	211	2,743	3,669	1,886	82,295	25,687,061
Dec-16	1,308	1,400	1,182	119	330	70	322	461	146	4,080	11,314	2,400	122,241	25,809,302
30-015-26575 WDW-3														
Previous Quarter														16,192,617
Oct-16	1,210	1,312	1,132	124	151	94	721	772	664	4,251	5,177	3,223	131,815	16,324,432
Nov-16	1,177	1,245	1,084	111	129	73	718	823	627	3,806	4,423	2,503	114,007	16,438,439
Dec-16	1,310	1,383	1,184	143	161	90	747	814	667	4,903	5,486	3,086	147,616	16,586,055
Total Injected fluids:														81,539,763

	Monthly Avg.	Monthly Avg.	Total BBLS	Beginning Volume	Ending Volume
WDW-1	1,251	117	WDW1	364,259	38,780,147
WDW-2	1,239	94	WDW2	292,360	25,516,942
WDW-3	1,232	126	WDW3	393,438	16,192,617
				1,050,057	81,539,763
AVG.	1241	112			



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

November 16, 2016

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

RE: Quarterly WDW-1, 2, &3 Inj Well

OrderNo.: 1610612

Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/13/2016 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 1610612
Date: 11/16/2016

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

Analytical Comments for WDW-1,2, & 3 Effluent:

The above referenced water sample was analyzed by EPA 8260C and the corresponding analytical report is attached in the following pages. The analyst also performed an NIST library review of the sample and the tentatively identified compounds (TIC's) are listed with estimated concentrations; 3-chloro-2-methyl-1-propene (~1 ppb), dibromofluoromethane (~9 ppb) and dimethyl disulfide (~1 ppb). The above referenced water sample was also analyzed by EPA 8270D and the corresponding analytical report is attached in the following pages.

Analytical ReportLab Order **1610612****Hall Environmental Analysis Laboratory, Inc.**Date Reported: **11/16/2016****CLIENT:** Navajo Refining Company**Client Sample ID:** WDW-1,2,&3 Effluent**Project:** Quarterly WDW-1, 2, &3 Inj Well**Collection Date:** 10/11/2016 9:00:00 AM**Lab ID:** 1610612-001**Matrix:** AQUEOUS**Received Date:** 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
IGNITABILITY METHOD 1010							Analyst: SUB
Ignitability	>200	0		°F	1	10/18/2016	R38745
SULFIDE, REACTIVE							Analyst: SUB
Reactive Sulfide	ND	0.40		mg/L	1	10/18/2016	R38745
SPECIFIC GRAVITY							Analyst: LGT
Specific Gravity	0.9997	0			1	10/27/2016 10:52:00 AM	R38258
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	35	2.0	*	mg/L	20	10/14/2016 12:19:11 AM	R37942
Chloride	360	25		mg/L	50	10/25/2016 9:50:38 PM	R38187
Bromide	0.72	0.10		mg/L	1	10/14/2016 12:06:47 AM	R37942
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	10/14/2016 12:19:11 AM	R37942
Sulfate	1500	25		mg/L	50	10/25/2016 9:50:38 PM	R38187
Nitrate+Nitrite as N	ND	1.0		mg/L	5	10/14/2016 1:21:13 AM	R37942
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JRR
Conductivity	4900	1.0		µmhos/cm	1	10/18/2016 4:54:00 PM	R38048
SM2320B: ALKALINITY							Analyst: JRR
Bicarbonate (As CaCO ₃)	288.8	20.00		mg/L CaCO ₃	1	10/18/2016 4:54:00 PM	R38048
Carbonate (As CaCO ₃)	ND	2.000		mg/L CaCO ₃	1	10/18/2016 4:54:00 PM	R38048
Total Alkalinity (as CaCO ₃)	288.8	20.00		mg/L CaCO ₃	1	10/18/2016 4:54:00 PM	R38048
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3210	20.0	*	mg/L	1	10/18/2016 6:58:00 PM	28098
CORROSIVITY							Analyst: SUB
pH	8.23			pH Units	1	10/17/2016	R38745
CYANIDE, REACTIVE							Analyst: SUB
Cyanide, Reactive	0.0250	0.0100		mg/L	1	10/25/2016	R38745
SM4500-H+B: PH							Analyst: JRR
pH	8.10	1.68	H	pH units	1	10/18/2016 4:54:00 PM	R38048
EPA METHOD 7470: MERCURY							Analyst: DBD
Mercury	ND	0.00020		mg/L	1	10/18/2016 5:17:17 PM	28113
MERCURY, TCLP							Analyst: DBD
Mercury	ND	0.020		mg/L	1	10/19/2016 5:06:28 PM	28165
EPA METHOD 6010B: TCLP METALS							Analyst: MED
Arsenic	ND	5.0		mg/L	1	10/24/2016 8:45:55 AM	28191
Barium	ND	100		mg/L	1	10/24/2016 8:45:55 AM	28191

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 10/11/2016 9:00:00 AM

Lab ID: 1610612-001

Matrix: AQUEOUS

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6010B: TCLP METALS							Analyst: MED
Cadmium	ND	1.0		mg/L	1	10/24/2016 8:45:55 AM	28191
Chromium	ND	5.0		mg/L	1	10/24/2016 8:45:55 AM	28191
Lead	ND	5.0		mg/L	1	10/24/2016 8:45:55 AM	28191
Selenium	ND	1.0		mg/L	1	10/24/2016 8:45:55 AM	28191
Silver	ND	5.0		mg/L	1	10/24/2016 8:45:55 AM	28191
EPA 6010B: METALS							Analyst: MED
Aluminum	0.31	0.020		mg/L	1	10/31/2016 10:15:38 AM	28190
Antimony	ND	0.050		mg/L	1	10/31/2016 10:15:38 AM	28190
Arsenic	0.040	0.020		mg/L	1	10/31/2016 10:15:38 AM	28190
Barium	ND	0.020		mg/L	1	10/31/2016 10:15:38 AM	28190
Beryllium	ND	0.0030		mg/L	1	10/31/2016 10:15:38 AM	28190
Cadmium	ND	0.0020		mg/L	1	10/31/2016 10:15:38 AM	28190
Calcium	96	5.0		mg/L	5	11/7/2016 12:08:14 PM	28190
Chromium	ND	0.0060		mg/L	1	10/31/2016 10:15:38 AM	28190
Cobalt	ND	0.0060		mg/L	1	10/31/2016 10:15:38 AM	28190
Copper	0.017	0.0060		mg/L	1	10/31/2016 10:15:38 AM	28190
Iron	0.14	0.050		mg/L	1	10/31/2016 10:15:38 AM	28190
Lead	ND	0.0050		mg/L	1	10/31/2016 10:15:38 AM	28190
Magnesium	36	1.0		mg/L	1	11/7/2016 12:04:39 PM	28190
Manganese	0.052	0.0020		mg/L	1	10/31/2016 10:15:38 AM	28190
Nickel	ND	0.010		mg/L	1	10/31/2016 10:15:38 AM	28190
Potassium	120	5.0		mg/L	5	10/31/2016 10:22:16 AM	28190
Selenium	ND	0.050		mg/L	1	10/31/2016 10:15:38 AM	28190
Silver	ND	0.0050		mg/L	1	10/31/2016 10:15:38 AM	28190
Sodium	800	10		mg/L	10	11/7/2016 12:15:14 PM	28190
Thallium	ND	0.050		mg/L	1	10/31/2016 10:15:38 AM	28190
Vanadium	ND	0.050		mg/L	1	10/31/2016 10:15:38 AM	28190
Zinc	0.027	0.020		mg/L	1	10/31/2016 10:15:38 AM	28190
EPA METHOD 8260B: VOLATILES							Analyst: SUB
2-isopropyltoluene	ND	0.50		µg/L	1	10/20/2016	R38745
Acetonitrile	58	5.0		µg/L	1	10/20/2016	R38745
Allyl chloride	ND	0.50		µg/L	1	10/20/2016	R38745
Chloroprene	ND	0.50		µg/L	1	10/20/2016	R38745
Cyclohexane	ND	0.50		µg/L	1	10/20/2016	R38745
Diethyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
Epichlorohydrin	ND	100		µg/L	1	10/20/2016	R38745
Ethyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Ethyl methacrylate	ND	2.5		µg/L	1	10/20/2016	R38745

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 10/11/2016 9:00:00 AM

Lab ID: 1610612-001

Matrix: AQUEOUS

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Ethyl tert-butyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
Freon-113	ND	0.50		µg/L	1	10/20/2016	R38745
Isobutanol	ND	100		µg/L	1	10/20/2016	R38745
Isopropyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Methacrylonitrile	ND	2.5		µg/L	1	10/20/2016	R38745
Methyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Methyl ethyl ketone	ND	2.5		µg/L	1	10/20/2016	R38745
Methyl isobutyl ketone	ND	2.5		µg/L	1	10/20/2016	R38745
Methyl methacrylate	ND	2.5		µg/L	1	10/20/2016	R38745
Methylcyclohexane	ND	1.0		µg/L	1	10/20/2016	R38745
n-Amyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
n-Hexane	ND	0.50		µg/L	1	10/20/2016	R38745
Nitrobenzene	ND	5.0		µg/L	1	10/20/2016	R38745
Pentachloroethane	ND	5.0		µg/L	1	10/20/2016	R38745
p-isopropyltoluene	ND	0.50		µg/L	1	10/20/2016	R38745
Propionitrile	ND	2.5		µg/L	1	10/20/2016	R38745
Tetrahydrofuran	ND	0.50		µg/L	1	10/20/2016	R38745
Benzene	ND	0.50		µg/L	1	10/20/2016	R38745
Toluene	ND	0.50		µg/L	1	10/20/2016	R38745
Ethylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	10/20/2016	R38745
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	10/20/2016	R38745
Naphthalene	ND	0.50		µg/L	1	10/20/2016	R38745
Acetone	4.2	2.5		µg/L	1	10/20/2016	R38745
Bromobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Bromodichloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
Bromoform	ND	0.50		µg/L	1	10/20/2016	R38745
Bromomethane	ND	0.50		µg/L	1	10/20/2016	R38745
2-Butanone	ND	2.5		µg/L	1	10/20/2016	R38745
Carbon disulfide	0.96	0.50		µg/L	1	10/20/2016	R38745
Carbon Tetrachloride	ND	0.50		µg/L	1	10/20/2016	R38745
Chlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Chloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
Chloroform	ND	0.50		µg/L	1	10/20/2016	R38745
Chloromethane	1.1	0.50		µg/L	1	10/20/2016	R38745
2-Chlorotoluene	ND	0.50		µg/L	1	10/20/2016	R38745

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 10/11/2016 9:00:00 AM

Lab ID: 1610612-001

Matrix: AQUEOUS

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
4-Chlorotoluene	ND	0.50		µg/L	1	10/20/2016	R38745
cis-1,2-DCE	ND	0.50		µg/L	1	10/20/2016	R38745
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
Dibromochloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
Dibromomethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,3-Dichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,4-Dichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Dichlorodifluoromethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1-Dichloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1-Dichloroethene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
1,3-Dichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
2,2-Dichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1-Dichloropropene	ND	0.50		µg/L	1	10/20/2016	R38745
Hexachlorobutadiene	ND	0.50		µg/L	1	10/20/2016	R38745
2-Hexanone	ND	0.50		µg/L	1	10/20/2016	R38745
Isopropylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Methylene Chloride	ND	2.5		µg/L	1	10/20/2016	R38745
n-Butylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
n-Propylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
sec-Butylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Styrene	ND	0.50		µg/L	1	10/20/2016	R38745
tert-Butylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	10/20/2016	R38745
trans-1,2-DCE	ND	0.50		µg/L	1	10/20/2016	R38745
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,1-Trichloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,2-Trichloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
Trichloroethene (TCE)	ND	0.50		µg/L	1	10/20/2016	R38745
Trichlorofluoromethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,2,3-Trichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
Vinyl chloride	ND	0.50		µg/L	1	10/20/2016	R38745
mp-Xylenes	ND	1.0		µg/L	1	10/20/2016	R38745

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 10/11/2016 9:00:00 AM

Lab ID: 1610612-001

Matrix: AQUEOUS

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
o-Xylene	ND	0.50		µg/L	1	10/20/2016	R38745
tert-Amyl methyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
tert-Butyl alcohol	ND	0.50		µg/L	1	10/20/2016	R38745
Acrolein	ND	2.5		µg/L	1	10/20/2016	R38745
Acrylonitrile	ND	2.5		µg/L	1	10/20/2016	R38745
Bromochloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
Iodomethane	ND	0.50		µg/L	1	10/20/2016	R38745
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	10/20/2016	R38745
Vinyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Surr: 1,2-Dichlorobenzene-d4	105	0-0	S	%Rec	1	10/20/2016	R38745
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	10/20/2016	R38745
Surr: Toluene-d8	100	70-130		%Rec	1	10/20/2016	R38745
EPA 8270C: SEMIVOLATILES/MOD							Analyst: SUB
1,1-Biphenyl	ND	1.0		µg/L	1	10/29/2016	R38745
Atrazine	ND	1.0		µg/L	1	10/29/2016	R38745
Benzaldehyde	2.5	1.0		µg/L	1	10/29/2016	R38745
Caprolactam	ND	1.0		µg/L	1	10/29/2016	R38745
N-Nitroso-di-n-butylamine	ND	1.0		µg/L	1	10/29/2016	R38745
Acetophenone	ND	5.0		µg/L	1	10/29/2016	R38745
1-Methylnaphthalene	ND	5.0		µg/L	1	10/29/2016	R38745
2,3,4,6-Tetrachlorophenol	ND	5.0		µg/L	1	10/29/2016	R38745
2,4,5-Trichlorophenol	ND	5.0		µg/L	1	10/29/2016	R38745
2,4,6-Trichlorophenol	ND	5.0		µg/L	1	10/29/2016	R38745
2,4-Dichlorophenol	ND	5.0		µg/L	1	10/29/2016	R38745
2,4-Dimethylphenol	ND	5.0		µg/L	1	10/29/2016	R38745
2,4-Dinitrophenol	ND	5.0		µg/L	1	10/29/2016	R38745
2,4-Dinitrotoluene	ND	5.0		µg/L	1	10/29/2016	R38745
2,6-Dinitrotoluene	ND	5.0		µg/L	1	10/29/2016	R38745
2-Chloronaphthalene	ND	5.0		µg/L	1	10/29/2016	R38745
2-Chlorophenol	ND	5.0		µg/L	1	10/29/2016	R38745
2-Methylnaphthalene	ND	5.0		µg/L	1	10/29/2016	R38745
2-Methylphenol	ND	5.0		µg/L	1	10/29/2016	R38745
2-Nitroaniline	ND	5.0		µg/L	1	10/29/2016	R38745
2-Nitrophenol	ND	5.0		µg/L	1	10/29/2016	R38745
3,3'-Dichlorobenzidine	ND	5.0		µg/L	1	10/29/2016	R38745
3-Nitroaniline	ND	5.0		µg/L	1	10/29/2016	R38745
4,6-Dinitro-2-methylphenol	ND	5.0		µg/L	1	10/29/2016	R38745
4-Bromophenyl phenyl ether	ND	5.0		µg/L	1	10/29/2016	R38745

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1,2,&3 Effluent

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

Collection Date: 10/11/2016 9:00:00 AM

Lab ID: 1610612-001

Matrix: AQUEOUS

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: SUB
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	10/29/2016	R38745
4-Chloroaniline	ND	5.0		µg/L	1	10/29/2016	R38745
4-Chlorophenyl phenyl ether	ND	5.0		µg/L	1	10/29/2016	R38745
4-Nitroaniline	ND	5.0		µg/L	1	10/29/2016	R38745
4-Nitrophenol	ND	5.0		µg/L	1	10/29/2016	R38745
Acenaphthene	ND	5.0		µg/L	1	10/29/2016	R38745
Acenaphthylene	ND	5.0		µg/L	1	10/29/2016	R38745
Anthracene	ND	5.0		µg/L	1	10/29/2016	R38745
Benzo(g,h,i)perylene	ND	5.0		µg/L	1	10/29/2016	R38745
Benz(a)anthracene	ND	0.10		µg/L	1	10/29/2016	R38745
Benzo(a)pyrene	ND	0.10		µg/L	1	10/29/2016	R38745
Benzo(b)fluoranthene	ND	0.10		µg/L	1	10/29/2016	R38745
Benzo(k)fluoranthene	ND	0.10		µg/L	1	10/29/2016	R38745
Bis(2-chloroethoxy)methane	ND	5.0		µg/L	1	10/29/2016	R38745
Bis(2-chloroethyl)ether	ND	5.0		µg/L	1	10/29/2016	R38745
Bis(2-chloroisopropyl)ether	ND	5.0		µg/L	1	10/29/2016	R38745
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	10/29/2016	R38745
Butyl benzyl phthalate	ND	5.0		µg/L	1	10/29/2016	R38745
Carbazole	ND	5.0		µg/L	1	10/29/2016	R38745
Chrysene	ND	0.10		µg/L	1	10/29/2016	R38745
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	10/29/2016	R38745
Dibenzofuran	ND	5.0		µg/L	1	10/29/2016	R38745
Diethyl phthalate	ND	5.0		µg/L	1	10/29/2016	R38745
Dimethyl phthalate	ND	5.0		µg/L	1	10/29/2016	R38745
Di-n-butyl phthalate	ND	5.0		µg/L	1	10/29/2016	R38745
Di-n-octyl phthalate	ND	5.0		µg/L	1	10/29/2016	R38745
Fluoranthene	ND	5.0		µg/L	1	10/29/2016	R38745
Fluorene	ND	5.0		µg/L	1	10/29/2016	R38745
Hexachlorobenzene	ND	1.0		µg/L	1	10/29/2016	R38745
Hexachlorobutadiene	ND	5.0		µg/L	1	10/29/2016	R38745
Hexachlorocyclopentadiene	ND	5.0		µg/L	1	10/29/2016	R38745
Hexachloroethane	ND	5.0		µg/L	1	10/29/2016	R38745
Indeno(1,2,3-cd)pyrene	ND	0.10		µg/L	1	10/29/2016	R38745
Isophorone	ND	5.0		µg/L	1	10/29/2016	R38745
Naphthalene	ND	5.0		µg/L	1	10/29/2016	R38745
Nitrobenzene	ND	5.0		µg/L	1	10/29/2016	R38745
N-Nitrosodi-n-propylamine	ND	5.0		µg/L	1	10/29/2016	R38745
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	10/29/2016	R38745
Pentachlorophenol	ND	5.0		µg/L	1	10/29/2016	R38745

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** WDW-1,2,&3 Effluent**Project:** Quarterly WDW-1, 2, &3 Inj Well**Collection Date:** 10/11/2016 9:00:00 AM**Lab ID:** 1610612-001**Matrix:** AQUEOUS**Received Date:** 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: SUB
Phenanthrene	ND	5.0		µg/L	1	10/29/2016	R38745
Phenol	ND	5.0		µg/L	1	10/29/2016	R38745
Pyrene	ND	5.0		µg/L	1	10/29/2016	R38745
o-Toluidine	ND	2.0		µg/L	1	10/29/2016	R38745
Pyridine	ND	5.0		µg/L	1	10/29/2016	R38745
1,2,4,5-Tetrachlorobenzene	ND	5.0		µg/L	1	10/29/2016	R38745
Surr: 2,4,6-Tribromophenol	103	63-110		%Rec	1	10/29/2016	R38745
Surr: 2-Fluorobiphenyl	92.4	58-112		%Rec	1	10/29/2016	R38745
Surr: 2-Fluorophenol	87.2	47-109		%Rec	1	10/29/2016	R38745
Surr: Nitrobenzene-d5	83.6	58-110		%Rec	1	10/29/2016	R38745
Surr: Phenol-d5	85.4	52-105		%Rec	1	10/29/2016	R38745
Surr: Terphenyl-d14	46.0	22-133		%Rec	1	10/29/2016	R38745

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

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

Collection Date:

Lab ID: 1610612-002

Matrix: TRIP BLANK

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Acetonitrile	ND	5.0		µg/L	1	10/20/2016	R38745
Allyl chloride	ND	0.50		µg/L	1	10/20/2016	R38745
Chloroprene	ND	0.50		µg/L	1	10/20/2016	R38745
Cyclohexane	ND	0.50		µg/L	1	10/20/2016	R38745
Diethyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
Epichlorohydrin	ND	100		µg/L	1	10/20/2016	R38745
Ethyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Ethyl methacrylate	ND	2.5		µg/L	1	10/20/2016	R38745
Ethyl tert-butyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
Freon-113	ND	0.50		µg/L	1	10/20/2016	R38745
Isobutanol	ND	100		µg/L	1	10/20/2016	R38745
Isopropyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Methacrylonitrile	ND	2.5		µg/L	1	10/20/2016	R38745
Methyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Methyl ethyl ketone	ND	2.5		µg/L	1	10/20/2016	R38745
Methyl isobutyl ketone	ND	2.5		µg/L	1	10/20/2016	R38745
Methyl methacrylate	ND	2.5		µg/L	1	10/20/2016	R38745
Methylcyclohexane	ND	1.0		µg/L	1	10/20/2016	R38745
n-Amyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
n-Hexane	ND	0.50		µg/L	1	10/20/2016	R38745
Nitrobenzene	ND	5.0		µg/L	1	10/20/2016	R38745
Pentachloroethane	ND	5.0		µg/L	1	10/20/2016	R38745
p-isopropyltoluene	ND	0.50		µg/L	1	10/20/2016	R38745
Propionitrile	ND	2.5		µg/L	1	10/20/2016	R38745
Tetrahydrofuran	ND	0.50		µg/L	1	10/20/2016	R38745
Benzene	ND	0.50		µg/L	1	10/20/2016	R38745
Toluene	ND	0.50		µg/L	1	10/20/2016	R38745
Ethylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	10/20/2016	R38745
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	10/20/2016	R38745
Naphthalene	ND	0.50		µg/L	1	10/20/2016	R38745
Acetone	ND	2.5		µg/L	1	10/20/2016	R38745
Bromobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Bromodichloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
Bromoform	ND	0.50		µg/L	1	10/20/2016	R38745
Bromomethane	ND	0.50		µg/L	1	10/20/2016	R38745

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

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

Collection Date:

Lab ID: 1610612-002

Matrix: TRIP BLANK

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
2-Butanone	ND	2.5		µg/L	1	10/20/2016	R38745
Carbon disulfide	ND	0.50		µg/L	1	10/20/2016	R38745
Carbon Tetrachloride	ND	0.50		µg/L	1	10/20/2016	R38745
Chlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Chloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
Chloroform	ND	0.50		µg/L	1	10/20/2016	R38745
Chloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
2-Chlorotoluene	ND	0.50		µg/L	1	10/20/2016	R38745
4-Chlorotoluene	ND	0.50		µg/L	1	10/20/2016	R38745
cis-1,2-DCE	ND	0.50		µg/L	1	10/20/2016	R38745
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
Dibromochloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
Dibromomethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,3-Dichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,4-Dichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Dichlorodifluoromethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1-Dichloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1-Dichloroethene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2-Dichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
1,3-Dichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
2,2-Dichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1-Dichloropropene	ND	0.50		µg/L	1	10/20/2016	R38745
Hexachlorobutadiene	ND	0.50		µg/L	1	10/20/2016	R38745
2-Hexanone	ND	0.50		µg/L	1	10/20/2016	R38745
Isopropylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Methylene Chloride	ND	2.5		µg/L	1	10/20/2016	R38745
n-Butylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
n-Propylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
sec-Butylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
Styrene	ND	0.50		µg/L	1	10/20/2016	R38745
tert-Butylbenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	10/20/2016	R38745
trans-1,2-DCE	ND	0.50		µg/L	1	10/20/2016	R38745
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	10/20/2016	R38745
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1610612

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

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

Collection Date:

Lab ID: 1610612-002

Matrix: TRIP BLANK

Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,1-Trichloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,1,2-Trichloroethane	ND	0.50		µg/L	1	10/20/2016	R38745
Trichloroethene (TCE)	ND	0.50		µg/L	1	10/20/2016	R38745
Trichlorofluoromethane	ND	0.50		µg/L	1	10/20/2016	R38745
1,2,3-Trichloropropane	ND	0.50		µg/L	1	10/20/2016	R38745
Vinyl chloride	ND	0.50		µg/L	1	10/20/2016	R38745
mp-Xylenes	ND	1.0		µg/L	1	10/20/2016	R38745
o-Xylene	ND	0.50		µg/L	1	10/20/2016	R38745
tert-Amyl methyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
tert-Butyl alcohol	ND	0.50		µg/L	1	10/20/2016	R38745
Acrolein	ND	2.5		µg/L	1	10/20/2016	R38745
Acrylonitrile	ND	2.5		µg/L	1	10/20/2016	R38745
Bromochloromethane	ND	0.50		µg/L	1	10/20/2016	R38745
2-Chloroethyl vinyl ether	ND	0.50		µg/L	1	10/20/2016	R38745
Iodomethane	ND	0.50		µg/L	1	10/20/2016	R38745
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	10/20/2016	R38745
Vinyl acetate	ND	0.50		µg/L	1	10/20/2016	R38745
Surr: 1,2-Dichlorobenzene-d4	102	0-0	S	%Rec	1	10/20/2016	R38745
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	10/20/2016	R38745
Surr: Toluene-d8	98.0	70-130		%Rec	1	10/20/2016	R38745

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R37942	RunNo: 37942								
Prep Date:	Analysis Date: 10/13/2016	SeqNo: 1182401 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R37942	RunNo: 37942								
Prep Date:	Analysis Date: 10/13/2016	SeqNo: 1182402 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	107	90	110			
Bromide	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.3	90	110			

Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R38187	RunNo: 38187								
Prep Date:	Analysis Date: 10/25/2016	SeqNo: 1193019 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R38187	RunNo: 38187								
Prep Date:	Analysis Date: 10/25/2016	SeqNo: 1193020 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.9	0.50	10.00	0	99.1	90	110			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

Client: Navajo Refining Company

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

Sample ID		MB-R38745		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES				
Client ID:		PBW		Batch ID: R38745		RunNo: 38745				
Prep Date:		Analysis Date: 10/20/2016		SeqNo: 1210379		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	2.5								
Isobutanol	ND	10								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Propionitrile	ND	2.5								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
2-Butanone	ND	2.5								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-R38745		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	PBW		Batch ID:	R38745		RunNo:	38745			
Prep Date:			Analysis Date:	10/20/2016		SeqNo:	1210379	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID	LCS-R38745		SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW		Batch ID:	R38745		RunNo:	38745			
Prep Date:			Analysis Date:	10/20/2016		SeqNo:	1210380	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.7	0	10.00	0	96.7	80	120			
Toluene	9.7	0	10.00	0	97.2	80	120			
Ethylbenzene	9.8	0	10.00	0	98.0	80	120			
Chlorobenzene	9.8	0	10.00	0	97.8	80	120			
1,1-Dichloroethene	9.7	0	10.00	0	96.7	80	120			
Tetrachloroethene (PCE)	9.5	0	10.00	0	95.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.6	80	120			
o-Xylene	10	0	10.00	0	102	80	120			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID: MB-R38745	SampType: MBLK		TestCode: EPA 8270C: Semivolatiles/Mod							
Client ID: PBW	Batch ID: R38745		RunNo: 38745							
Prep Date:	Analysis Date: 10/29/2016		SeqNo: 1210383		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID: MB-R38745	SampType: MBLK	TestCode: EPA 8270C: Semivolatiles/Mod
Client ID: PBW	Batch ID: R38745	RunNo: 38745
Prep Date:	Analysis Date: 10/29/2016	SeqNo: 1210383 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	2.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID: LCS-R38745	SampType: LCS	TestCode: EPA 8270C: Semivolatiles/Mod
Client ID: LCSW	Batch ID: R38745	RunNo: 38745
Prep Date:	Analysis Date: 10/29/2016	SeqNo: 1210384 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.5	0	5.000	0	110	49	134			
2-Chlorophenol	4.6	0	5.000	0	91.4	50	131			
4-Chloro-3-methylphenol	5.1	0	5.000	0	102	42	139			
4-Nitrophenol	5.5	0	5.000	0	110	19	137			
Acenaphthene	5.0	0	5.000	0	101	36	122			
Bis(2-ethylhexyl)phthalate	4.9	0	5.000	0	98.6	43	142			
N-Nitrosodi-n-propylamine	4.3	0	5.000	0	86.8	46	140			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	LCS-R38745		SampType:	LCS		TestCode:	EPA 8270C: Semivolatiles/Mod				
Client ID:	LCSW		Batch ID:	R38745		RunNo:	38745				
Prep Date:			Analysis Date:	10/29/2016		SeqNo:	1210384		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Pentachlorophenol	5.5	0	5.000	0	111	22	138				
Phenol	4.7	0	5.000	0	94.4	45	134				
Pyrene	4.5	0	5.000	0	90.8	45	138				

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-28113	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185736	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-28113	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185737	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.6	80	120			

Sample ID	1610612-001BMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185804	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0061	0.00020	0.005000	0.0001625	118	75	125			

Sample ID	1610612-001BMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185805	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0059	0.00020	0.005000	0.0001625	114	75	125	3.16	20	

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-28165	SampType:	MBLK	TestCode:	MERCURY, TCLP					
Client ID:	PBW	Batch ID:	28165	RunNo:	38056					
Prep Date:	10/19/2016	Analysis Date:	10/19/2016	SeqNo:	1186813	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	LCS-28165	SampType:	LCS	TestCode:	MERCURY, TCLP					
Client ID:	LCSW	Batch ID:	28165	RunNo:	38056					
Prep Date:	10/19/2016	Analysis Date:	10/19/2016	SeqNo:	1186814	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	104	80	120			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-28191	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals
Client ID:	PBW	Batch ID:	28191	RunNo:	38144
Prep Date:	10/20/2016	Analysis Date:	10/24/2016	SeqNo:	1190360
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	LCS-28191	SampType:	LCS	TestCode:	EPA Method 6010B: TCLP Metals
Client ID:	LCSW	Batch ID:	28191	RunNo:	38144
Prep Date:	10/20/2016	Analysis Date:	10/24/2016	SeqNo:	1190361
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	108	80	120			
Barium	ND	100	0.5000	0	96.0	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.0	80	120			
Lead	ND	5.0	0.5000	0	93.2	80	120			
Selenium	ND	1.0	0.5000	0	106	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID	TCLP FL#2-2661	SampType:	MBLK	TestCode:	EPA Method 6010B: TCLP Metals
Client ID:	PBW	Batch ID:	28191	RunNo:	38144
Prep Date:	10/20/2016	Analysis Date:	10/24/2016	SeqNo:	1190451
				Units:	mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-28190		SampType:	MBLK		TestCode:	EPA 6010B: Metals			
Client ID:	PBW		Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196520		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-28190		SampType:	LCS		TestCode:	EPA 6010B: Metals			
Client ID:	LCSW		Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196521		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	109	80	120			
Antimony	0.49	0.050	0.5000	0	98.4	80	120			
Arsenic	0.52	0.020	0.5000	0	104	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	101	80	120			
Chromium	0.50	0.0060	0.5000	0	99.5	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.7	80	120			
Copper	0.50	0.0060	0.5000	0	99.6	80	120			
Iron	0.50	0.050	0.5000	0	101	80	120			
Lead	0.50	0.0050	0.5000	0	99.5	80	120			
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.50	0.010	0.5000	0	99.9	80	120			
Potassium	50	1.0	50.00	0	100	80	120			

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

Client: Navajo Refining Company

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

Sample ID	LCS-28190		SampType:	LCS		TestCode:	EPA 6010B: Metals			
Client ID:	LCSW		Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196521		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.49	0.050	0.5000	0	99.0	80	120			
Silver	0.10	0.0050	0.1000	0	103	80	120			
Thallium	0.49	0.050	0.5000	0	98.9	80	120			
Vanadium	0.53	0.050	0.5000	0	105	80	120			
Zinc	0.50	0.020	0.5000	0	101	80	120			

Sample ID	1610612-001BMS		SampType:	MS		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196523		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.89	0.020	0.5000	0.3134	115	75	125			
Antimony	0.47	0.050	0.5000	0	94.3	75	125			
Arsenic	0.57	0.020	0.5000	0.04017	106	75	125			
Barium	0.50	0.020	0.5000	0.01602	96.0	75	125			
Beryllium	0.51	0.0030	0.5000	0	102	75	125			
Cadmium	0.50	0.0020	0.5000	0	99.7	75	125			
Chromium	0.47	0.0060	0.5000	0	94.3	75	125			
Cobalt	0.47	0.0060	0.5000	0.003260	93.6	75	125			
Copper	0.53	0.0060	0.5000	0.01704	103	75	125			
Iron	0.63	0.050	0.5000	0.1353	98.3	75	125			
Lead	0.47	0.0050	0.5000	0	94.8	75	125			
Manganese	0.53	0.0020	0.5000	0.05227	95.7	75	125			
Nickel	0.49	0.010	0.5000	0.006520	95.7	75	125			
Selenium	0.52	0.050	0.5000	0	103	75	125			
Silver	0.10	0.0050	0.1000	0	104	75	125			
Thallium	0.46	0.050	0.5000	0.01260	89.8	75	125			
Vanadium	0.52	0.050	0.5000	0.006120	103	75	125			
Zinc	0.53	0.020	0.5000	0.02719	99.6	75	125			

Sample ID	1610612-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196524		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.88	0.020	0.5000	0.3134	114	75	125	0.858	20	
Antimony	0.45	0.050	0.5000	0	90.8	75	125	3.77	20	
Arsenic	0.55	0.020	0.5000	0.04017	103	75	125	2.57	20	
Barium	0.49	0.020	0.5000	0.01602	94.6	75	125	1.42	20	
Beryllium	0.51	0.0030	0.5000	0	101	75	125	1.17	20	

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

Client: Navajo Refining Company

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

Sample ID	1610612-001BMSD			SampType:	MSD		TestCode: EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:		28190		RunNo: 38332			
Prep Date:	10/20/2016		Analysis Date:		10/31/2016		SeqNo: 1196524		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	98.2	75	125	1.47	20	
Chromium	0.46	0.0060	0.5000	0	92.6	75	125	1.81	20	
Cobalt	0.46	0.0060	0.5000	0.003260	91.8	75	125	1.92	20	
Copper	0.54	0.0060	0.5000	0.01704	104	75	125	0.996	20	
Iron	0.64	0.050	0.5000	0.1353	102	75	125	2.59	20	
Lead	0.47	0.0050	0.5000	0	93.8	75	125	1.05	20	
Manganese	0.52	0.0020	0.5000	0.05227	94.4	75	125	1.23	20	
Nickel	0.48	0.010	0.5000	0.006520	94.3	75	125	1.45	20	
Selenium	0.51	0.050	0.5000	0	102	75	125	1.76	20	
Silver	0.10	0.0050	0.1000	0	103	75	125	1.49	20	
Thallium	0.45	0.050	0.5000	0.01260	86.9	75	125	3.22	20	
Vanadium	0.51	0.050	0.5000	0.006120	101	75	125	1.60	20	
Zinc	0.52	0.020	0.5000	0.02719	98.2	75	125	1.35	20	

Sample ID	1610612-001BMS			SampType:	MS		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen			Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196526		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Potassium	180	5.0	50.00	123.0	104	75	125				

Sample ID	1610612-001BMSD			SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen			Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196527		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Potassium	180	5.0	50.00	123.0	123	75	125	5.31	20		

Sample ID	MB-28190	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	28190	RunNo:	38490					
Prep Date:	10/20/2016	Analysis Date:	11/7/2016	SeqNo:	1202197	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	LCS-28190		SampType: LCS		TestCode: EPA 6010B: Metals					
Client ID:	LCSW		Batch ID: 28190		RunNo: 38490					
Prep Date:	10/20/2016		Analysis Date: 11/7/2016		SeqNo: 1202198		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			
Sodium	51	1.0	50.00	0	102	80	120			

Sample ID	1610612-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28190	RunNo:	38490					
Prep Date:	10/20/2016	Analysis Date:	11/7/2016	SeqNo:	1202200	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	86	1.0	50.00	35.82	100	75	125			

Sample ID	1610612-001BMSD			SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen			Batch ID:	28190		RunNo:	38490			
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202201		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Magnesium	86	1.0	50.00	35.82	101	75	125	0.560	20		

Sample ID	1610612-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28190	RunNo:	38490					
Prep Date:	10/20/2016	Analysis Date:	11/7/2016	SeqNo:	1202203	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	140	5.0	50.00	95.77	95.5	75	125			

Sample ID	1610612-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals				
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38490				
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202211		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Calcium	150	5.0	50.00	95.77	105	75	125	3.14	20		

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-R38745	SampType:	MBLK	TestCode:	CYANIDE, Reactive					
Client ID:	PBW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/25/2016	SeqNo:	1210388	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID	LCS-R38745		SampType:	LCS		TestCode:	CYANIDE, Reactive				
Client ID:	LCSW		Batch ID:	R38745		RunNo:	38745				
Prep Date:			Analysis Date:	10/25/2016		SeqNo:	1210389		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide, Reactive	0.542		0.5000	0	108	80	120				

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-R38745		SampType:	MBLK		TestCode:	SULFIDE, Reactive				
Client ID:	PBW		Batch ID:	R38745		RunNo:	38745				
Prep Date:			Analysis Date:	10/18/2016		SeqNo:	1210391		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Reactive Sulfide	ND	1.0									

Sample ID	LCS-R38745		SampType:	LCS		TestCode:	SULFIDE, Reactive				
Client ID:	LCSW		Batch ID:	R38745		RunNo:	38745				
Prep Date:			Analysis Date:	10/18/2016		SeqNo:	1210392		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Reactive Sulfide	0.16		0.2000	0	80.0	70	130				

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID mb-1	SampType: mblk	TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R38048	RunNo: 38048
Prep Date:	Analysis Date: 10/18/2016	SeqNo: 1186486 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	ND	20.00

Sample ID ics-1	SampType: ics	TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R38048	RunNo: 38048
Prep Date:	Analysis Date: 10/18/2016	SeqNo: 1186487 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	80.60	20.00 80.00 0 101 90 110

Sample ID mb-2	SampType: mblk	TestCode: SM2320B: Alkalinity
Client ID: PBW	Batch ID: R38048	RunNo: 38048
Prep Date:	Analysis Date: 10/18/2016	SeqNo: 1186510 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	ND	20.00

Sample ID ics-2	SampType: ics	TestCode: SM2320B: Alkalinity
Client ID: LCSW	Batch ID: R38048	RunNo: 38048
Prep Date:	Analysis Date: 10/18/2016	SeqNo: 1186511 Units: mg/L CaCO3
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Total Alkalinity (as CaCO3)	81.52	20.00 80.00 0 102 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	1610612-001ADUP	SampType:	DUP	TestCode:	Specific Gravity					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	R38258	RunNo:	38258					
Prep Date:		Analysis Date:	10/27/2016	SeqNo:	1193976	Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9993	0						0.0400	20	

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

Client: Navajo Refining Company

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

Sample ID	MB-28098	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	PBW	Batch ID:	28098	RunNo:	38034
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185818 Units: mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	ND	20.0			

Sample ID	LCS-28098	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids
Client ID:	LCSW	Batch ID:	28098	RunNo:	38034
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185819 Units: mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit %RPD RPDLimit Qual
Total Dissolved Solids	1050	20.0	1000	0	105 80 120

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Value above quantitation range |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



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

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO**

Work Order Number: **1610612**

RcptNo: **1**

Received by/date:

Logged By: **Ashley Gallegos**

10/13/2016 8:30:00 AM

Completed By: **Ashley Gallegos**

10/13/2016 11:20:49 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

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

of preserved
bottles checked
for pH: 22
(<2 or >12 unless noted)
Adjusted? No
Checked by: AS

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

VM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

2A/QC Package:

☐ Standard ☐ Level 4 (Full Validation)☐ Other _____

☐ **EDD (Type)** _____

Turn-Around Time:

☒ **X Standard** ☐ **Rush**

Project Name:

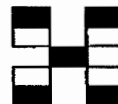
Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

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



RECEIVED
2014 MAY 27 P 1:51

May 22, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr.
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7007 3020 0000 3028 8048

RE: 2014 1st Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3, Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the first quarter 2014 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1, Quarterly Reports.

This report covers the period from January 1, 2014 to March 31, 2014. We have disposed a total of 1,271,325 barrels of fluid into the three wells during the first quarter 2014. The volume per well is:

- 444,572 barrels into WDW-1
- 461,609 barrels into WDW-2
- 365,144 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President, Refinery Manager
Navajo Refining Company L.L.C.

Electronic cc (w/enc.):
Environmental File:

D Crawford, R Combs, M Schultz, A Strange
Injection Wells/Reports C-115 & Quarterly/2014/1st quarter/2014-05-22 1st QTR Inj Rpt for Wells WDW-1,2,3
Navajo: (ART: REF 14- 4.A.02.D)



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

April 09, 2014

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

RE: WDW-1, 2 & 3 Qtrly Inj Well

OrderNo.: 1403871

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/20/2014 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** WDW-1, 2 & 3 Effluent**Project:** WDW-1, 2 & 3 Qtrly Inj Well**Collection Date:** 3/20/2014 9:00:00 AM**Lab ID:** 1403871-001**Matrix:** AQUEOUS**Received Date:** 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	5.5	1.0	*	mg/L	10	3/21/2014 12:08:26 AM	R17472
Chloride	410	50		mg/L	100	3/21/2014 12:20:50 AM	R17472
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	3/21/2014 12:08:26 AM	R17472
Bromide	1.6	1.0		mg/L	10	3/21/2014 12:08:26 AM	R17472
Nitrogen, Nitrate (As N)	ND	1.0		mg/L	10	3/21/2014 12:08:26 AM	R17472
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	3/21/2014 12:08:26 AM	R17472
Sulfate	3900	50		mg/L	100	3/21/2014 12:20:50 AM	R17472
EPA METHOD 7470: MERCURY							Analyst: JML
Mercury	ND	0.00020		mg/L	1	3/24/2014 5:57:04 PM	12328
MERCURY, TCLP							Analyst: JML
Mercury	ND	0.020		mg/L	1	3/21/2014 4:08:02 PM	12307
EPA METHOD 6010B: TCLP METALS							Analyst: ELS
Arsenic	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
Barium	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
Cadmium	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
Chromium	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
Lead	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
Selenium	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
Silver	ND	0.10		mg/L	1	3/21/2014 10:39:40 AM	12293
EPA 6010B: TOTAL METALS							Analyst: ELS
Aluminum	2.3	0.10		mg/L	5	3/21/2014 10:29:25 AM	12293
Antimony	ND	0.050		mg/L	1	3/21/2014 10:25:56 AM	12293
Arsenic	ND	0.020		mg/L	1	3/21/2014 10:25:56 AM	12293
Barium	0.049	0.020		mg/L	1	3/21/2014 10:25:56 AM	12293
Beryllium	ND	0.0030		mg/L	1	3/21/2014 10:25:56 AM	12293
Cadmium	ND	0.0020		mg/L	1	3/21/2014 10:25:56 AM	12293
Calcium	93	1.0		mg/L	1	3/21/2014 10:25:56 AM	12293
Chromium	ND	0.0060		mg/L	1	3/21/2014 10:25:56 AM	12293
Cobalt	ND	0.0060		mg/L	1	3/21/2014 10:25:56 AM	12293
Copper	0.0092	0.0060		mg/L	1	3/21/2014 10:25:56 AM	12293
Iron	3.3	0.25		mg/L	5	3/21/2014 10:29:25 AM	12293
Lead	ND	0.0050		mg/L	1	3/21/2014 10:25:56 AM	12293
Magnesium	30	1.0		mg/L	1	3/21/2014 10:25:56 AM	12293
Manganese	0.12	0.0020		mg/L	1	3/21/2014 10:25:56 AM	12293
Nickel	0.016	0.010		mg/L	1	3/21/2014 10:25:56 AM	12293
Potassium	37	1.0		mg/L	1	3/21/2014 10:25:56 AM	12293
Selenium	0.13	0.050		mg/L	1	3/21/2014 10:25:56 AM	12293

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2 & 3 Effluent

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date: 3/20/2014 9:00:00 AM

Lab ID: 1403871-001

Matrix: AQUEOUS

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS							Analyst: ELS
Silver	ND	0.0050		mg/L	1	3/21/2014 10:25:56 AM	12293
Sodium	1400	20		mg/L	20	3/21/2014 10:31:26 AM	12293
Thallium	ND	0.050		mg/L	1	3/21/2014 10:25:56 AM	12293
Vanadium	ND	0.050		mg/L	1	3/21/2014 10:25:56 AM	12293
Zinc	0.15	0.020		mg/L	1	3/21/2014 10:25:56 AM	12293
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Acetonitrile	ND	10		µg/L	1	3/26/2014	R17842
Allyl chloride	ND	0.50		µg/L	1	3/26/2014	R17842
Chloroprene	ND	0.50		µg/L	1	3/26/2014	R17842
Cyclohexane	1.6	0.50		µg/L	1	3/26/2014	R17842
Diethyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
Diisopropyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
Epichlorohydrin	ND	5.0		µg/L	1	3/26/2014	R17842
Ethyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
Ethyl methacrylate	ND	0.50		µg/L	1	3/26/2014	R17842
Ethyl tert-butyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
Freon-113	ND	0.50		µg/L	1	3/26/2014	R17842
Isobutanol	ND	20		µg/L	1	3/26/2014	R17842
Isopropyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
Methacrylonitrile	ND	0.50		µg/L	1	3/26/2014	R17842
Methyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
Methyl ethyl ketone	5.6	2.5		µg/L	1	3/26/2014	R17842
Methyl isobutyl ketone	ND	2.5		µg/L	1	3/26/2014	R17842
Methyl methacrylate	ND	0.50		µg/L	1	3/26/2014	R17842
Methylcyclohexane	1.2	1.0		µg/L	1	3/26/2014	R17842
n-Amyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
n-Hexane	ND	0.50		µg/L	1	3/26/2014	R17842
Nitrobenzene	ND	5.0		µg/L	1	3/26/2014	R17842
Pentachloroethane	ND	5.0		µg/L	1	3/26/2014	R17842
p-isopropyltoluene	ND	0.50		µg/L	1	3/26/2014	R17842
Propionitrile	ND	0.50		µg/L	1	3/26/2014	R17842
Tetrahydrofuran	ND	0.50		µg/L	1	3/26/2014	R17842
Benzene	0.63	0.50		µg/L	1	3/26/2014	R17842
Toluene	ND	0.50		µg/L	1	3/26/2014	R17842
Ethylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	3/26/2014	R17842
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	3/26/2014	R17842

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

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	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2 & 3 Effluent

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date: 3/20/2014 9:00:00 AM

Lab ID: 1403871-001

Matrix: AQUEOUS

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	3/26/2014	R17842
Naphthalene	ND	0.50		µg/L	1	3/26/2014	R17842
Acetone	42	2.5		µg/L	1	3/26/2014	R17842
Bromobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Bromodichloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
Bromoform	ND	0.50		µg/L	1	3/26/2014	R17842
Bromomethane	ND	0.50		µg/L	1	3/26/2014	R17842
Carbon disulfide	5.6	0.50		µg/L	1	3/26/2014	R17842
Carbon Tetrachloride	ND	0.50		µg/L	1	3/26/2014	R17842
Chlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Chloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
Chloroform	0.64	0.50		µg/L	1	3/26/2014	R17842
Chloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
2-Chlorotoluene	ND	0.50		µg/L	1	3/26/2014	R17842
4-Chlorotoluene	ND	0.50		µg/L	1	3/26/2014	R17842
cis-1,2-DCE	ND	0.50		µg/L	1	3/26/2014	R17842
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
Dibromochloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
Dibromomethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,3-Dichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,4-Dichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Dichlorodifluoromethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1-Dichloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1-Dichloroethene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
1,3-Dichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
2,2-Dichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1-Dichloropropene	ND	0.50		µg/L	1	3/26/2014	R17842
Hexachlorobutadiene	ND	0.50		µg/L	1	3/26/2014	R17842
2-Hexanone	ND	0.50		µg/L	1	3/26/2014	R17842
Isopropylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
4-Isopropyltoluene	ND	0.50		µg/L	1	3/26/2014	R17842
Methylene Chloride	ND	2.5		µg/L	1	3/26/2014	R17842
n-Butylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
n-Propylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
sec-Butylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Styrene	ND	0.50		µg/L	1	3/26/2014	R17842

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

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	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2 & 3 Effluent

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date: 3/20/2014 9:00:00 AM

Lab ID: 1403871-001

Matrix: AQUEOUS

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
tert-Butylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	3/26/2014	R17842
trans-1,2-DCE	ND	0.50		µg/L	1	3/26/2014	R17842
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,1-Trichloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,2-Trichloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
Trichloroethene (TCE)	ND	0.50		µg/L	1	3/26/2014	R17842
Trichlorofluoromethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,2,3-Trichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
Vinyl chloride	ND	0.50		µg/L	1	3/26/2014	R17842
mp-Xylenes	ND	1.0		µg/L	1	3/26/2014	R17842
o-Xylene	ND	0.50		µg/L	1	3/26/2014	R17842
tert-Amyl methyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
tert-Butyl alcohol	ND	20		µg/L	1	3/26/2014	R17842
Acrolein	ND	10		µg/L	1	3/26/2014	R17842
Acrylonitrile	ND	10		µg/L	1	3/26/2014	R17842
Bromochloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
2-Chloroethyl vinyl ether	ND	1.0		µg/L	1	3/26/2014	R17842
Iodomethane	ND	0.50		µg/L	1	3/26/2014	R17842
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	3/26/2014	R17842
Vinyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
1,4-Dioxane	ND	20		µg/L	1	3/26/2014	R17842
Surr: 1,2-Dichloroethane-d4	116	70-130		%REC	1	3/26/2014	R17842
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	3/26/2014	R17842
Surr: Toluene-d8	101	70-130		%REC	1	3/26/2014	R17842
EPA 8270C: SEMIVOLATILES/MOD							Analyst: SUB
1,1-Biphenyl	ND	1.0		µg/L	1	3/28/2014	R17842
Caprolactam	ND	0.10		µg/L	1	3/28/2014	R17842
N-Nitroso-di-n-butylamine	ND	1.0		µg/L	1	3/28/2014	R17842
Acetophenone	ND	10		µg/L	1	3/28/2014	R17842
1-Methylnaphthalene	ND	10		µg/L	1	3/28/2014	R17842
2,3,4,6-Tetrachlorophenol	ND	10		µg/L	1	3/28/2014	R17842
2,4,5-Trichlorophenol	ND	10		µg/L	1	3/28/2014	R17842
2,4,6-Trichlorophenol	ND	10		µg/L	1	3/28/2014	R17842
2,4-Dichlorophenol	ND	10		µg/L	1	3/28/2014	R17842

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	R RPD outside accepted recovery limits	RL Reporting Detection Limit
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Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2 & 3 Effluent

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date: 3/20/2014 9:00:00 AM

Lab ID: 1403871-001

Matrix: AQUEOUS

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: SUB
2,4-Dimethylphenol	ND	10		µg/L	1	3/28/2014	R17842
2,4-Dinitrophenol	ND	10		µg/L	1	3/28/2014	R17842
2,4-Dinitrotoluene	ND	10		µg/L	1	3/28/2014	R17842
2,6-Dinitrotoluene	ND	10		µg/L	1	3/28/2014	R17842
2-Chloronaphthalene	ND	10		µg/L	1	3/28/2014	R17842
2-Chlorophenol	ND	10		µg/L	1	3/28/2014	R17842
2-Methylnaphthalene	ND	10		µg/L	1	3/28/2014	R17842
2-Methylphenol	ND	10		µg/L	1	3/28/2014	R17842
2-Nitroaniline	ND	10		µg/L	1	3/28/2014	R17842
2-Nitrophenol	ND	10		µg/L	1	3/28/2014	R17842
3,3'-Dichlorobenzidine	ND	10		µg/L	1	3/28/2014	R17842
3-Nitroaniline	ND	10		µg/L	1	3/28/2014	R17842
4,6-Dinitro-2-methylphenol	ND	10		µg/L	1	3/28/2014	R17842
4-Bromophenyl phenyl ether	ND	10		µg/L	1	3/28/2014	R17842
4-Chloro-3-methylphenol	ND	5.0		µg/L	1	3/28/2014	R17842
4-Chloroaniline	ND	10		µg/L	1	3/28/2014	R17842
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	3/28/2014	R17842
4-Nitroaniline	ND	10		µg/L	1	3/28/2014	R17842
4-Nitrophenol	ND	10		µg/L	1	3/28/2014	R17842
Acenaphthene	ND	10		µg/L	1	3/28/2014	R17842
Acenaphthylene	ND	10		µg/L	1	3/28/2014	R17842
Anthracene	ND	10		µg/L	1	3/28/2014	R17842
Benzo(g,h,i)perylene	ND	1.0		µg/L	1	3/28/2014	R17842
Benz(a)anthracene	ND	1.0		µg/L	1	3/28/2014	R17842
Benzo(a)pyrene	ND	1.0		µg/L	1	3/28/2014	R17842
Benzo(b)fluoranthene	ND	1.0		µg/L	1	3/28/2014	R17842
Benzo(k)fluoranthene	ND	1.0		µg/L	1	3/28/2014	R17842
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	3/28/2014	R17842
Bis(2-chloroethyl)ether	ND	10		µg/L	1	3/28/2014	R17842
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	3/28/2014	R17842
Bis(2-ethylhexyl)phthalate	ND	5.0		µg/L	1	3/28/2014	R17842
Butyl benzyl phthalate	ND	10		µg/L	1	3/28/2014	R17842
Carbazole	ND	10		µg/L	1	3/28/2014	R17842
Chrysene	ND	0.10		µg/L	1	3/28/2014	R17842
Dibenz(a,h)anthracene	ND	1.0		µg/L	1	3/28/2014	R17842
Dibenzofuran	ND	10		µg/L	1	3/28/2014	R17842
Diethyl phthalate	ND	10		µg/L	1	3/28/2014	R17842
Dimethyl phthalate	ND	10		µg/L	1	3/28/2014	R17842
Di-n-butyl phthalate	ND	10		µg/L	1	3/28/2014	R17842

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2 & 3 Effluent

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date: 3/20/2014 9:00:00 AM

Lab ID: 1403871-001

Matrix: AQUEOUS

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES/MOD							Analyst: SUB
Di-n-octyl phthalate	ND	10		µg/L	1	3/28/2014	R17842
Fluoranthene	ND	10		µg/L	1	3/28/2014	R17842
Fluorene	ND	10		µg/L	1	3/28/2014	R17842
Hexachlorobenzene	ND	1.0		µg/L	1	3/28/2014	R17842
Hexachlorobutadiene	ND	10		µg/L	1	3/28/2014	R17842
Hexachlorocyclopentadiene	ND	10		µg/L	1	3/28/2014	R17842
Hexachloroethane	ND	10		µg/L	1	3/28/2014	R17842
Indeno(1,2,3-cd)pyrene	ND	1.0		µg/L	1	3/28/2014	R17842
Isophorone	ND	10		µg/L	1	3/28/2014	R17842
Naphthalene	ND	10		µg/L	1	3/28/2014	R17842
Nitrobenzene	ND	10		µg/L	1	3/28/2014	R17842
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	3/28/2014	R17842
N-Nitrosodiphenylamine	ND	2.0		µg/L	1	3/28/2014	R17842
Pentachlorophenol	ND	10		µg/L	1	3/28/2014	R17842
Phenanthrene	ND	10		µg/L	1	3/28/2014	R17842
Phenol	ND	5.0		µg/L	1	3/28/2014	R17842
Pyrene	ND	10		µg/L	1	3/28/2014	R17842
o-Toluidine	ND	1.0		µg/L	1	3/28/2014	R17842
Pyridine	ND	1.0		µg/L	1	3/28/2014	R17842
1,2,4,5-Tetrachlorobenzene	ND	10		µg/L	1	3/28/2014	R17842
Surr: 2,4,6-Tribromophenol	90.5	10-123		%REC	1	3/28/2014	R17842
Surr: 2-Fluorobiphenyl	84.5	19-130		%REC	1	3/28/2014	R17842
Surr: 2-Fluorophenol	79.4	21-110		%REC	1	3/28/2014	R17842
Surr: Nitrobenzene-d5	84.7	25-130		%REC	1	3/28/2014	R17842
Surr: Phenol-d5	80.6	10-125		%REC	1	3/28/2014	R17842
Surr: Terphenyl-d14	101	33-141		%REC	1	3/28/2014	R17842
CORROSIVITY							Analyst: SUB
pH	7.45	0.100		pH Units	1	3/25/2014	R17842
IGNITABILITY METHOD 1010							Analyst: SUB
Ignitability	>200	0		°F	1	4/2/2014	R17842
CYANIDE, REACTIVE							Analyst: SUB
Reactive Cyanide	ND	1.00		mg/Kg	1	4/2/2014	R17842
SULFIDE, REACTIVE							Analyst: SUB
Reactive Sulfide	5.1	1.0		mg/Kg	1	3/25/2014	R17842
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JML
Conductivity	7000	0.010		µmhos/cm	1	3/20/2014 3:57:42 PM	R17458

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** WDW-1, 2 & 3 Effluent**Project:** WDW-1, 2 & 3 Qtrly Inj Well**Collection Date:** 3/20/2014 9:00:00 AM**Lab ID:** 1403871-001**Matrix:** AQUEOUS**Received Date:** 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM4500-H+B: PH							Analyst: JML
pH	7.45	1.68	H	pH units	1	3/20/2014 3:57:42 PM	R17458
SM2320B: ALKALINITY							Analyst: JML
Bicarbonate (As CaCO ₃)	270	20		mg/L CaCO ₃	1	3/20/2014 3:57:42 PM	R17458
Carbonate (As CaCO ₃)	ND	2.0		mg/L CaCO ₃	1	3/20/2014 3:57:42 PM	R17458
Total Alkalinity (as CaCO ₃)	270	20		mg/L CaCO ₃	1	3/20/2014 3:57:42 PM	R17458
SPECIFIC GRAVITY							Analyst: SRM
Specific Gravity	1.006	0			1	3/24/2014 11:49:00 AM	R17512
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	6180	100	*	mg/L	1	3/25/2014 5:22:00 PM	12342

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date:

Lab ID: 1403871-002

Matrix: TRIP BLANK

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Acetonitrile	ND	10		µg/L	1	3/26/2014	R17842
Allyl chloride	ND	0.50		µg/L	1	3/26/2014	R17842
Chloroprene	ND	0.50		µg/L	1	3/26/2014	R17842
Cyclohexane	ND	0.50		µg/L	1	3/26/2014	R17842
Diethyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
Diisopropyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
Epichlorohydrin	ND	5.0		µg/L	1	3/26/2014	R17842
Ethyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
Ethyl methacrylate	ND	0.50		µg/L	1	3/26/2014	R17842
Ethyl tert-butyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
Freon-113	ND	0.50		µg/L	1	3/26/2014	R17842
Isobutanol	ND	20		µg/L	1	3/26/2014	R17842
Isopropyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
Methacrylonitrile	ND	0.50		µg/L	1	3/26/2014	R17842
Methyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
Methyl ethyl ketone	ND	2.5		µg/L	1	3/26/2014	R17842
Methyl isobutyl ketone	ND	2.5		µg/L	1	3/26/2014	R17842
Methyl methacrylate	ND	0.50		µg/L	1	3/26/2014	R17842
Methylcyclohexane	ND	1.0		µg/L	1	3/26/2014	R17842
n-Amyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
n-Hexane	ND	0.50		µg/L	1	3/26/2014	R17842
Nitrobenzene	ND	5.0		µg/L	1	3/26/2014	R17842
Pentachloroethane	ND	5.0		µg/L	1	3/26/2014	R17842
p-isopropyltoluene	ND	0.50		µg/L	1	3/26/2014	R17842
Propionitrile	ND	0.50		µg/L	1	3/26/2014	R17842
Tetrahydrofuran	ND	0.50		µg/L	1	3/26/2014	R17842
Benzene	ND	0.50		µg/L	1	3/26/2014	R17842
Toluene	ND	0.50		µg/L	1	3/26/2014	R17842
Ethylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	1	3/26/2014	R17842
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	3/26/2014	R17842
Naphthalene	ND	0.50		µg/L	1	3/26/2014	R17842
Acetone	ND	2.5		µg/L	1	3/26/2014	R17842
Bromobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Bromodichloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
Bromoform	ND	0.50		µg/L	1	3/26/2014	R17842

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: WDW-1, 2 & 3 Qtrly Inj Well

Collection Date:

Lab ID: 1403871-002

Matrix: TRIP BLANK

Received Date: 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Bromomethane	ND	0.50		µg/L	1	3/26/2014	R17842
Carbon disulfide	ND	0.50		µg/L	1	3/26/2014	R17842
Carbon Tetrachloride	ND	0.50		µg/L	1	3/26/2014	R17842
Chlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Chloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
Chloroform	ND	0.50		µg/L	1	3/26/2014	R17842
Chloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
2-Chlorotoluene	ND	0.50		µg/L	1	3/26/2014	R17842
4-Chlorotoluene	ND	0.50		µg/L	1	3/26/2014	R17842
cis-1,2-DCE	ND	0.50		µg/L	1	3/26/2014	R17842
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dibromo-3-chloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
Dibromochloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
Dibromomethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,3-Dichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,4-Dichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Dichlorodifluoromethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1-Dichloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1-Dichloroethene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2-Dichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
1,3-Dichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
2,2-Dichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1-Dichloropropene	ND	0.50		µg/L	1	3/26/2014	R17842
Hexachlorobutadiene	ND	0.50		µg/L	1	3/26/2014	R17842
2-Hexanone	ND	0.50		µg/L	1	3/26/2014	R17842
Isopropylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
4-Isopropyltoluene	ND	0.50		µg/L	1	3/26/2014	R17842
Methylene Chloride	ND	2.5		µg/L	1	3/26/2014	R17842
n-Butylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
n-Propylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
sec-Butylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
Styrene	ND	0.50		µg/L	1	3/26/2014	R17842
tert-Butylbenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	3/26/2014	R17842
trans-1,2-DCE	ND	0.50		µg/L	1	3/26/2014	R17842
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	3/26/2014	R17842

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1403871

Date Reported: 4/9/2014

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** Trip Blank**Project:** WDW-1, 2 & 3 Qtrly Inj Well**Collection Date:****Lab ID:** 1403871-002**Matrix:** TRIP BLANK**Received Date:** 3/20/2014 1:50:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
1,2,3-Trichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,2,4-Trichlorobenzene	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,1-Trichloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,1,2-Trichloroethane	ND	0.50		µg/L	1	3/26/2014	R17842
Trichloroethene (TCE)	ND	0.50		µg/L	1	3/26/2014	R17842
Trichlorofluoromethane	ND	0.50		µg/L	1	3/26/2014	R17842
1,2,3-Trichloropropane	ND	0.50		µg/L	1	3/26/2014	R17842
Vinyl chloride	ND	0.50		µg/L	1	3/26/2014	R17842
mp-Xylenes	ND	1.0		µg/L	1	3/26/2014	R17842
o-Xylene	ND	0.50		µg/L	1	3/26/2014	R17842
tert-Amyl methyl ether	ND	0.50		µg/L	1	3/26/2014	R17842
tert-Butyl alcohol	ND	20		µg/L	1	3/26/2014	R17842
Acrolein	ND	10		µg/L	1	3/26/2014	R17842
Acrylonitrile	ND	10		µg/L	1	3/26/2014	R17842
Bromochloromethane	ND	0.50		µg/L	1	3/26/2014	R17842
2-Chloroethyl vinyl ether	ND	1.0		µg/L	1	3/26/2014	R17842
Iodomethane	ND	0.50		µg/L	1	3/26/2014	R17842
trans-1,4-Dichloro-2-butene	ND	0.50		µg/L	1	3/26/2014	R17842
Vinyl acetate	ND	0.50		µg/L	1	3/26/2014	R17842
1,4-Dioxane	ND	20		µg/L	1	3/26/2014	R17842
Surr: 1,2-Dichloroethane-d4	111	70-130		%REC	1	3/26/2014	R17842
Surr: 4-Bromofluorobenzene	103	70-130		%REC	1	3/26/2014	R17842
Surr: Toluene-d8	100	70-130		%REC	1	3/26/2014	R17842

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R17472	RunNo:	17472					
Prep Date:		Analysis Date:	3/20/2014	SeqNo:	503279	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R17472	RunNo:	17472					
Prep Date:		Analysis Date:	3/20/2014	SeqNo:	503281	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.8	0.50	5.000	0	95.7	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.3	90	110			
Bromide	2.5	0.10	2.500	0	99.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	97.9	90	110			
Sulfate	9.7	0.50	10.00	0	96.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID: MB-R17842	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R17842	RunNo: 17842								
Prep Date:	Analysis Date: 3/26/2014	SeqNo: 514551 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	0.50								
Isobutanol	ND	0.50								
Methacrylonitrile	ND	0.50								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	0.50								
Propionitrile	ND	0.50								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	ND	0.50								
1,1-Dichloropropene	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-R17842		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES				
Client ID:	PBW		Batch ID:	R17842		RunNo:	17842				
Prep Date:			Analysis Date:	3/26/2014		SeqNo:	514551		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
2-Hexanone	ND	0.50									
Methylene Chloride	ND	2.5									
Styrene	ND	0.50									
1,1,1,2-Tetrachloroethane	ND	0.50									
1,1,2,2-Tetrachloroethane	ND	0.50									
Tetrachloroethene (PCE)	ND	0.50									
trans-1,2-DCE	ND	0.50									
trans-1,3-Dichloropropene	ND	0.50									
1,1,1-Trichloroethane	ND	0.50									
1,1,2-Trichloroethane	ND	0.50									
Trichloroethene (TCE)	ND	0.50									
Trichlorofluoromethane	ND	0.50									
1,2,3-Trichloropropane	ND	0.50									
Vinyl chloride	ND	0.50									
mp-Xylenes	ND	1.0									
o-Xylene	ND	0.50									
Acrolein	ND	0.50									
Acrylonitrile	ND	0.50									
Bromochloromethane	ND	0.50									
Iodomethane	ND	0.50									
trans-1,4-Dichloro-2-butene	ND	0.50									
Vinyl acetate	ND	0.50									

Sample ID	LCS-R17842			SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW			Batch ID:	R17842		RunNo:	17842			
Prep Date:				Analysis Date:	3/26/2014		SeqNo:	514552		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	4.9	0.50	5.000	0	97.2	80	120				
Toluene	4.9	0.50	5.000	0	98.2	80	120				
Ethylbenzene	5.0	0.50	5.000	0	99.0	80	120				
Chlorobenzene	4.9	0.50	5.000	0	98.2	80	120				
1,1-Dichloroethene	4.5	0.50	5.000	0	89.4	80	120				
Tetrachloroethene (PCE)	4.4	0.50	5.000	0	87.8	80	120				
Trichloroethene (TCE)	4.6	0.50	5.000	0	93.0	80	120				
o-Xylene	5.2	0.50	5.000	0	105	80	120				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-R17842		SampType:	MBLK		TestCode:	EPA 8270C: Semivolatiles/Mod				
Client ID:	PBW		Batch ID:	R17842		RunNo:	17842				
Prep Date:			Analysis Date:	3/28/2014		SeqNo:	515354		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1-Methylnaphthalene	ND	0.50									
2,3,4,6-Tetrachlorophenol	ND	0.50									
2,4,5-Trichlorophenol	ND	0.50									
2,4,6-Trichlorophenol	ND	0.50									
2,4-Dichlorophenol	ND	0.50									
2,4-Dimethylphenol	ND	0.50									
2,4-Dinitrophenol	ND	0.50									
2,4-Dinitrotoluene	ND	0.50									
2,6-Dinitrotoluene	ND	0.50									
2-Chloronaphthalene	ND	0.50									
2-Chlorophenol	ND	0.50									
2-Methylnaphthalene	ND	0.50									
2-Methylphenol	ND	0.50									
2-Nitroaniline	ND	0.50									
2-Nitrophenol	ND	0.50									
3,3'-Dichlorobenzidine	ND	0.50									
3-Nitroaniline	ND	0.50									
4,6-Dinitro-2-methylphenol	ND	0.50									
4-Bromophenyl phenyl ether	ND	0.50									
4-Chloro-3-methylphenol	ND	0.50									
4-Chloroaniline	ND	0.50									
4-Chlorophenyl phenyl ether	ND	0.50									
4-Nitroaniline	ND	0.50									
4-Nitrophenol	ND	0.50									
Acenaphthene	ND	0.50									
Acenaphthylene	ND	0.50									
Anthracene	ND	0.50									
Benzo(g,h,i)perylene	ND	0.50									
Benz(a)anthracene	ND	0.50									
Benzo(a)pyrene	ND	0.50									
Benzo(b)fluoranthene	ND	0.50									
Benzo(k)fluoranthene	ND	0.50									
Bis(2-chloroethoxy)methane	ND	0.50									
Bis(2-chloroethyl)ether	ND	0.50									
Bis(2-chloroisopropyl)ether	ND	0.50									
Bis(2-ethylhexyl)phthalate	ND	0.50									
Butyl benzyl phthalate	ND	0.50									
Carbazole	ND	0.50									
Chrysene	ND	0.50									

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-R17842		SampType:	MBLK		TestCode:	EPA 8270C: Semivolatiles/Mod				
Client ID:	PBW		Batch ID:	R17842		RunNo:	17842				
Prep Date:			Analysis Date:	3/28/2014		SeqNo:	515354		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Dibenz(a,h)anthracene	ND	0.50									
Dibenzofuran	ND	0.50									
Diethyl phthalate	ND	0.50									
Dimethyl phthalate	ND	0.50									
Di-n-butyl phthalate	ND	0.50									
Di-n-octyl phthalate	ND	0.50									
Fluoranthene	ND	0.50									
Fluorene	ND	0.50									
Hexachlorobenzene	ND	0.50									
Hexachlorobutadiene	ND	0.50									
Hexachlorocyclopentadiene	ND	0.50									
Hexachloroethane	ND	0.50									
Isophorone	ND	0.50									
Naphthalene	ND	0.50									
Nitrobenzene	ND	0.50									
N-Nitrosodi-n-propylamine	ND	0.50									
N-Nitrosodiphenylamine	ND	0.50									
Pentachlorophenol	ND	0.50									
Phenanthrene	ND	0.50									
Phenol	ND	0.50									
Pyrene	ND	0.50									

Sample ID	LCS-R17842		SampType: LCS		TestCode: EPA 8270C: Semivolatiles/Mod					
Client ID:	LCSW		Batch ID: R17842		RunNo: 17842					
Prep Date:			Analysis Date: 3/28/2014		SeqNo: 515355		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	6.6	1.0	5.000	0	131	42	143			
2-Chlorophenol	5.8	1.0	5.000	0	116	50	131			
4-Chloro-3-methylphenol	5.5	1.0	5.000	0	110	42	139			
4-Nitrophenol	4.7	1.0	5.000	0	94.6	19	137			
Acenaphthene	5.9	1.0	5.000	0	118	45	129			
Bis(2-ethylhexyl)phthalate	6.6	1.0	5.000	0	131	43	142			
N-Nitrosodi-n-propylamine	6.0	1.0	5.000	0	120	46	135			
Pentachlorophenol	5.2	1.0	5.000	0	104	22	138			
Phenol	5.3	1.0	5.000	0	106	45	134			
Pyrene	6.3	1.0	5.000	0	126	45	139			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-12328	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	12328	RunNo:	17527					
Prep Date:	3/24/2014	Analysis Date:	3/24/2014	SeqNo:	505323	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-12328	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	12328	RunNo:	17527					
Prep Date:	3/24/2014	Analysis Date:	3/24/2014	SeqNo:	505324	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-12307	SampType:	MBLK	TestCode:	MERCURY, TCLP					
Client ID:	PBW	Batch ID:	12307	RunNo:	17489					
Prep Date:	3/21/2014	Analysis Date:	3/21/2014	SeqNo:	503698	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	LCS-12307	SampType:	LCS	TestCode:	MERCURY, TCLP					
Client ID:	LCSW	Batch ID:	12307	RunNo:	17489					
Prep Date:	3/21/2014	Analysis Date:	3/21/2014	SeqNo:	503699	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-12293		SampType:	MBLK		TestCode:	EPA Method 6010B: TCLP Metals				
Client ID:	PBW		Batch ID:	12293		RunNo:	17477				
Prep Date:	3/20/2014		Analysis Date:	3/21/2014		SeqNo:	503513		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	ND	5.0									
Barium	ND	100									
Cadmium	ND	1.0									
Chromium	ND	5.0									
Lead	ND	5.0									
Selenium	ND	1.0									
Silver	ND	5.0									

Sample ID	LCS-12293		SampType: LCS		TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	LCSW		Batch ID: 12293		RunNo: 17477					
Prep Date:	3/20/2014		Analysis Date: 3/21/2014		SeqNo: 503514		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	104	80	120			
Barium	ND	100	0.5000	0	102	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	102	80	120			
Lead	ND	5.0	0.5000	0	100	80	120			
Selenium	ND	1.0	0.5000	0	101	80	120			
Silver	ND	5.0	0.1000	0	105	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-12293		SampType:	MBLK		TestCode:	EPA 6010B: Total Metals				
Client ID:	PBW		Batch ID:	12293		RunNo:	17477				
Prep Date:	3/20/2014		Analysis Date:	3/21/2014		SeqNo:	503563		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020									
Antimony	ND	0.050									
Arsenic	ND	0.020									
Barium	ND	0.020									
Beryllium	ND	0.0030									
Cadmium	ND	0.0020									
Calcium	ND	1.0									
Chromium	ND	0.0060									
Cobalt	ND	0.0060									
Copper	ND	0.0060									
Iron	ND	0.050									
Lead	ND	0.0050									
Magnesium	ND	1.0									
Manganese	ND	0.0020									
Nickel	ND	0.010									
Potassium	ND	1.0									
Selenium	ND	0.050									
Silver	ND	0.0050									
Thallium	ND	0.050									
Vanadium	ND	0.050									
Zinc	ND	0.020									

Sample ID	LCS-12293		SampType: LCS		TestCode: EPA 6010B: Total Metals					
Client ID:	LCSW		Batch ID: 12293		RunNo: 17477					
Prep Date:	3/20/2014		Analysis Date: 3/21/2014		SeqNo: 503564		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	111	80	120			
Antimony	0.50	0.050	0.5000	0	99.3	80	120			
Arsenic	0.52	0.020	0.5000	0	104	80	120			
Barium	0.51	0.020	0.5000	0	102	80	120			
Beryllium	0.54	0.0030	0.5000	0	107	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Calcium	53	1.0	50.00	0	106	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Cobalt	0.50	0.0060	0.5000	0	100	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.52	0.050	0.5000	0	103	80	120			
Lead	0.50	0.0050	0.5000	0	100	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	LCS-12293		SampType: LCS		TestCode: EPA 6010B: Total Metals					
Client ID:	LCSW		Batch ID: 12293		RunNo: 17477					
Prep Date:	3/20/2014		Analysis Date: 3/21/2014		SeqNo: 503564		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	52	1.0	50.00	0	104	80	120			
Manganese	0.51	0.0020	0.5000	0	103	80	120			
Nickel	0.50	0.010	0.5000	0	99.5	80	120			
Potassium	50	1.0	50.00	0	101	80	120			
Selenium	0.50	0.050	0.5000	0	101	80	120			
Silver	0.11	0.0050	0.1000	0	105	80	120			
Thallium	0.51	0.050	0.5000	0	102	80	120			
Vanadium	0.53	0.050	0.5000	0	105	80	120			
Zinc	0.51	0.020	0.5000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	LCS-R17842			SampType:	LCS		TestCode:	CYANIDE, Reactive			
Client ID:	LCSS			Batch ID:	R17842		RunNo:	17842			
Prep Date:				Analysis Date:	4/2/2014		SeqNo:	515168		Units:	mg/Kg
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Reactive Cyanide	0.533	0.100	0.5000	0	107	80	120				

Sample ID	MB-R17842		SampType:	MBLK		TestCode:	CYANIDE, Reactive				
Client ID:	PBS		Batch ID:	R17842		RunNo:	17842				
Prep Date:			Analysis Date:	4/2/2014		SeqNo:	515169		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Reactive Cyanide	ND	1.00									

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-R17842	SampType:	MBLK	TestCode:	SULFIDE, Reactive					
Client ID:	PBS	Batch ID:	R17842	RunNo:	17842					
Prep Date:		Analysis Date:	3/25/2014	SeqNo:	515170	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID	LCS-R17842	SampType:	LCS	TestCode:	SULFIDE, Reactive					
Client ID:	LCSS	Batch ID:	R17842	RunNo:	17842					
Prep Date:		Analysis Date:	3/25/2014	SeqNo:	515171	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16	0.10	0.2000	0	80.0	80	120			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R17458	RunNo:	17458					
Prep Date:		Analysis Date:	3/20/2014	SeqNo:	502901	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-1	SampType:	lcs	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R17458	RunNo:	17458					
Prep Date:		Analysis Date:	3/20/2014	SeqNo:	502902	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	101	90	110			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1403871

09-Apr-14

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

Sample ID	MB-12342	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	12342	RunNo:	17558					
Prep Date:	3/24/2014	Analysis Date:	3/25/2014	SeqNo:	505731	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-12342	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	12342	RunNo:	17558					
Prep Date:	3/24/2014	Analysis Date:	3/25/2014	SeqNo:	505732	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2.
- RL Reporting Detection Limit

Sample Log-In Check List

Client Name: NAVAJO REFINING COM

Work Order Number: 1403871

RcptNo: 1

Received by/date: OT 03/20/14

Logged By: Michelle Garcia 3/20/2014 1:50:00 PM Michelle Garcia

Completed By: Michelle Garcia 3/20/2014 2:03:05 PM Michelle Garcia

Reviewed By: [Signature] 03/20/14

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: 2/2
(2 or >12 unless noted)

Adjusted? No

Checked by: [Signature]

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	<u>[Signature]</u>	Date:	<u>03/20/14</u>
By Whom:	<u>[Signature]</u>	Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	<u>[Signature]</u>		
Client Instructions:	<u>[Signature]</u>		

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			



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

Client: Navajo Refining Co.					
Mailing Address: P.O. Box 159 Artesia,					
NM 88211-0159					
Phone #: 575-748-3311					
email or Fax#: 575-746-5451					
QA/QC Package:					
☐ Standard ☐ Other _____					
☐ EDD (Type) _____					
☐ Level 4 (Full Validation)					
Date	Time	Matrix	Sample Request ID		
3/20/14	9:00	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H ₂ SO ₄
3/20/14	9:00	Liquid	WDW-1, 2, & 3 Effluent	1	HNO ₃
3/20/14	9:00	Liquid	WDW-1, 2, & 3 Effluent	3	HCL
3/20/14	9:00	Liquid	WDW-1, 2, & 3 Effluent	2	Neat
3/20/14	9:00	Liquid	WDW-1, 2, & 3 Effluent	2	Neat
3/20/14	9:00	Liquid	Trip Blank	2	Neat
3/20/14	9:00	Liquid	Temperature Blank	1	Neat
Date:	Time:	Relinquished by: Jerry Sosa		Received by:	Date Time
3/20/14	10:00	Robert Pava		[Signature]	3/20/14 13:52
Date:	Time:	Relinquished by:		Received by:	Date Time

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

Strange, Aaron

From: Strange, Aaron
Sent: Thursday, May 22, 2014 11:21 AM
To: Schultz, Michele
Subject: Injection Wells

Micki,

The temperature was 90.3F and the pH was 7.71 for the Injection well samples on 3-20-14.

Thank you,
Aaron

Aaron Strange
Environmental Specialist
Environmental Department
Navajo Refining Co, LLC
Artesia NM
Cell: (575) 703-5057
Off: (575) 746-5468

2014 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1														
Jan-14	1,161	1,197	1,093	142	152	122	272	422	182	4,869	5,211	4,183	151,596	34,369,800
Feb-14	1,200	1,225	1,131	147	154	135	443	610	211	5,040	5,280	4,629	141,482	34,521,496
Mar-14	1,206	1,247	1,077	142	150	129	576	843	218	4,869	5,143	4,423	151,394	34,662,978
WDW-2														
Jan-14	1,166	1,208	1,105	152	161	141	394	685	105	5,211	5,520	4,834	162,143	21,592,917
Feb-14	1,202	1,225	1,134	152	160	128	385	599	132	5,211	5,486	4,389	145,969	21,755,060
Mar-14	1,205	1,248	1,081	144	157	125	539	824	219	4,937	5,383	4,286	153,497	21,901,029
WDW-3														
Jan-14	1,120	1,193	938	106	130	23	499	686	306	3,634	4,457	789	112,425	22,054,526
Feb-14	1,199	1,225	1,143	128	138	99	737	920	444	4,389	4,731	3,394	122,680	11,583,990
Mar-14	1,183	1,248	983	122	145	40	622	983	231	4,183	4,971	1,371	130,039	11,696,415
													Total Injected fluids:	
													68,818,033	

2014 FIRST QUARTER WEEKLY WAMS LEVEL TABLE

	1/6/14	1/15/14	1/20/14	1/30/14	2/3/14	2/10/14	2/17/14	2/24/14	3/3/14	3/12/14	3/17/14	3/27/14	3/31/14
WDW -1 ¹	145	145	160	155	155	150	150	150	150	150	150	150	150
WDW-2 ¹	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-3 ¹	100	100	155	150	150	150	150	150	150	150	150	150	150
Comments: 1/20/14 2 drums glycol added to WDW-1 and 1/21/14 1 drum glycol added to WDW-3 after surface tubing leaks repaired													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



RECEIVED OGD
JAN 23 2014

January 22, 2014

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural
Resources Dept., O.C.D. Env. Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7006 0100 0003 6609 9511

RE: 2013 4th Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3 Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the fourth quarter 2013 sampling results for fluids injected into WDW-1, WDW-2 and WDW-3 and a spread sheet showing various volumes and pressures as required under Permit Condition 2.I.1 Quarterly Reports.

This report covers the period from October 1, 2013 to December 31, 2013. We have disposed a total of 1,254,303 barrels of fluid into the three wells during the third quarter 2013. The volume per well is:

- 430,015 barrels into WDW-1
- 496,529 barrels into WDW-2
- 339,579 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.
Respectfully,

Michael McKee
Vice-President, Refinery Manager
Navajo Refining Company LLC

Electronic cc (w/enc.): M Holder, R Combs, M Schultz, A Strange
Environmental File: 2014-01-22 4th QTR Inj Rpt for Wells WDW-1,2,3
Navajo: (ART: REF 13-4.A.02.D)

2013 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													33,939,786
Oct-13	1,068	1,115	838	140	146	116	365	726	187	4,800	5,006	3,977	149,415	34,089,201
Nov-13	1,007	1,175	583	135	175	30	431	807	113	4,629	6,000	1,029	139,175	34,228,376
Dec-13	1,121	1,193	1,048	133	167	0	229	388	175	4,560	5,726	0	141,425	34,369,800
WDW-2	Previous Quarter													21,096,389
Oct-13	936	1,000	712	175	222	103	339	728	41	6,000	7,611	3,531	186,441	21,282,830
Nov-13	1,077	1,182	766	148	166	99	754	1,097	450	5,074	5,691	3,394	152,789	21,435,619
Dec-13	1,129	1,193	1,086	148	163	54	337	658	192	5,074	5,589	1,851	157,299	21,592,917
WDW-3	Previous Quarter													11,244,411
Oct-13	943	1,150	819	77	149	2	562	848	232	2,640	5,109	69	82,339	11,326,750
Nov-13	1,100	1,179	733	125	153	0	699	976	406	4,286	5,246	0	128,952	11,455,702
Dec-13	1,110	1,192	1,050	120	146	97	479	666	346	4,114	5,006	3,326	128,288	11,583,990
Total Injected fluids:														67,546,708



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

January 28, 2014

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

RE: WDW-1, 2, & 3 Qtrly Inj Well

OrderNo.: 1312B24

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/23/2013 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 1312B24
Date: 1/28/2014

CLIENT: Navajo Refining Company
Project: WDW-1, 2, & 3 Qtrly Inj Well

The following compounds were also scanned for by NIST library search and not detected. The detection level for these compounds would be ~10ppb:

Allyl alcohol
t-amyl ethyl ether
Bis(2-chloroethyl)sulfide
Bromoacetone
Chloral hydrate
1-chlorobutane
1-chlorohexane
2-chloroethanol
Crotonaldehyde
Cis-1,4-Dichloro-2butene
1,3-Dichloro-2-propanol
1,2,3,4-Depoxybutane
Ethanol
Ethylene oxide
Malonitrile
Methanol
Methyl acrylate
2-Nitropropane
Paraldehyde
Pentafluorobenzene
2-Pentanone
2-picoline
1-propanol
2-propanol
Propargyl alcohol
Beta-propiolactone
n-propylamine

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	6.3	0.50	*	mg/L	5	12/24/2013 9:22:17 PM	R15740
Chloride	450	50		mg/L	100	12/27/2013 9:00:57 PM	R15790
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	12/24/2013 9:22:17 PM	R15740
Bromide	1.3	0.50		mg/L	5	12/24/2013 9:22:17 PM	R15740
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	12/24/2013 9:22:17 PM	R15740
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	12/24/2013 9:22:17 PM	R15740
Sulfate	3000	50		mg/L	100	12/27/2013 9:00:57 PM	R15790
EPA METHOD 7470: MERCURY							Analyst: JML
Mercury	ND	0.00020		mg/L	1	12/27/2013 1:48:34 PM	11002
MERCURY, TCLP							Analyst: JML
Mercury	ND	0.020		mg/L	1	12/27/2013 3:04:26 PM	11004
EPA METHOD 6010B: TCLP METALS							Analyst: JLF
Arsenic	ND	5.0		mg/L	1	12/30/2013 6:27:04 PM	11005
Barium	ND	100		mg/L	1	12/30/2013 6:27:04 PM	11005
Cadmium	ND	1.0		mg/L	1	12/30/2013 6:27:04 PM	11005
Chromium	ND	5.0		mg/L	1	12/30/2013 6:27:04 PM	11005
Lead	ND	5.0		mg/L	1	12/30/2013 6:27:04 PM	11005
Selenium	ND	1.0		mg/L	1	12/30/2013 6:27:04 PM	11005
Silver	ND	5.0		mg/L	1	12/30/2013 6:27:04 PM	11005
EPA 6010B: TOTAL METALS							Analyst: ELS
Aluminum	2.6	0.10		mg/L	5	1/2/2014 8:24:16 AM	11005
Antimony	ND	0.050		mg/L	1	1/2/2014 8:21:34 AM	11005
Arsenic	0.036	0.020		mg/L	1	1/2/2014 8:21:34 AM	11005
Barium	0.044	0.020		mg/L	1	1/2/2014 8:21:34 AM	11005
Beryllium	ND	0.0030		mg/L	1	1/2/2014 8:21:34 AM	11005
Cadmium	ND	0.0020		mg/L	1	1/2/2014 8:21:34 AM	11005
Calcium	140	5.0		mg/L	5	1/2/2014 8:24:16 AM	11005
Chromium	ND	0.0060		mg/L	1	1/2/2014 8:21:34 AM	11005
Cobalt	ND	0.0060		mg/L	1	1/2/2014 8:21:34 AM	11005
Copper	0.011	0.0060		mg/L	1	1/2/2014 8:21:34 AM	11005
Iron	3.8	0.25		mg/L	5	1/2/2014 8:24:16 AM	11005
Lead	ND	0.0050		mg/L	1	1/2/2014 8:21:34 AM	11005
Magnesium	38	1.0		mg/L	1	1/2/2014 8:21:34 AM	11005
Manganese	0.11	0.0020		mg/L	1	1/2/2014 8:21:34 AM	11005
Nickel	0.017	0.010		mg/L	1	1/2/2014 8:21:34 AM	11005
Potassium	32	1.0		mg/L	1	1/2/2014 8:21:34 AM	11005
Selenium	0.26	0.050		mg/L	1	1/2/2014 8:21:34 AM	11005

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH greater than 2 for VOA and TOC only.
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6010B: TOTAL METALS							Analyst: ELS
Silver	0.0087	0.0050		mg/L	1	1/2/2014 8:21:34 AM	11005
Sodium	1600	20	B	mg/L	20	1/2/2014 8:30:05 AM	11005
Thallium	ND	0.050		mg/L	1	1/2/2014 8:21:34 AM	11005
Vanadium	ND	0.050		mg/L	1	1/2/2014 8:21:34 AM	11005
Zinc	0.050	0.020		mg/L	1	1/2/2014 8:21:34 AM	11005
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Acetonitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Allyl chloride	ND	0.500		µg/L	1	1/6/2014	R16282
Chloroprene	ND	0.500		µg/L	1	1/6/2014	R16282
Cyclohexane	ND	0.500		µg/L	1	1/6/2014	R16282
Diethyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
Diisopropyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
Epichlorohydrin	ND	5.00		µg/L	1	1/6/2014	R16282
Ethyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
Ethyl methacrylate	ND	0.500		µg/L	1	1/6/2014	R16282
Freon-113	ND	0.500		µg/L	1	1/6/2014	R16282
Isobutanol	ND	50.0		µg/L	1	1/6/2014	R16282
Isopropyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
Methacrylonitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Methyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
Methyl ethyl ketone	2.68	2.50		µg/L	1	1/6/2014	R16282
Methyl isobutyl ketone	ND	2.50		µg/L	1	1/6/2014	R16282
Methyl methacrylate	ND	0.500		µg/L	1	1/6/2014	R16282
Methylcyclohexane	ND	1.00		µg/L	1	1/6/2014	R16282
n-Amyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
n-Hexane	ND	0.500		µg/L	1	1/6/2014	R16282
Nitrobenzene	ND	5.00		µg/L	1	1/6/2014	R16282
Pentachloroethane	ND	5.00		µg/L	1	1/6/2014	R16282
p-isopropyltoluene	ND	0.500		µg/L	1	1/6/2014	R16282
Propionitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Tetrahydrofuran	ND	0.500		µg/L	1	1/6/2014	R16282
Benzene	ND	0.500		µg/L	1	1/6/2014	R16282
Toluene	ND	0.500		µg/L	1	1/6/2014	R16282
Ethylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	1/6/2014	R16282
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	1/6/2014	R16282

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Naphthalene	ND	0.500		µg/L	1	1/6/2014	R16282
Acetone	51.2	2.50		µg/L	1	1/6/2014	R16282
Bromobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Bromodichloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
Bromoform	ND	0.500		µg/L	1	1/6/2014	R16282
Bromomethane	ND	0.500		µg/L	1	1/6/2014	R16282
Carbon disulfide	0.810	0.500		µg/L	1	1/6/2014	R16282
Carbon Tetrachloride	ND	0.500		µg/L	1	1/6/2014	R16282
Chlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Chloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
Chloroform	ND	0.500		µg/L	1	1/6/2014	R16282
Chloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
2-Chlorotoluene	ND	0.500		µg/L	1	1/6/2014	R16282
4-Chlorotoluene	ND	0.500		µg/L	1	1/6/2014	R16282
cis-1,2-DCE	ND	0.500		µg/L	1	1/6/2014	R16282
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
Dibromochloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
Dibromomethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,3-Dichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,4-Dichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Dichlorodifluoromethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1-Dichloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1-Dichloroethene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
1,3-Dichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
2,2-Dichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1-Dichloropropene	ND	0.500		µg/L	1	1/6/2014	R16282
Hexachlorobutadiene	ND	0.500		µg/L	1	1/6/2014	R16282
2-Hexanone	ND	0.500		µg/L	1	1/6/2014	R16282
Isopropylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Methylene Chloride	ND	2.50		µg/L	1	1/6/2014	R16282
n-Butylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
n-Propylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
sec-Butylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Styrene	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Butylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	1/6/2014	R16282

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	1/6/2014	R16282
trans-1,2-DCE	ND	0.500		µg/L	1	1/6/2014	R16282
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,1,1-Trichloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1,2-Trichloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
Trichloroethene (TCE)	ND	0.500		µg/L	1	1/6/2014	R16282
Trichlorofluoromethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,2,3-Trichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
Vinyl chloride	ND	0.500		µg/L	1	1/6/2014	R16282
Xylenes, Total	ND	1.00		µg/L	1	1/6/2014	R16282
mp-Xylenes	ND	0.500		µg/L	1	1/6/2014	R16282
o-Xylene	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Amyl methyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Butyl ethyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Butyl alcohol	ND	2.50		µg/L	1	1/6/2014	R16282
Acrolein	ND	0.500		µg/L	1	1/6/2014	R16282
Acrylonitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Bromochloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
2-Chloroethyl vinyl ether	ND	1.00		µg/L	1	1/6/2014	R16282
Iodomethane	ND	0.500		µg/L	1	1/6/2014	R16282
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	1/6/2014	R16282
Vinyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
1,4-Dioxane	ND	20.0		µg/L	1	1/6/2014	R16282
Surr: 1,2-Dichloroethane-d4	115	70-130		%REC	1	1/6/2014	R16282
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	1/6/2014	R16282
Surr: Toluene-d8	101	70-130		%REC	1	1/6/2014	R16282
EPA 8270C: SEMIVOLATILES							Analyst: SUB
1,1-Biphenyl	ND	1.00		µg/L	1	1/6/2014	R16282
4-Chloroaniline	ND	10.0		µg/L	1	1/6/2014	R16282
Atrazine	ND	1.00		µg/L	1	1/6/2014	R16282
Benzaldehyde	ND	1.00		µg/L	1	1/6/2014	R16282
Bis(2-chloroisopropyl)ether	ND	10.0		µg/L	1	1/6/2014	R16282
Caprolactam	ND	0.100		µg/L	1	1/6/2014	R16282
Carbazole	ND	10.0		µg/L	1	1/6/2014	R16282
N-Nitroso-di-n-butylamine	ND	1.00		µg/L	1	1/6/2014	R16282
Acenaphthene	ND	10.0		µg/L	1	1/6/2014	R16282

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	E	Value above quantitation range
	J	Analyte detected below quantitation limits
	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits
	S	Spike Recovery outside accepted recovery limits

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2 for VOA and TOC only.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES							Analyst: SUB
Acenaphthylene	ND	10.0		µg/L	1	1/6/2014	R16282
Acetophenone	ND	10.0		µg/L	1	1/6/2014	R16282
Anthracene	ND	10.0		µg/L	1	1/6/2014	R16282
Benzo(g,h,i)perylene	ND	10.0		µg/L	1	1/6/2014	R16282
Bis(2-chloroethoxy)methane	ND	10.0		µg/L	1	1/6/2014	R16282
Bis(2-chloroethyl)ether	ND	10.0		µg/L	1	1/6/2014	R16282
4-Bromophenyl phenyl ether	ND	10.0		µg/L	1	1/6/2014	R16282
Butyl benzyl phthalate	ND	10.0		µg/L	1	1/6/2014	R16282
4-Chloro-3-methylphenol	ND	5.00		µg/L	1	1/6/2014	R16282
2-Chloronaphthalene	ND	10.0		µg/L	1	1/6/2014	R16282
2-Chlorophenol	ND	10.0		µg/L	1	1/6/2014	R16282
4-Chlorophenyl phenyl ether	ND	10.0		µg/L	1	1/6/2014	R16282
1-Methylnaphthalene	ND	10.0		µg/L	1	1/6/2014	R16282
Dibenzofuran	ND	10.0		µg/L	1	1/6/2014	R16282
2,4-Dichlorophenol	ND	10.0		µg/L	1	1/6/2014	R16282
2,4-Dimethylphenol	ND	10.0		µg/L	1	1/6/2014	R16282
4,6-Dinitro-2-methylphenol	ND	10.0		µg/L	1	1/6/2014	R16282
2,4-Dinitrophenol	ND	10.0		µg/L	1	1/6/2014	R16282
2,4-Dinitrotoluene	ND	10.0		µg/L	1	1/6/2014	R16282
2-Methylphenol	ND	10.0		µg/L	1	1/6/2014	R16282
2,6-Dinitrotoluene	ND	10.0		µg/L	1	1/6/2014	R16282
3,3'-Dichlorobenzidine	ND	10.0		µg/L	1	1/6/2014	R16282
Benz(a)anthracene	ND	1.00		µg/L	1	1/6/2014	R16282
Di-n-octyl phthalate	ND	10.0		µg/L	1	1/6/2014	R16282
Benzo(a)pyrene	ND	1.00		µg/L	1	1/6/2014	R16282
Benzo(b)fluoranthene	ND	1.00		µg/L	1	1/6/2014	R16282
Benzo(k)fluoranthene	ND	1.00		µg/L	1	1/6/2014	R16282
Bis(2-ethylhexyl)phthalate	ND	5.00		µg/L	1	1/6/2014	R16282
Chrysene	ND	0.100		µg/L	1	1/6/2014	R16282
Dibenz(a,h)anthracene	ND	1.00		µg/L	1	1/6/2014	R16282
Diethyl phthalate	ND	10.0		µg/L	1	1/6/2014	R16282
Dimethyl phthalate	ND	10.0		µg/L	1	1/6/2014	R16282
Hexachlorobenzene	ND	1.00		µg/L	1	1/6/2014	R16282
Di-n-butyl phthalate	ND	10.0		µg/L	1	1/6/2014	R16282
Hexachlorobutadiene	ND	10.0		µg/L	1	1/6/2014	R16282
Fluoranthene	ND	10.0		µg/L	1	1/6/2014	R16282
Hexachlorocyclopentadiene	ND	10.0		µg/L	1	1/6/2014	R16282
Fluorene	ND	10.0		µg/L	1	1/6/2014	R16282
Hexachloroethane	ND	10.0		µg/L	1	1/6/2014	R16282

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270C: SEMIVOLATILES							Analyst: SUB
Indeno(1,2,3-cd)pyrene	ND	1.00		µg/L	1	1/6/2014	R16282
Isophorone	ND	10.0		µg/L	1	1/6/2014	R16282
2-Methylnaphthalene	ND	10.0		µg/L	1	1/6/2014	R16282
Naphthalene	ND	10.0		µg/L	1	1/6/2014	R16282
2-Nitroaniline	ND	10.0		µg/L	1	1/6/2014	R16282
3-Nitroaniline	ND	10.0		µg/L	1	1/6/2014	R16282
4-Nitroaniline	ND	10.0		µg/L	1	1/6/2014	R16282
Nitrobenzene	ND	10.0		µg/L	1	1/6/2014	R16282
2-Nitrophenol	ND	10.0		µg/L	1	1/6/2014	R16282
4-Nitrophenol	ND	10.0		µg/L	1	1/6/2014	R16282
N-Nitrosodi-n-propylamine	ND	10.0		µg/L	1	1/6/2014	R16282
N-Nitrosodiphenylamine	ND	5.00		µg/L	1	1/6/2014	R16282
o-Toluidine	ND	1.00		µg/L	1	1/6/2014	R16282
Pentachlorophenol	ND	10.0		µg/L	1	1/6/2014	R16282
Phenanthrene	ND	10.0		µg/L	1	1/6/2014	R16282
Phenol	ND	5.00		µg/L	1	1/6/2014	R16282
Pyrene	ND	10.0		µg/L	1	1/6/2014	R16282
Pyridine	ND	1.00		µg/L	1	1/6/2014	R16282
1,2,4,5-Tetrachlorobenzene	ND	10.0		µg/L	1	1/6/2014	R16282
2,3,4,6-Tetrachlorophenol	ND	10.0		µg/L	1	1/6/2014	R16282
2,4,5-Trichlorophenol	ND	10.0		µg/L	1	1/6/2014	R16282
2,4,6-Trichlorophenol	ND	10.0		µg/L	1	1/6/2014	R16282
Surr: 2,4,6-Tribromophenol	84.7	10-123		%REC	1	1/6/2014	R16282
Surr: 2-Fluorobiphenyl	87.4	19-130		%REC	1	1/6/2014	R16282
Surr: 2-Fluorophenol	79.1	21-110		%REC	1	1/6/2014	R16282
Surr: 4-Terphenyl-d14	96.4	33-141		%REC	1	1/6/2014	R16282
Surr: Nitrobenzene-d5	105	25-130		%REC	1	1/6/2014	R16282
Surr: Phenol-d5	84.4	10-125		%REC	1	1/6/2014	R16282
CORROSIVITY							Analyst: SUB
pH	7.34	0.100		pH Units	1	1/8/2014	R16282
IGNITABILITY METHOD 1010							Analyst: SUB
Ignitability	>200	0		°F	1	1/7/2014	R16282
CYANIDE, REACTIVE							Analyst: SUB
Cyanide, Reactive	ND	1.00		mg/L	1	1/10/2014	R16282
SULFIDE, REACTIVE							Analyst: SUB
Reactive Sulfide	2.8	1.0		mg/L	1	1/6/2014	R16282
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JML

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	E	Value above quantitation range
	J	Analyte detected below quantitation limits
	O	RSD is greater than RSDlimit
	R	RPD outside accepted recovery limits
	S	Spike Recovery outside accepted recovery limits

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2 for VOA and TOC only.
RL	Reporting Detection Limit

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: WDW-1, 2, & 3 Effluent

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date: 12/23/2013 8:40:00 AM

Lab ID: 1312B24-001

Matrix: AQUEOUS

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
SM2510B: SPECIFIC CONDUCTANCE							Analyst: JML
Conductivity	7700	0.010		µmhos/cm	1	12/26/2013 2:07:17 PM	R15744
SM4500-H+B: PH							Analyst: JML
pH	7.27	1.68	H	pH units	1	12/26/2013 2:07:17 PM	R15744
SM2320B: ALKALINITY							Analyst: JML
Bicarbonate (As CaCO3)	370	20		mg/L CaCO3	1	12/26/2013 2:07:17 PM	R15744
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	12/26/2013 2:07:17 PM	R15744
Total Alkalinity (as CaCO3)	370	20		mg/L CaCO3	1	12/26/2013 2:07:17 PM	R15744
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	5650	40.0	*	mg/L	1	12/30/2013 12:59:00 PM	11011

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date:

Lab ID: 1312B24-002

Matrix: TRIP BLANK

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Acetonitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Allyl chloride	ND	0.500		µg/L	1	1/6/2014	R16282
Chloroprene	ND	0.500		µg/L	1	1/6/2014	R16282
Cyclohexane	ND	0.500		µg/L	1	1/6/2014	R16282
Diethyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
Diisopropyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
Epichlorohydrin	ND	5.00		µg/L	1	1/6/2014	R16282
Ethyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
Ethyl methacrylate	ND	0.500		µg/L	1	1/6/2014	R16282
Freon-113	ND	0.500		µg/L	1	1/6/2014	R16282
Isobutanol	ND	50.0		µg/L	1	1/6/2014	R16282
Isopropyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
Methacrylonitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Methyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
Methyl ethyl ketone	ND	2.50		µg/L	1	1/6/2014	R16282
Methyl isobutyl ketone	ND	2.50		µg/L	1	1/6/2014	R16282
Methyl methacrylate	ND	0.500		µg/L	1	1/6/2014	R16282
Methylcyclohexane	ND	1.00		µg/L	1	1/6/2014	R16282
n-Amyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
n-Hexane	ND	0.500		µg/L	1	1/6/2014	R16282
Nitrobenzene	ND	5.00		µg/L	1	1/6/2014	R16282
Pentachloroethane	ND	5.00		µg/L	1	1/6/2014	R16282
p-isopropyltoluene	ND	0.500		µg/L	1	1/6/2014	R16282
Propionitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Tetrahydrofuran	ND	0.500		µg/L	1	1/6/2014	R16282
Benzene	ND	0.500		µg/L	1	1/6/2014	R16282
Toluene	ND	0.500		µg/L	1	1/6/2014	R16282
Ethylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Methyl tert-butyl ether (MTBE)	ND	10.0		µg/L	1	1/6/2014	R16282
1,2,4-Trimethylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,3,5-Trimethylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dichloroethane (EDC)	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dibromoethane (EDB)	ND	0.500		µg/L	1	1/6/2014	R16282
Naphthalene	ND	0.500		µg/L	1	1/6/2014	R16282
Acetone	ND	2.50		µg/L	1	1/6/2014	R16282
Bromobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Bromodichloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
Bromoform	ND	0.500		µg/L	1	1/6/2014	R16282
Bromomethane	ND	0.500		µg/L	1	1/6/2014	R16282

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date:

Lab ID: 1312B24-002

Matrix: TRIP BLANK

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Carbon disulfide	ND	0.500		µg/L	1	1/6/2014	R16282
Carbon Tetrachloride	ND	0.500		µg/L	1	1/6/2014	R16282
Chlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Chloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
Chloroform	ND	0.500		µg/L	1	1/6/2014	R16282
Chloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
2-Chlorotoluene	ND	0.500		µg/L	1	1/6/2014	R16282
4-Chlorotoluene	ND	0.500		µg/L	1	1/6/2014	R16282
cis-1,2-DCE	ND	0.500		µg/L	1	1/6/2014	R16282
cis-1,3-Dichloropropene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dibromo-3-chloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
Dibromochloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
Dibromomethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,3-Dichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,4-Dichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Dichlorodifluoromethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1-Dichloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1-Dichloroethene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2-Dichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
1,3-Dichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
2,2-Dichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1-Dichloropropene	ND	0.500		µg/L	1	1/6/2014	R16282
Hexachlorobutadiene	ND	0.500		µg/L	1	1/6/2014	R16282
2-Hexanone	ND	0.500		µg/L	1	1/6/2014	R16282
Isopropylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Methylene Chloride	ND	2.50		µg/L	1	1/6/2014	R16282
n-Butylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
n-Propylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
sec-Butylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
Styrene	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Butylbenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,1,1,2-Tetrachloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1,2,2-Tetrachloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
Tetrachloroethene (PCE)	ND	0.500		µg/L	1	1/6/2014	R16282
trans-1,2-DCE	ND	0.500		µg/L	1	1/6/2014	R16282
trans-1,3-Dichloropropene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2,3-Trichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282
1,2,4-Trichlorobenzene	ND	0.500		µg/L	1	1/6/2014	R16282

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1312B24

Date Reported: 1/28/2014

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: WDW-1, 2, & 3 Qtrly Inj Well

Collection Date:

Lab ID: 1312B24-002

Matrix: TRIP BLANK

Received Date: 12/23/2013 3:00:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
1,1,1-Trichloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,1,2-Trichloroethane	ND	0.500		µg/L	1	1/6/2014	R16282
Trichloroethene (TCE)	ND	0.500		µg/L	1	1/6/2014	R16282
Trichlorofluoromethane	ND	0.500		µg/L	1	1/6/2014	R16282
1,2,3-Trichloropropane	ND	0.500		µg/L	1	1/6/2014	R16282
Vinyl chloride	ND	0.500		µg/L	1	1/6/2014	R16282
Xylenes, Total	ND	1.00		µg/L	1	1/6/2014	R16282
mp-Xylenes	ND	0.500		µg/L	1	1/6/2014	R16282
o-Xylene	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Amyl methyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Butyl ethyl ether	ND	0.500		µg/L	1	1/6/2014	R16282
tert-Butyl alcohol	ND	2.50		µg/L	1	1/6/2014	R16282
Acrolein	ND	0.500		µg/L	1	1/6/2014	R16282
Acrylonitrile	ND	0.500		µg/L	1	1/6/2014	R16282
Bromochloromethane	ND	0.500		µg/L	1	1/6/2014	R16282
2-Chloroethyl vinyl ether	ND	1.00		µg/L	1	1/6/2014	R16282
Iodomethane	ND	0.500		µg/L	1	1/6/2014	R16282
trans-1,4-Dichloro-2-butene	ND	0.500		µg/L	1	1/6/2014	R16282
Vinyl acetate	ND	0.500		µg/L	1	1/6/2014	R16282
1,4-Dioxane	ND	20.0		µg/L	1	1/6/2014	R16282
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	1/6/2014	R16282
Surr: 4-Bromofluorobenzene	99.2	70-130		%REC	1	1/6/2014	R16282
Surr: Toluene-d8	99.2	70-130		%REC	1	1/6/2014	R16282

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

Schultz, Michele

From: Strange, Aaron
Sent: Wednesday, January 29, 2014 9:27 AM
To: Schultz, Michele
Subject: Injection Wells

Micki,

I did get a field temperature and pH for the Injection well samples on 12/23/13. The temp was 90.1F and the pH was 7.33.

Thank you,
Aaron

Aaron Strange
Environmental Specialist 1
Environmental Department
Navajo Refining Co, LLC
Artesia NM
Cell: (575) 703-5057
Off: (575) 746-5468

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454377		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	95.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	96.2	90	110			
Bromide	8.0	0.10	8.000	0	99.4	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	7.4	0.50	8.000	0	92.0	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454379		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454380		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.0	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.5	90	110			
Bromide	2.5	0.10	2.500	0	98.0	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.9	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	91.3	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454389		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.95	0.10	1.000	0	95.1	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	93.8	90	110			
Bromide	4.9	0.10	5.000	0	97.5	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	97.9	90	110			
Phosphorus, Orthophosphate (As P)	4.6	0.50	5.000	0	91.8	90	110			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454401		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.10	1.600	0	97.0	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	96.1	90	110			
Bromide	7.9	0.10	8.000	0	99.2	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	7.7	0.50	8.000	0	95.7	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/24/2013		SeqNo: 454413		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.95	0.10	1.000	0	95.2	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	94.0	90	110			
Bromide	4.9	0.10	5.000	0	97.2	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	98.0	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	93.4	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/25/2013		SeqNo: 454425		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.10	1.600	0	96.2	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	96.2	90	110			
Bromide	7.9	0.10	8.000	0	99.2	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	7.7	0.50	8.000	0	96.2	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/25/2013		SeqNo: 454437		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.0	0.10	1.000	0	99.6	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	94.1	90	110			
Bromide	4.9	0.10	5.000	0	97.4	90	110			
Nitrogen, Nitrate (As N)	2.9	0.10	3.000	0	98.2	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.1	90	110			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/25/2013		SeqNo: 454449		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.10	1.600	0	99.5	90	110			
Nitrogen, Nitrite (As N)	3.1	0.10	3.200	0	96.5	90	110			
Bromide	8.0	0.10	8.000	0	99.6	90	110			
Nitrogen, Nitrate (As N)	4.9	0.10	4.800	0	103	90	110			
Phosphorus, Orthophosphate (As P)	7.8	0.50	8.000	0	97.1	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15740		RunNo: 15740							
Prep Date:	Analysis Date: 12/25/2013		SeqNo: 454455		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.98	0.10	1.000	0	98.4	90	110			
Nitrogen, Nitrite (As N)	1.9	0.10	2.000	0	94.1	90	110			
Bromide	4.9	0.10	5.000	0	97.4	90	110			
Nitrogen, Nitrate (As N)	3.0	0.10	3.000	0	98.4	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	93.8	90	110			

Sample ID A6	SampType: CCV_6		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455748		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	12.00	0	101	90	110			
Sulfate	31	0.50	30.00	0	103	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455751		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455752		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Sulfate	9.4	0.50	10.00	0	93.5	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2 for VOA and TOC only.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455761		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.1	90	110			
Sulfate	12	0.50	12.50	0	95.4	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455773		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.7	0.50	8.000	0	96.7	90	110			
Sulfate	20	0.50	20.00	0	98.4	90	110			

Sample ID A4	SampType: CCV_4		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455785		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Sulfate	12	0.50	12.50	0	95.3	90	110			

Sample ID A5	SampType: CCV_5		TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R15790		RunNo: 15790							
Prep Date:	Analysis Date: 12/27/2013		SeqNo: 455797		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	7.8	0.50	8.000	0	97.0	90	110			
Sulfate	20	0.50	20.00	0	98.5	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2 for VOA and TOC only.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

Client: Navajo Refining Company

Project: WDW-1, 2, & 3 Qtrly Inj Well

Sample ID	1312b24-001a dup			SampType:	dup		TestCode:	SM2510B: Specific Conductance			
Client ID:	WDW-1, 2, & 3 Efflu			Batch ID:	R15744		RunNo:	15744			
Prep Date:				Analysis Date:	12/26/2013		SeqNo:	454554		Units:	µmhos/cm
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Conductivity	7700	0.010						0.365	20		

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	MB-11002	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	11002	RunNo:	15766					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	455051	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-11002	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	11002	RunNo:	15766					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	455052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120			

Sample ID	1312B24-001BMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	WDW-1, 2, & 3 Efflu	Batch ID:	11002	RunNo:	15766					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	455056	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.8	75	125			

Sample ID	1312B24-001BMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	WDW-1, 2, & 3 Efflu	Batch ID:	11002	RunNo:	15766					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	455058	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	94.2	75	125	0.332	20	

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	MB-11004	SampType:	MBLK	TestCode:	MERCURY, TCLP					
Client ID:	PBW	Batch ID:	11004	RunNo:	15770					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	455102	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	LCS-11004	SampType:	LCS	TestCode:	MERCURY, TCLP					
Client ID:	LCSW	Batch ID:	11004	RunNo:	15770					
Prep Date:	12/26/2013	Analysis Date:	12/27/2013	SeqNo:	455103	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.6	80	120			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	MB-11005		SampType:	MBLK		TestCode:	EPA Method 6010B: TCLP Metals				
Client ID:	PBW		Batch ID:	11005		RunNo:	15777				
Prep Date:	12/26/2013		Analysis Date:	12/27/2013		SeqNo:	455301		Units:		mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	ND	5.0									
Barium	ND	100									
Cadmium	ND	1.0									
Chromium	ND	5.0									
Lead	ND	5.0									
Selenium	ND	1.0									
Silver	ND	5.0									

Sample ID	LCS-11005		SampType: LCS		TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	LCSW		Batch ID: 11005		RunNo: 15777					
Prep Date:	12/26/2013		Analysis Date: 12/27/2013		SeqNo: 455302		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	93.4	80	120			
Barium	ND	100	0.5000	0	92.9	80	120			
Cadmium	ND	1.0	0.5000	0	98.7	80	120			
Chromium	ND	5.0	0.5000	0	93.2	80	120			
Lead	ND	5.0	0.5000	0	93.1	80	120			
Selenium	ND	1.0	0.5000	0	94.4	80	120			
Silver	ND	5.0	0.1000	0	98.3	80	120			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	MB-11005		SampType: MBLK		TestCode: EPA 6010B: Total Metals					
Client ID:	PBW		Batch ID: 11005		RunNo: 15777					
Prep Date:	12/26/2013		Analysis Date: 12/27/2013		SeqNo: 456705		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-11005		SampType: LCS		TestCode: EPA 6010B: Total Metals					
Client ID:	LCSW		Batch ID: 11005		RunNo: 15777					
Prep Date:	12/26/2013		Analysis Date: 12/27/2013		SeqNo: 456706		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.48	0.050	0.5000	0	96.8	80	120			
Arsenic	0.47	0.020	0.5000	0	93.4	80	120			
Barium	0.46	0.020	0.5000	0	92.9	80	120			
Beryllium	0.50	0.0030	0.5000	0	99.2	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.7	80	120			
Calcium	45	1.0	50.00	0	90.1	80	120			
Chromium	0.47	0.0060	0.5000	0	93.2	80	120			
Cobalt	0.46	0.0060	0.5000	0	92.7	80	120			
Copper	0.51	0.0060	0.5000	0	102	80	120			
Iron	0.47	0.050	0.5000	0	94.1	80	120			
Lead	0.47	0.0050	0.5000	0	93.1	80	120			
Magnesium	46	1.0	50.00	0	92.0	80	120			
Manganese	0.48	0.0020	0.5000	0	95.1	80	120			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	LCS-11005		SampType: LCS		TestCode: EPA 6010B: Total Metals					
Client ID:	LCSW		Batch ID: 11005		RunNo: 15777					
Prep Date:	12/26/2013		Analysis Date: 12/27/2013		SeqNo: 456706		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	0.45	0.010	0.5000	0	90.0	80	120			
Potassium	45	1.0	50.00	0	89.1	80	120			
Selenium	0.47	0.050	0.5000	0	94.4	80	120			
Silver	0.098	0.0050	0.1000	0	98.3	80	120			
Thallium	0.49	0.050	0.5000	0	98.4	80	120			
Vanadium	0.48	0.050	0.5000	0	96.6	80	120			
Zinc	0.46	0.020	0.5000	0	92.9	80	120			

Sample ID	MB-11005		SampType:	MBLK		TestCode:	EPA 6010B: Total Metals				
Client ID:	PBW		Batch ID:	11005		RunNo:	15807				
Prep Date:	12/26/2013		Analysis Date:	12/30/2013		SeqNo:	456709		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020									

Sample ID	LCS-11005		SampType: LCS		TestCode: EPA 6010B: Total Metals					
Client ID:	LCSW		Batch ID: 11005		RunNo: 15807					
Prep Date:	12/26/2013		Analysis Date: 12/30/2013		SeqNo: 456710		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.59	0.020	0.5000	0	119	80	120			

Sample ID	MB-11005		SampType:	MBLK		TestCode:	EPA 6010B: Total Metals				
Client ID:	PBW		Batch ID:	11005		RunNo:	15868				
Prep Date:	12/26/2013		Analysis Date:	1/2/2014		SeqNo:	457613		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sodium	1.1	1.0									

Sample ID	LCS-11005		SampType:	LCS		TestCode:	EPA 6010B: Total Metals				
Client ID:	LCSW		Batch ID:	11005		RunNo:	15868				
Prep Date:	12/26/2013		Analysis Date:	1/2/2014		SeqNo:	457614		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sodium	60	1.0	50.00	0	119	80	120			B	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	1312b24-001a dup			SampType:	dup		TestCode:	SM4500-H+B: pH			
Client ID:	WDW-1, 2, & 3 Efflu			Batch ID:	R15744		RunNo:	15744			
Prep Date:				Analysis Date:	12/26/2013		SeqNo:	454560		Units:	pH units
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
pH	7.30	1.68								H	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH greater than 2 for VOA and TOC only.
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R15744	RunNo:	15744					
Prep Date:		Analysis Date:	12/26/2013	SeqNo:	454539	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-1		SampType: lcs		TestCode: SM2320B: Alkalinity					
Client ID:	LCSW		Batch ID: R15744		RunNo: 15744					
Prep Date:			Analysis Date: 12/26/2013		SeqNo: 454540		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.6	90	110			

Qualifiers:

- | | |
|---|--|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| E Value above quantitation range | H Holding times for preparation or analysis exceeded |
| J Analyte detected below quantitation limits | ND Not Detected at the Reporting Limit |
| O RSD is greater than RSDlimit | P Sample pH greater than 2 for VOA and TOC only. |
| R RPD outside accepted recovery limits | RL Reporting Detection Limit |
| S Spike Recovery outside accepted recovery limits | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1312B24

28-Jan-14

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

Sample ID	MB-11011	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	11011	RunNo:	15802					
Prep Date:	12/27/2013	Analysis Date:	12/30/2013	SeqNo:	455988	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-11011		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	11011		RunNo:	15802				
Prep Date:	12/27/2013		Analysis Date:	12/30/2013		SeqNo:	455989		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1010	20.0	1000	0	101	80	120				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING COM

Work Order Number: 1312B24

RcptNo: 1

Received by/date:	AF	12/23/13
Logged By:	Lindsay Mangin	12/23/2013 3:00:00 PM
Completed By:	Lindsay Mangin	12/24/2013 9:32:57 AM
Reviewed By:	<i>[Signature]</i>	<i>[Signature]</i>

Chain of Custody

- | | | | |
|--|---|-----------------------------|---|
| 1. Custody seals intact on sample bottles? | Yes ☐ | No ☐ | Not Present ☒ |
| 2. Is Chain of Custody complete? | Yes ☒ | No ☐ | Not Present ☐ |
| 3. How was the sample delivered? | Courier | | |

Log In

- | | | | |
|---|---|--|---------------------------------------|
| 4. Was an attempt made to cool the samples? | Yes ☒ | No ☐ | NA ☐ |
| 5. Were all samples received at a temperature of >0° C to 6.0° C | Yes ☒ | No ☐ | NA ☐ |
| 6. Sample(s) in proper container(s)? | Yes ☒ | No ☐ | |
| 7. Sufficient sample volume for indicated test(s)? | Yes ☒ | No ☐ | |
| 8. Are samples (except VOA and ONG) properly preserved? | Yes ☒ | No ☐ | |
| 9. Was preservative added to bottles? | Yes ☐ | No ☒ | NA ☐ |
| 10. VOA vials have zero headspace? | Yes ☒ | No ☐ | No VOA Vials ☐ |
| 11. Were any sample containers received broken? | Yes ☐ | No ☒ | |
| 12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) | Yes ☒ | No ☐ | |
| 13. Are matrices correctly identified on Chain of Custody? | Yes ☒ | No ☐ | |
| 14. Is it clear what analyses were requested? | Yes ☒ | No ☐ | |
| 15. Were all holding times able to be met?
(If no, notify customer for authorization.) | Yes ☒ | No ☐ | |

# of preserved bottles checked for pH:	22
Adjusted?	NO
Checked by:	<i>[Signature]</i>

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

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

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Yes			

vajo Refining Co.

Address: P.O. Box 159 Artesia,

1-0159

575-748-3311

Fax#: 575-746-5451

ckage:

and

☐ **Level 4 (Full Validation)**

Type) _____

✓ Standard ~~Rush Next Day~~

Project Name:

WDW-1, 2, & 3 Qtrly Inj Well

Project #:

Project Manager:

Mike Holder

Sampler: Aaron Strange

☒ Yes ☐ No

Sämlinge Temperatur

HEALING



HALL ENVIRONMENT ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Time:	Relinquished by: <u>James S. Fagan</u>	Received by:
-------	--	--------------

10:00 Ann Gryn

Received by:	Date	Time
	12/23/13	1500

Time:	Relinquished by:
-------	------------------

Received by: _____ Date _____ Time _____

Remarks: Report these results separately from all other Chain of Custody kits provided.

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

Classification	Analyte	Method	Units	...
Inorganics	Mercury	SW-846 Method 7470		
Inorganics	Arsenic	SW-846 Method 7063		
Inorganics	Silver	SW-846 Method 6010		
Inorganics	Aluminum	SW-846 Method 6020		
Inorganics	Barium	SW-846 Method 6020		
Inorganics	Beryllium	SW-846 Method 6020		
Inorganics	Calcium	SW-846 Method 6020		
Inorganics	Cadmium	SW-846 Method 6020		
Inorganics	Cobalt	SW-846 Method 6020		
Inorganics	Chromium	SW-846 Method 6020		
Inorganics	Copper	SW-846 Method 6020		
Inorganics	Iron	SW-846 Method 6020		
Inorganics	Mercury	SW-846 Method 6020		
Inorganics	Potassium	SW-846 Method 6020		
Inorganics	Magnesium	SW-846 Method 6020		
Inorganics	Manganese	SW-846 Method 6020		
Inorganics	Sodium	SW-846 Method 6020		
Inorganics	Nickel	SW-846 Method 6020		
Inorganics	Lead	SW-846 Method 6020		
Inorganics	Antimony	SW-846 Method 6020		
Inorganics	Selenium	SW-846 Method 6020		
Inorganics	Thallium	SW-846 Method 6020		
Inorganics	Vanadium	SW-846 Method 6020		
Inorganics	Zinc	SW-846 Method 6020		

(1) 23 TAL Metals

WOW-1, 223 Qtrly Inj well

1- Ag set
 2- 1L unpres. P
 1- 125ml H_2SO_4 P
 4- 40ml HCl VOA
 2- 1L Ambers unpres.
 1- 500ml unpres. P
 1- 500ml NaOH P
 1- 500ml NaOH/zinc acetate P
 1- 500ml HNO_3 P

+ TB

Classification	Analyte name	Method	Units	RL
Volatile org	Acetone	SW-846 Method 8260C	µg/L	10
Volatile org	Acetonitrile	SW-846 Method 8260C	µg/L	
Volatile org	Acrolein	SW-846 Method 8260C	µg/L	
Volatile org	Allyl alcohol	SW-846 Method 8260C	µg/L	
Volatile org	Allyl chloride	SW-846 Method 8260C	µg/L	
Volatile org	n-Amyl ethyl ether (TAE)	SW-846 Method 8260C	µg/L	
Volatile org	n-Amyl methyl ether (TAME)	SW-846 Method 8260C	µg/L	
Volatile org	Benzene	SW-846 Method 8260C	µg/L	1
Volatile org	Benzyl chloride	SW-846 Method 8260C	µg/L	
Volatile org	Bis(2-chloroethyl)sulfide	SW-846 Method 8260C	µg/L	
Volatile org	Bromoacetone	SW-846 Method 8260C	µg/L	
Volatile org	Bromobenzene	SW-846 Method 8260C	µg/L	
Volatile org	Bromochloromethane	SW-846 Method 8260C	µg/L	5
Volatile org	Bromodichloromethane	SW-846 Method 8260C	µg/L	1
Volatile org	4-Bromofluorobenzene (surr)	SW-846 Method 8260C	µg/L	
Volatile org	Bromoform	SW-846 Method 8260C	µg/L	4
Volatile org	Bromomethane	SW-846 Method 8260C	µg/L	2
Volatile org	n-Butanol	SW-846 Method 8260C	µg/L	
Volatile org	2-Butanone (MEK)	SW-846 Method 8260C	µg/L	10
Volatile org	n-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile org	sec-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile org	tert-Butylbenzene	SW-846 Method 8260C	µg/L	
Volatile org	n-Butyl alcohol	SW-846 Method 8260C	µg/L	
Volatile org	Carbon disulfide	SW-846 Method 8260C	µg/L	2
Volatile org	Carbon tetrachloride	SW-846 Method 8260C	µg/L	1
Volatile org	Chloral hydrate	SW-846 Method 8260C	µg/L	
Volatile org	Chlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile org	Chlorobenzene-d5 (IS)	SW-846 Method 8260C	µg/L	
Volatile org	1-Chlorobutane	SW-846 Method 8260C	µg/L	
Volatile org	Chlorodibromomethane	SW-846 Method 8260C	µg/L	
Volatile org	1-Chlorohexane	SW-846 Method 8260C	µg/L	
Volatile org	Chloroethane	SW-846 Method 8260C	µg/L	1
Volatile org	2-Chloroethanol	SW-846 Method 8260C	µg/L	
Volatile org	2-Chloroethyl vinyl ether	SW-846 Method 8260C	µg/L	
Volatile org	Chloroform	SW-846 Method 8260C	µg/L	1
Volatile org	Chloromethane	SW-846 Method 8260C	µg/L	1
Volatile org	Chloroprene	SW-846 Method 8260C	µg/L	
Volatile org	4-Chlorotoluene	SW-846 Method 8260C	µg/L	
Volatile org	Crotonaldehyde	SW-846 Method 8260C	µg/L	
Volatile org	Cyclohexane	SW-846 Method 8260C	µg/L	5
Volatile org	1,2-Dibromo-3-chloropropane	SW-846 Method 8260C	µg/L	10
Volatile org	1,2-Dibromoethane	SW-846 Method 8260C	µg/L	2
Volatile org	Dibromochloromethane	SW-846 Method 8260C	µg/L	1
Volatile org	Dibromomethane	SW-846 Method 8260C	µg/L	
Volatile org	1,2-Dichlorobenzene	SW-846 Method 8260C	µg/L	1

Volatile org	1,3-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile org	1,4-Dichlorobenzene	SW-846 Method 8260C	µg/L	1
Volatile org	1,4-Dichlorobenzene-d4 (IS)	SW-846 Method 8260C	µg/L	
Volatile org	cis-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile org	trans-1,4-Dichloro-2-butene	SW-846 Method 8260C	µg/L	
Volatile org	Dichlorodifluoromethane	SW-846 Method 8260C	µg/L	5
Volatile org	1,1-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile org	1,2-Dichloroethane	SW-846 Method 8260C	µg/L	1
Volatile org	1,2-Dichloroethane-d4 (surr)	SW-846 Method 8260C	µg/L	
Volatile org	1,1-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile org	cis-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile org	trans-1,2-Dichloroethene	SW-846 Method 8260C	µg/L	1
Volatile org	1,2-Dichloropropane	SW-846 Method 8260C	µg/L	1
Volatile org	1,3-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile org	2,2-Dichloropropane	SW-846 Method 8260C	µg/L	
Volatile org	1,1-Dichloropropene	SW-846 Method 8260C	µg/L	
Volatile org	1,3-Dichloro-2-propanol	SW-846 Method 8260C	µg/L	
Volatile org	cis-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile org	trans-1,3-Dichloropropene	SW-846 Method 8260C	µg/L	1
Volatile org	1,2,3,4-Depoxybutane	SW-846 Method 8260C	µg/L	
Volatile org	Diethyl ether	SW-846 Method 8260C	µg/L	
Volatile org	Diisopropyl ether (DIPE)	SW-846 Method 8260C	µg/L	
Volatile org	1,4-Difluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile org	1,4-Dioxane	SW-846 Method 8260C	µg/L	130
Volatile org	Epichlorohydrin	SW-846 Method 8260C	µg/L	
Volatile org	Ethanol	SW-846 Method 8260C	µg/L	
Volatile org	Ethyl acetate	SW-846 Method 8260C	µg/L	
Volatile org	Ethylbenzene	SW-846 Method 8260C	µg/L	1
Volatile org	Ethylene oxide	SW-846 Method 8260C	µg/L	
Volatile org	Ethyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile org	Fluorobenzene (IS)	SW-846 Method 8260C	µg/L	
Volatile org	Freon 113	SW-846 Method 8260C	µg/L	5
Volatile org	Ethyl tert-butyl ether (ETBE)	SW-846 Method 8260C	µg/L	
Volatile org	Hexachlorobutadiene	SW-846 Method 8260C	µg/L	
Volatile org	Hexachloroethane	SW-846 Method 8260C	µg/L	
Volatile org	2-Hexanone	SW-846 Method 8260C	µg/L	5
Volatile org	Iodomethane	SW-846 Method 8260C	µg/L	
Volatile org	Isobutyl alcohol	SW-846 Method 8260C	µg/L	
Volatile org	Isopropylbenzene	SW-846 Method 8260C	µg/L	2
Volatile org	p-Isopropyltoluene	SW-846 Method 8260C	µg/L	
Volatile org	Malononitrile	SW-846 Method 8260C	µg/L	
Volatile org	Methacrylonitrile	SW-846 Method 8260C	µg/L	
Volatile org	Methanol	SW-846 Method 8260C	µg/L	
Volatile org	Methyl acetate	SW-846 Method 8260C	µg/L	5
Volatile org	Methylcyclohexane	SW-846 Method 8260C	µg/L	5
Volatile org	Methyl acrylate	SW-846 Method 8260C	µg/L	
Volatile org	Methylene chloride	SW-846 Method 8260C	µg/L	2

Volatile org	Methyl methacrylate	SW-846 Method 8260C	µg/L	
Volatile org	4-Methyl-2-pentanone (MIBK)	SW-846 Method 8260C	µg/L	5
Volatile org	Methyl tert-butyl ether (MTBE)	SW-846 Method 8260C	µg/L	1
Volatile org	Naphthalene	SW-846 Method 8260C	µg/L	
Volatile org	Nitrobenzene	SW-846 Method 8260C	µg/L	
Volatile org	2-Nitropropane	SW-846 Method 8260C	µg/L	
Volatile org	N-Nitroso-di-n-butylamine	SW-846 Method 8260C	µg/L	
Volatile org	Paraldehyde	SW-846 Method 8260C	µg/L	
Volatile org	Pentachloroethane	SW-846 Method 8260C	µg/L	
Volatile org	Pentafluorobenzene	SW-846 Method 8260C	µg/L	
Volatile org	2-Pentanone	SW-846 Method 8260C	µg/L	
Volatile org	2-Picoline	SW-846 Method 8260C	µg/L	
Volatile org	1-Propanol	SW-846 Method 8260C	µg/L	
Volatile org	2-Propanol	SW-846 Method 8260C	µg/L	
Volatile org	Propargyl alcohol	SW-846 Method 8260C	µg/L	
Volatile org	beta-Propiolactone	SW-846 Method 8260C	µg/L	
Volatile org	Propionitrile	SW-846 Method 8260C	µg/L	
Volatile org	n-Propylamine	SW-846 Method 8260C	µg/L	
Volatile org	n-Propylbenzene	SW-846 Method 8260C	µg/L	
Volatile org	Pyridine	SW-846 Method 8260C	µg/L	
Volatile org	Styrene	SW-846 Method 8260C	µg/L	5
Volatile org	1,1,1,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	
Volatile org	1,1,2,2-Tetrachloroethane	SW-846 Method 8260C	µg/L	1
Volatile org	Tetrachloroethene (PCE)	SW-846 Method 8260C	µg/L	1
Volatile org	Toluene	SW-846 Method 8260C	µg/L	1
Volatile org	Toluene-d8 (surr)	SW-846 Method 8260C	µg/L	
Volatile org	o-Toluidine	SW-846 Method 8260C	µg/L	
Volatile org	1,2,3-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile org	1,2,4-Trichlorobenzene	SW-846 Method 8260C	µg/L	5
Volatile org	1,1,1-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile org	1,1,2-Trichloroethane	SW-846 Method 8260C	µg/L	1
Volatile org	Trichloroethene (TCE)	SW-846 Method 8260C	µg/L	1
Volatile org	Trichlorofluoromethane	SW-846 Method 8260C	µg/L	5
Volatile org	1,2,3-Trichloropropane	SW-846 Method 8260C	µg/L	
Volatile org	1,2,4-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile org	1,3,5-Trimethylbenzene	SW-846 Method 8260C	µg/L	
Volatile org	Vinyl acetate	SW-846 Method 8260C	µg/L	
Volatile org	Vinyl chloride	SW-846 Method 8260C	µg/L	1
Volatile org	o-Xylene	SW-846 Method 8260C	µg/L	1
Volatile org	m-Xylene	SW-846 Method 8260C	µg/L	1
Volatile org	p-Xylene	SW-846 Method 8260C	µg/L	1
Volatile org	Xylene, total	SW-846 Method 8260C	µg/L	1

(surr) - Surrogate

(IS) - Internal Standard

Method 8260C Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) (EPA, Revi
Constituents with RLs are on the VOC Target Compound List (TCL) (SOMO 1.1)

Classification	Analyte name	Method	Unit
Semivolatile organics	1,1'-Biphenyl	SW-864 Method 8270B	µg/L
Semivolatile organics	1,2,4,5-Tetrachlorobenzene	SW-864 Method 8270B	µg/L
Semivolatile organics	2-Chloronaphthalene	SW-864 Method 8270B	µg/L
Semivolatile organics	2-Chlorophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2-Methylphenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2-Nitroaniline	SW-864 Method 8270B	µg/L
Semivolatile organics	2-Nitrophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,3,4,6-Tetrachlorophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,4-Dichlorophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,4-Dimethylphenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,4-Dinitrophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,4-Dinitrotoluene	SW-864 Method 8270B	µg/L
Semivolatile organics	2,4,5-Trichlorophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,4,6-Trichlorophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	2,6-Dinitrotoluene	SW-864 Method 8270B	µg/L
Semivolatile organics	3-Nitroaniline	SW-864 Method 8270B	µg/L
Semivolatile organics	3,3'-Dichlorobenzidine	SW-864 Method 8270B	µg/L
Semivolatile organics	4-Bromophenyl-phenylether	SW-864 Method 8270B	µg/L
Semivolatile organics	4-Chloro-3-methylphenol	SW-864 Method 8270B	µg/L
Semivolatile organics	4-Chloroaniline	SW-864 Method 8270B	µg/L
Semivolatile organics	4-Chlorophenyl-phenyl ether	SW-864 Method 8270B	µg/L
Semivolatile organics	4-Nitroaniline	SW-864 Method 8270B	µg/L
Semivolatile organics	4-Nitrophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	4,6-Dinitro-2-methylphenol	SW-864 Method 8270B	µg/L
Semivolatile organics	Acetophenone	SW-864 Method 8270B	µg/L
Semivolatile organics	Acenaphthene	SW-864 Method 8270B	µg/L
Semivolatile organics	Acenaphthylene	SW-864 Method 8270B	µg/L
Semivolatile organics	Anthracene	SW-864 Method 8270B	µg/L
Semivolatile organics	Atrazine	SW-864 Method 8270B	µg/L
Semivolatile organics	Benzaldehyde	SW-864 Method 8270B	µg/L
Semivolatile organics	Benzo(a)anthracene	SW-864 Method 8270B	µg/L
Semivolatile organics	Benzo(a)pyrene	SW-864 Method 8270B	µg/L
Semivolatile organics	Benzo(b)fluoranthene	SW-864 Method 8270B	µg/L
Semivolatile organics	Benzo(g,h,i)perylene	SW-864 Method 8270B	µg/L
Semivolatile organics	Benzo(k)fluoranthene	SW-864 Method 8270B	µg/L
Semivolatile organics	bis(2-Chloroethoxy)-methane	SW-864 Method 8270B	µg/L
Semivolatile organics	bis(2-Chloroethyl) ether	SW-864 Method 8270B	µg/L
Semivolatile organics	bis(2-Chloroisopropyl) ether	SW-864 Method 8270B	µg/L
Semivolatile organics	bis(2-Ethylhexyl)phthalate	SW-864 Method 8270B	µg/L
Semivolatile organics	Butylbenzylphthalate	SW-864 Method 8270B	µg/L
Semivolatile organics	Carbazole	SW-864 Method 8270B	µg/L
Semivolatile organics	Caprolactam	SW-864 Method 8270B	µg/L
Semivolatile organics	Chrysene	SW-864 Method 8270B	µg/L
Semivolatile organics	Di-n-butylphthalate	SW-864 Method 8270B	µg/L
Semivolatile organics	Di-n-octylphthalate	SW-864 Method 8270B	µg/L

Semivolatile organics	Dibenz(a,h)anthracene	SW-864 Method 8270B	µg/L
Semivolatile organics	Dibenzofuran	SW-864 Method 8270B	µg/L
Semivolatile organics	Diethylphthalate	SW-864 Method 8270B	µg/L
Semivolatile organics	Dimethylphthalate	SW-864 Method 8270B	µg/L
Semivolatile organics	Fluoranthene	SW-864 Method 8270B	µg/L
Semivolatile organics	Fluorene	SW-864 Method 8270B	µg/L
Semivolatile organics	Hexachlorobenzene	SW-864 Method 8270B	µg/L
Semivolatile organics	Hexachlorobutadiene	SW-864 Method 8270B	µg/L
Semivolatile organics	Hexachlorocyclopentadiene	SW-864 Method 8270B	µg/L
Semivolatile organics	Hexachloroethane	SW-864 Method 8270B	µg/L
Semivolatile organics	Indeno(1,2,3-cd)perylene	SW-864 Method 8270B	µg/L
Semivolatile organics	Isophorone	SW-864 Method 8270B	µg/L
Semivolatile organics	1-Methylnaphthalene	SW-864 Method 8270B	µg/L
Semivolatile organics	2-Methylnaphthalene	SW-864 Method 8270B	µg/L
Semivolatile organics	N-Nitroso-di-n-propylamine	SW-864 Method 8270B	µg/L
Semivolatile organics	N-Nitrosodiphenylamine	SW-864 Method 8270B	µg/L
Semivolatile organics	Naphthalene	SW-864 Method 8270B	µg/L
Semivolatile organics	Nitrobenzene	SW-864 Method 8270B	µg/L
Semivolatile organics	Pentachlorophenol	SW-864 Method 8270B	µg/L
Semivolatile organics	Phenanthrene	SW-864 Method 8270B	µg/L
Semivolatile organics	Phenol	SW-864 Method 8270B	µg/L
Semivolatile organics	Pyrene	SW-864 Method 8270B	µg/L

Target Compound List 1.5 for SVOCs by SW-846 Method 8270



RECEIVED OGD

2013 DEC 13 PM 1:18

December 9, 2013

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural
Resources Dept., O.C.D. Env. Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt
7011 3500 0001 4786 0902

RE: 2013 3rd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3 Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the third quarter of 2013 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. The volumes for the three annular space fluid tanks are reported in the attached Well Annulus Measurement System (WAMS) table. The most recent Pressure Falloff Tests on all three wells were completed in November 2012, and all passed.

This report covers the period from July 1, 2013 to September 30, 2013. We have disposed a total of 1,177,525 barrels of fluid into the three wells during the third quarter 2013. The volume per well is:

- 462,029 barrels into WDW-1
- 422,044 barrels into WDW-2
- 293,452 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President, Refinery Manager
Navajo Refining Company LLC

Electronic cc (w/enc.): MWH, RAC, MLS, AMS
Environmental File: Navajo: (ART: REF 13- 4.A.02.D)

2013 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													33,477,757
Jul-13	1,036	1,050	1,003	151	165	145	342	466	206	5,177	5,657	4,971	161,474	33,639,231
Aug-13	754	851	719	146	154	137	379	477	265	5,006	5,280	4,697	155,432	33,794,663
Sep-13	877	1,132	743	141	150	135	362	474	192	4,834	5,143	4,629	145,123	33,939,786
WDW-2	Previous Quarter													20,674,345
Jul-13	968	1,062	893	127	138	109	369	595	114	4,354	4,731	3,737	135,801	20,810,146
Aug-13	1,024	1,062	977	133	136	128	277	405	164	4,560	4,663	4,389	141,668	20,951,814
Sep-13	993	1,036	958	140	183	114	339	497	49	4,800	6,274	3,909	144,575	21,096,389
WDW-3	Previous Quarter													10,950,959
Jul-13	877	942	792	78	108	33	622	822	321	2,674	3,703	1,131	82,822	11,033,781
Aug-13	927	951	900	102	110	86	662	778	582	3,497	3,771	2,941	108,822	11,142,603
Sep-13	952	966	932	99	105	82	455	650	275	3,394	3,600	2,811	101,808	11,244,411
Total Injected fluids:														66,280,586

2013 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	7/1/13	7/8/13	7/15/13	7/22/13	7/29/13	8/5/13	8/12/13	8/19/13	8/26/13	9/3/13	9/9/13	9/16/13	9/23/13	9/30/13
WDW -1 ¹	125	125	125	125	125	125	125	125	125	125	125	125	110	110
WDW-2 ¹	135	135	135	135	135	135	135	135	135	135	135	135	135	135
WDW-3 ¹	145	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments:														

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment



Project Name	Quarterly Injection Well
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/27/2013 @ 11:50
End Date and Time	9/27/2013 @ 12:00

Sample Type	
Grab	☒
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One
--------------------------	-----

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

Type of Sampler	Directly to sample jars
-----------------	-------------------------

Outfall / Sample Location:	Waste water effluent pumps to injection wells.	☐ P-849 sample point	☐ P-856 sample point	☐ Other _____
		☒ P-854 sample point	☐ P-857 sample point	

Preservatives												Analysis and/or Method Requested
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	
1		VOA	1		X							VOC (8260c)
2		Amber Glass	2	X								SVOC (8270B)
3		Plastic	1			X						Metals/SW-846 Mthd 6020, 7063, 7470 Ca, K, Mg, Na/40 CFR 136.3
4		Plastic	3	X								R.C.I. HCO3, CO3, Cl, SO4, TDS, pH, cond./40 CFR 136.3
5		Plastic	2	X								Trip Blank
6		Plastic	1	X								Temperature Blank
7												
8												
9												
10												

Field Data (Weather, Observations, Etc): 9/27/2013 11:55 Tmp. 77.0, Humidity 61%, Wind Dir. SSE, Wind Speed 10.4 mph, Conditions Mostly Cloudy

Sample pH 8.14
Sample temperature 108.2 F

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐



23-Oct-2013

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1310062**

Dear Aaron,

ALS Environmental received 1 sample on 28-Sep-2013 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 15.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads "Sonia West".

Electronically approved by: Jumoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-13-12

ADDRESS 10450 Standliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5050 | FAX (281) 530-5887

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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

Date: 23-Oct-13

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1310062

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1310062-01	WDW-3 WW Effluent	Liquid		9/27/2013 11:55	9/28/2013 09:30	☐

ALS Environmental

Date: 23-Oct-13

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1310062

Case Narrative

Batch R154963, Nitrate 300, Sample WDW-3 WW Effluent (1310062-01A): Due to a laboratory error this sample was analyzed outside of the holding time. Also, this sample was analyzed at a dilution due to matrix interference from target analytes.

Batch 73548, Total Metals 200.8, Sample 1310038-01B: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 23-Oct-13

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WDW-3 WW Effluent

Collection Date: 9/27/2013 11:55 AM

Work Order: 1310062

Lab ID: 1310062-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
TOTAL RECOVERABLE METALS			E200.8		E200.8		Analyst: SKS
Calcium	59.0		0.500	mg/L	1	10/3/2013	10/3/2013 04:05 PM
Magnesium	15.3		5.00	mg/L	10	10/3/2013	10/3/2013 07:58 PM
Potassium	83.3		0.500	mg/L	1	10/3/2013	10/3/2013 04:05 PM
Sodium	2,580		20.0	mg/L	100	10/3/2013	10/3/2013 08:01 PM
ANIONS - EPA 300.0 (1993)			E300				Analyst: JKP
Chloride	302		2.50	mg/L	5		10/8/2013 01:16 AM
Fluoride	19.5		0.500	mg/L	5		10/8/2013 01:16 AM
Nitrogen, Nitrate (As N)	ND	H	0.500	mg/L	5		10/8/2013 01:16 AM
Sulfate	4,270		50.0	mg/L	100		10/8/2013 12:02 PM
ALKALINITY-SM2320B			SM2320B				Analyst: KL
Alkalinity, Bicarbonate (As CaCO ₃)	578		6.00	mg/L	1		10/2/2013 12:50 PM
Alkalinity, Carbonate (As CaCO ₃)	116		6.00	mg/L	1		10/2/2013 12:50 PM
Alkalinity, Total (As CaCO ₃)	694		6.00	mg/L	1		10/2/2013 12:50 PM
SPECIFIC CONDUCTIVITY			M2510 B				Analyst: KL
Specific Conductivity	10,700		1.00	µmhos/cm	1		10/2/2013 12:50 PM
PH - SW9040C			SW9040				Analyst: KL
pH	8.54	H	0.100	pH units	1		10/2/2013 12:50 PM
TOTAL DISSOLVED SOLIDS			M2540C				Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	8,000		10.0	mg/L	1		10/4/2013 11:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

23-Oct-13

Work Order: 1310062
Client: Navajo Refining Company
Project: Injection Well Quarterly

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
<u>Batch ID 73548</u> <u>Test Name: Total Recoverable Metals</u>						
1310062-01B	WDW-3 WW Effluent	Liquid	9/27/2013 11:55:00 AM		10/3/2013 10:00 AM	10/3/2013 04:05 PM
					10/3/2013 10:00 AM	10/3/2013 07:58 PM
					10/3/2013 10:00 AM	10/3/2013 08:01 PM
<u>Batch ID R154681</u> <u>Test Name: Alkalinity-SM2320B</u>						
1310062-01A	WDW-3 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/2/2013 12:50 PM
<u>Batch ID R154684</u> <u>Test Name: pH - SW9040C</u>						
1310062-01A	WDW-3 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/2/2013 12:50 PM
<u>Batch ID R154685</u> <u>Test Name: Specific Conductivity</u>						
1310062-01A	WDW-3 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/2/2013 12:50 PM
<u>Batch ID R154960</u> <u>Test Name: Total Dissolved Solids</u>						
1310062-01A	WDW-3 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/4/2013 11:00 AM
<u>Batch ID R154963</u> <u>Test Name: Anions - EPA 300.0 (1993)</u>						
1310062-01A	WDW-3 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/8/2013 01:16 AM
						10/8/2013 12:02 PM

ALS Environmental

Date: 23-Oct-13

Client: Navajo Refining Company
Work Order: 1310062
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **73548** Instrument ID **ICPMS05** Method: **E200.8**

MBLK Sample ID: **MBLKW1-100313-73548** Units: **µg/L** Analysis Date: **10/3/2013 03:17 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3380091** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	ND	500								
Magnesium	ND	500								
Potassium	ND	500								
Sodium	ND	200								

LCS Sample ID: **MLCSW1-100313-73548** Units: **µg/L** Analysis Date: **10/3/2013 03:19 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3380092** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5380	500	5000	0	108	85-115				
Magnesium	5516	500	5000	0	110	85-115				
Potassium	5454	500	5000	0	109	85-115				
Sodium	5428	200	5000	0	109	85-115				

MS Sample ID: **1310038-01BMS** Units: **µg/L** Analysis Date: **10/3/2013 03:38 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3380100** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	59820	500	5000	55810	80.2	70-130				O
Magnesium	102800	500	5000	96660	122	70-130				O
Potassium	35860	500	5000	30820	101	70-130				O
Sodium	ND	200	5000	0	0	70-130				SX

MSD Sample ID: **1310038-01BMSD** Units: **µg/L** Analysis Date: **10/3/2013 03:41 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3380101** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	60220	500	5000	55810	88.2	70-130	59820	0.66	20	O
Magnesium	103200	500	5000	96660	132	70-130	102800	0.478	20	SO
Potassium	36170	500	5000	30820	107	70-130	35860	0.87	20	O
Sodium	ND	200	5000	0	0	70-130	0	0	20	SX

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 7

Client: Navajo Refining Company
Work Order: 1310062
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **73548** Instrument ID **ICPMS05** Method: **E200.8**

DUP	Sample ID: 1310038-01BDUP			Units: µg/L			Analysis Date: 10/3/2013 03:36 PM			
Client ID:	Run ID: ICPMS05_131003A			SeqNo: 3380099			Prep Date: 10/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	54330	500					55810	2.69	20	
Potassium	30070	500					30820	2.44	20	

DUP	Sample ID: 1310038-01BDUP			Units: µg/L			Analysis Date: 10/3/2013 07:46 PM			
Client ID:	Run ID: ICPMS05_131003A			SeqNo: 3380647			Prep Date: 10/3/2013		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Magnesium	84510	5,000					87840	3.87	20	
Sodium	727200	2,000					769300	5.63	20	

The following samples were analyzed in this batch:

1310062-01B

Client: Navajo Refining Company
 Work Order: 1310062
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R154681** Instrument ID **ManTech01** Method: **SM2320B** (Dissolve)

MBLK Sample ID: **WBLKW1-131002-R154681** Units: **mg/L** Analysis Date: **10/2/2013 11:53 AM**

Client ID: Run ID: **MANTECH01_131002A** SeqNo: **3378199** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	6.00								
Alkalinity, Carbonate (As CaCO3)	ND	6.00								
Alkalinity, Total (As CaCO3)	ND	6.00								

LCS Sample ID: **WLCSW1-131002-R154681** Units: **mg/L** Analysis Date: **10/2/2013 11:59 AM**

Client ID: Run ID: **MANTECH01_131002A** SeqNo: **3378200** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1163	6.00	1000	0	116	80-120				

DUP Sample ID: **1310013-01EDUP** Units: **mg/L** Analysis Date: **10/2/2013 12:15 PM**

Client ID: Run ID: **MANTECH01_131002A** SeqNo: **3378204** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	129.5	6.00					129.1	0.271	0	
Alkalinity, Carbonate (As CaCO3)	ND	6.00					0	0	0	
Alkalinity, Total (As CaCO3)	129.5	6.00					129.1	0.271	20	

The following samples were analyzed in this batch:

1310062-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 3 of 7

Client: Navajo Refining Company
Work Order: 1310062
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R154684** Instrument ID **ManTech01** Method: **SW9040** (Dissolve)

LCS Sample ID: **LCS-PH-R154684** Units: **pH units** Analysis Date: **10/2/2013 12:02 PM**
Client ID: Run ID: **MANTECH01_131002C** SeqNo: **3378270** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	5.93	0.100	6	0	98.8	98-102				

DUP Sample ID: **1310013-01ZDUP** Units: **pH units** Analysis Date: **10/2/2013 12:15 PM**
Client ID: Run ID: **MANTECH01_131002C** SeqNo: **3378273** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.77	0.100					7.75	0.258	10	

The following samples were analyzed in this batch:

1310062-01A

Client: Navajo Refining Company
 Work Order: 1310062
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R154685** Instrument ID **ManTech01** Method: **M2510 B** (Dissolve)

MBLK Sample ID: **WBLKW1-131002-R154685** Units: **µmhos/cm** Analysis Date: **10/2/2013 11:53 AM**

Client ID: Run ID: **MANTECH01_131002D** SeqNo: **3378295** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.00								

LCS Sample ID: **LCS-COND-R154685** Units: **µmhos/cm** Analysis Date: **10/2/2013 12:03 PM**

Client ID: Run ID: **MANTECH01_131002D** SeqNo: **3378298** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1453	1.00	1413	0	103	80-120				

DUP Sample ID: **1310013-01EDUP** Units: **µmhos/cm** Analysis Date: **10/2/2013 12:15 PM**

Client ID: Run ID: **MANTECH01_131002D** SeqNo: **3378300** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	424.2	1.00					430.3	1.42	20	

The following samples were analyzed in this batch:

1310062-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1310062
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R154960** Instrument ID **Balance1** Method: **M2540C** (Dissolve)

MBLK Sample ID: **WBLK-100413-R154960** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3383673** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10.0								

LCS Sample ID: **WLCS-100413-R154960** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3383674** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1022	10.0	1000	0	102	85-115				

DUP Sample ID: **1310036-01DDUP** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3383670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	8180	10.0					7880	3.74	20	

DUP Sample ID: **1310672-01ADUP** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3393235** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	8180	10.0					0			

The following samples were analyzed in this batch:

1310062-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1310062
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R154963** Instrument ID **ICS3000** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKW1-R154963** Units: **mg/L** Analysis Date: **10/7/2013 11:11 AM**

Client ID: Run ID: **ICS3000_131007A** SeqNo: **3383702** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.500								
Fluoride	ND	0.100								
Nitrogen, Nitrate (As N)	ND	0.100								
Sulfate	ND	0.500								

LCS Sample ID: **WLCSW1-R154963** Units: **mg/L** Analysis Date: **10/7/2013 11:37 AM**

Client ID: Run ID: **ICS3000_131007A** SeqNo: **3383703** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.88	0.500	20	0	94.4	90-110				
Fluoride	3.794	0.100	4	0	94.8	90-110				
Nitrogen, Nitrate (As N)	3.918	0.100	4	0	98	90-110				
Sulfate	18.77	0.500	20	0	93.8	90-110				

MS Sample ID: **13091341-01AMS** Units: **mg/L** Analysis Date: **10/7/2013 12:56 PM**

Client ID: Run ID: **ICS3000_131007A** SeqNo: **3383705** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.116	0.500	10	0	91.2	80-120				
Fluoride	1.92	0.100	2	0	96	80-120				
Nitrogen, Nitrate (As N)	1.879	0.100	2	0	94	80-120				H
Sulfate	9.15	0.500	10	0.086	90.6	80-120				

MSD Sample ID: **13091341-01AMSD** Units: **mg/L** Analysis Date: **10/7/2013 01:22 PM**

Client ID: Run ID: **ICS3000_131007A** SeqNo: **3383706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.131	0.500	10	0	91.3	80-120	9.116	0.164	20	
Fluoride	1.922	0.100	2	0	96.1	80-120	1.92	0.104	20	
Nitrogen, Nitrate (As N)	1.881	0.100	2	0	94	80-120	1.879	0.106	20	H
Sulfate	9.13	0.500	10	0.086	90.4	80-120	9.15	0.219	20	

The following samples were analyzed in this batch:

1310062-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1310062

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µmhos/cm	
mg/L	Milligrams per Liter
pH units	

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **28-Sep-13 09:30**

Work Order: **1310062**

Received by:

Checklist completed by

eSignature

Date

Reviewed by:

eSignature

Date

Matrices:

Carrier name:

Shipping container/cooler in good condition?

Yes ☐

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☐

Chain of custody present?

Yes ☐

No ☒

Chain of custody signed when relinquished and received?

Yes ☐

No ☒

Chain of custody agrees with sample labels?

Yes ☐

No ☒

Samples in proper container/bottle?

Yes ☐

No ☒

Sample containers intact?

Yes ☐

No ☒

Sufficient sample volume for indicated test?

Yes ☐

No ☒

All samples received within holding time?

Yes ☐

No ☒

Container/Temp Blank temperature in compliance?

Yes ☐

No ☒

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1310062

NAVAJO REFINING: Navajo Refining Company

Project: Injection Well Quarterly



Customer Information		Project Information		Parameter/Method Request for Analysis																
Purchase Order		Project Name	WDW-3 Qtrly Inj Well			A. HCO ₃ , CO ₃ , Cl, SO ₄ , TDS, pH, cond / 40 CFR 136.3														
Work Order		Project Number				B. FI, Cation/anion balance, Br / 40 CFR 136.3														
Company Name	Navajo Refining Company		Bill To Company	Navajo Refining Company			C. Ca, K, Mg, Na / 40 CFR 136.3													
Send Report To	Aaron Strange		Invoice Attn	Aaron Strange			D.													
Address	P. O. Box 159		Address	501 East Main			E.													
City/State/Zip	Artesia, New Mexico 88211-0159		City/State/Zip	Artesia, New Mexico 88210			F.													
Phone	(575) 748-3311		Phone	(575) 748-3311			G.													
Fax	(575) 746-5451		Fax	(575) 746-5451			H.													
e-Mail Address	Aaron.Strange@hollyfrontier.com		e-Mail Address	Aaron.Strange@hollyfrontier.com			I.													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	WDW-3 WW Effluent	9/27/13	11:55	Liquid	Neat	1	X	X												
2	WDW-3 WW Effluent	9/27/13	11:55	Liquid	2	1			X											
3	Temperature Blank			Liquid	Neat	1														
4																				
5																				
6																				
7																				
8																				
9																				
10																				
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Other		Results Due Date:												
Aaron Strange		FedEx		☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour																
Relinquished by:	Date:	Time:	Received by:		Notes: Report these results separately from all other Chain of Custody kits provided.															
<i>Aaron Strange</i>	9/27/13	16:15																		
Relinquished by:	Date:	Time:	Received by (Laboratory):		QC Package: (Check Box Below)															
			<i>AS 9/27/13 0930</i>		☒ Level II: Standard QC ☐ TRRP-Checklist															
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):		☐ Level III: Std QC + Raw Data ☐ TRRP Level IV															
					☐ Level IV: SW846 CLP-Like															
Preservative Key: 1-HCL 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ SO ₃ 6-NaHSO ₄ 7-Other 8-4 degrees C 9-5036																				
Other: _____																				

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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31-Oct-2013

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: WDW 1 & 2 Qtrly Inj Well 136

Work Order: **1310672**

Dear Aaron,

ALS Environmental received 1 sample on 28-Sep-2013 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 16.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in black ink that reads "Sonia West".

Electronically approved by: Dayna.Fisher

Sonia West
Project Manager



Certificate No: T104704231-13-12

ADDRESS 10450 Standcliff Rd, Suite 210 Houston, Texas 77039-4338 | PHONE (281) 530-5856 | FAX (281) 530-5857

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ALS Environmental

Date: 31-Oct-13

Client: Navajo Refining Company
Project: WDW 1 & 2 Qtrly Inj Well 136
Work Order: 1310672

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1310672-01	WDW-1&2 WW Effluent	Liquid	1310036-01C	9/27/2013 11:55	9/28/2013 09:30	☐

ALS Environmental*Date: 31-Oct-13*

Client: Navajo Refining Company
Project: WDW 1 & 2 Qtrly Inj Well 136
Work Order: 1310672

Case Narrative

Batch 73890, Total Metals 200.8, Sample 1310014-01C-01C: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 31-Oct-13

Client: Navajo Refining Company

Project: WDW 1 & 2 Qtrly Inj Well 136

Sample ID: WDW-1&2 WW Effluent

Collection Date: 9/27/2013 11:55 AM

Work Order: 1310672

Lab ID: 1310672-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
TOTAL RECOVERABLE METALS			E200.8		E200.8		Analyst: SKS
Calcium	56.7		0.500	mg/L	1	10/3/2013	10/3/2013 07:01 PM
Magnesium	16.7		0.500	mg/L	1	10/3/2013	10/3/2013 07:01 PM
Potassium	81.1		0.500	mg/L	1	10/3/2013	10/3/2013 07:01 PM
Sodium	2,470		10.0	mg/L	50	10/3/2013	10/4/2013 06:36 PM
ANIONS - EPA 300.0 (1993)			E300				Analyst: JKP
Chloride	303		2.50	mg/L	5		10/8/2013 12:50 AM
Fluoride	19.6		0.500	mg/L	5		10/8/2013 12:50 AM
Nitrogen, Nitrate (As N)	ND	H	0.500	mg/L	5		10/8/2013 12:50 AM
Sulfate	4,220		50.0	mg/L	100		10/8/2013 11:36 AM
ALKALINITY-SM2320B			SM2320B				Analyst: KL
Alkalinity, Bicarbonate (As CaCO ₃)	582	H	6.00	mg/L	1		10/16/2013 10:30 AM
Alkalinity, Carbonate (As CaCO ₃)	121	H	6.00	mg/L	1		10/16/2013 10:30 AM
Alkalinity, Total (As CaCO ₃)	704	H	6.00	mg/L	1		10/16/2013 10:30 AM
SPECIFIC CONDUCTIVITY			M2510 B				Analyst: KL
Specific Conductivity	10,700		1.00	µmhos/cm	1		10/15/2013 10:00 AM
PH - SW9040C			SW9040				Analyst: KL
pH	8.55	H	0.100	pH units	1		10/15/2013 11:00 AM
TOTAL DISSOLVED SOLIDS			M2540C				Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	7,880		10.0	mg/L	1		10/4/2013 11:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

31-Oct-13

Work Order: 1310672
 Client: Navajo Refining Company
 Project: WDW 1 & 2 Qtrly Inj Well 136

DATES REPORT

Sample ID	Client Sample ID	Matrix	Collection Date	TCLP Date	Prep Date	Analysis Date
Batch ID <u>73890</u> Test Name: <u>Total Recoverable Metals</u>						
1310672-01B	WDW-1&2 WW Effluent	Liquid	9/27/2013 11:55:00 AM		10/3/2013 10:00 AM 10/3/2013 10:00 AM	10/3/2013 07:01 PM 10/4/2013 06:36 PM
Batch ID <u>R154960</u> Test Name: <u>Total Dissolved Solids</u>						
1310672-01A	WDW-1&2 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/4/2013 11:00 AM
Batch ID <u>R155434</u> Test Name: <u>Specific Conductivity</u>						
1310672-01A	WDW-1&2 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/15/2013 10:00 AM
Batch ID <u>R155436</u> Test Name: <u>pH - SW9040C</u>						
1310672-01A	WDW-1&2 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/15/2013 11:00 AM
Batch ID <u>R155532</u> Test Name: <u>Alkalinity-SM2320B</u>						
1310672-01A	WDW-1&2 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/16/2013 10:30 AM
Batch ID <u>R155542</u> Test Name: <u>Anions - EPA 300.0 (1993)</u>						
1310672-01A	WDW-1&2 WW Effluent	Liquid	9/27/2013 11:55:00 AM			10/8/2013 12:50 AM 10/8/2013 11:36 AM

ALS Environmental

Date: 31-Oct-13

Client: Navajo Refining Company
Work Order: 1310672
Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **73890** Instrument ID **ICPMS05** Method: **E200.8**

MBLK Sample ID: **MBLKW2-100313-73890** Units: **µg/L** Analysis Date: **10/3/2013 06:15 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3395864** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	ND	500								
Magnesium	ND	500								
Potassium	ND	500								
Sodium	ND	200								

LCS Sample ID: **MLCSW2-100313-73890** Units: **µg/L** Analysis Date: **10/3/2013 06:18 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3395865** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5297	500	5000	0	106	85-115				
Magnesium	5319	500	5000	0	106	85-115				
Potassium	5186	500	5000	0	104	85-115				
Sodium	5315	200	5000	0	106	85-115				

MS Sample ID: **1310014-01CMS** Units: **µg/L** Analysis Date: **10/3/2013 06:42 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3395875** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	122700	500	5000	118700	80.1	70-130				O
Magnesium	10260	500	5000	5154	102	70-130				
Potassium	18340	500	5000	13240	102	70-130				
Sodium	127900	200	5000	123100	95.6	70-130				O

MSD Sample ID: **1310014-01CMSD** Units: **µg/L** Analysis Date: **10/3/2013 06:44 PM**

Client ID: Run ID: **ICPMS05_131003A** SeqNo: **3395876** Prep Date: **10/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	119500	500	5000	118700	15.9	70-130	122700	2.65	20	SO
Magnesium	10080	500	5000	5154	98.4	70-130	10260	1.82	20	
Potassium	17940	500	5000	13240	94.1	70-130	18340	2.22	20	
Sodium	126600	200	5000	123100	68.3	70-130	127900	1.07	20	SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 7

Client: Navajo Refining Company
Work Order: 1310672
Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **73890** Instrument ID **ICPMS05** Method: **E200.8**

DUP	Sample ID: 1310014-01CDUP			Units: µg/L		Analysis Date: 10/3/2013 06:39 PM				
Client ID:	Run ID: ICPMS05_131003A			SeqNo: 3395874		Prep Date: 10/3/2013		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	118300	500					118700	0.307	20	
Magnesium	5207	500					5154	1.04	20	
Potassium	13510	500					13240	2.03	20	
Sodium	124200	200					123100	0.821	20	

The following samples were analyzed in this batch:

1310672-01B

Client: Navajo Refining Company
 Work Order: 1310672
 Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **R154960** Instrument ID **Balance1** Method: **M2540C** (Dissolve)

MBLK Sample ID: **WBLK-100413-R154960** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3383673** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10.0								

LCS Sample ID: **WLCS-100413-R154960** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3383674** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1022	10.0	1000		0	102	85-115			

DUP Sample ID: **1310036-01DDUP** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: Run ID: **BALANCE1_131004G** SeqNo: **3383670** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	8180	10.0					7880	3.74	20	

DUP Sample ID: **1310672-01ADUP** Units: **mg/L** Analysis Date: **10/4/2013 11:00 AM**

Client ID: **WDW-1&2 WW Effluent** Run ID: **BALANCE1_131004G** SeqNo: **3393235** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	8180	10.0						0		

The following samples were analyzed in this batch:

1310672-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1310672
Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **R155434** Instrument ID **ManTech01** Method: **M2510 B** (**Dissolve**)

MBLK Sample ID: **WBLKW1-131015-R155434** Units: **µmhos/cm** Analysis Date: **10/15/2013 10:33 AM**

Client ID: Run ID: **MANTECH01_131015A** SeqNo: **3393342** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.00								

LCS Sample ID: **LCS-COND-R155434** Units: **µmhos/cm** Analysis Date: **10/15/2013 10:35 AM**

Client ID: Run ID: **MANTECH01_131015A** SeqNo: **3393345** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1466	1.00	1413		0	104	80-120			

DUP Sample ID: **1310458-08ZDUP** Units: **µmhos/cm** Analysis Date: **10/15/2013 10:38 AM**

Client ID: Run ID: **MANTECH01_131015A** SeqNo: **3393348** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	12630	1.00					12720	0.692	20	

The following samples were analyzed in this batch:

1310672-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1310672
Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **R155436** Instrument ID **ManTech01** Method: **SW9040** (Dissolve)

LCS Sample ID: **LCS-PH-R155436** Units: **pH units** Analysis Date: **10/15/2013 12:10 PM**

Client ID: Run ID: **MANTECH01_131015B** SeqNo: **3393379** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.100	6	0	100	98-102				

DUP Sample ID: **1310446-05ZDUP** Units: **pH units** Analysis Date: **10/15/2013 12:27 PM**

Client ID: Run ID: **MANTECH01_131015B** SeqNo: **3393382** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.78	0.100					6.8	0.295	10	

The following samples were analyzed in this batch:

1310672-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1310672
 Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **R155532** Instrument ID **ManTech01** Method: **SM2320B** (Dissolve)

MBLK	Sample ID: WBLKW1-131016-R155532				Units: mg/L		Analysis Date: 10/16/2013 11:15 AM			
Client ID:	Run ID: MANTECH01_131016D				SeqNo: 3395284		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	6.00								
Alkalinity, Carbonate (As CaCO3)	ND	6.00								
Alkalinity, Total (As CaCO3)	ND	6.00								

LCS	Sample ID: WLCSW1-131016-R155532					Units: mg/L		Analysis Date: 10/16/2013 11:21 AM		
Client ID:	Run ID: MANTECH01_131016D				SeqNo: 3395285		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1140	6.00	1000	0	114	80-120				

DUP	Sample ID: 1310683-01CDUP				Units: mg/L		Analysis Date: 10/16/2013 11:38 AM			
Client ID:	Run ID: MANTECH01_131016D				SeqNo: 3395289		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	582.6	6.00					586.5	0.657	0	
Alkalinity, Carbonate (As CaCO3)	6.43	6.00					3.16	68.2	0	
Alkalinity, Total (As CaCO3)	589.1	6.00					589.6	0.095	20	

The following samples were analyzed in this batch: 1310672-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1310672
 Project: WDW 1 & 2 Qtrly Inj Well 136

QC BATCH REPORT

Batch ID: **R155542** Instrument ID **ICS3000** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKW1-R155542** Units: **mg/L** Analysis Date: **10/7/2013 11:11 AM**

Client ID: Run ID: **ICS3000_131007D** SeqNo: **3395522** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.500								
Fluoride	ND	0.100								
Nitrogen, Nitrate (As N)	ND	0.100								
Sulfate	ND	0.500								

LCS Sample ID: **WLCSW1-R155542** Units: **mg/L** Analysis Date: **10/7/2013 11:37 AM**

Client ID: Run ID: **ICS3000_131007D** SeqNo: **3395523** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.88	0.500	20	0	94.4	90-110				
Fluoride	3.794	0.100	4	0	94.8	90-110				
Nitrogen, Nitrate (As N)	3.918	0.100	4	0	98	90-110				
Sulfate	18.77	0.500	20	0	93.8	90-110				

MS Sample ID: **13091341-01AMSZ** Units: **mg/L** Analysis Date: **10/7/2013 12:56 PM**

Client ID: Run ID: **ICS3000_131007D** SeqNo: **3395525** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.116	0.500	10	0	91.2	80-120				
Fluoride	1.92	0.100	2	0	96	80-120				
Nitrogen, Nitrate (As N)	1.879	0.100	2	0	94	80-120				H
Sulfate	9.15	0.500	10	0.086	90.6	80-120				

MSD Sample ID: **13091341-01AMSDZ** Units: **mg/L** Analysis Date: **10/7/2013 01:22 PM**

Client ID: Run ID: **ICS3000_131007D** SeqNo: **3395526** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	9.131	0.500	10	0	91.3	80-120	9.116	0.164	20	
Fluoride	1.922	0.100	2	0	96.1	80-120	1.92	0.104	20	
Nitrogen, Nitrate (As N)	1.881	0.100	2	0	94	80-120	1.879	0.106	20	H
Sulfate	9.13	0.500	10	0.086	90.4	80-120	9.15	0.219	20	

The following samples were analyzed in this batch:

1310672-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date: 31-Oct-13

Client: Navajo Refining Company
Project: WDW 1 & 2 Qtrly Inj Well 136
WorkOrder: 1310672

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µmhos/cm	
mg/L	Milligrams per Liter
pH units	

Sample Receipt Checklist

Client Name:

Date/Time Received: **#Error**

Work Order:

Received by:

Checklist completed by

eSignature

Date

Reviewed by:

eSignature

Date

Matrices:

Carrier name:

Shipping container/cooler in good condition?

Yes ☐

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☐

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☐

Chain of custody present?

Yes ☐

No ☐

Chain of custody signed when relinquished and received?

Yes ☐

No ☐

Chain of custody agrees with sample labels?

Yes ☐

No ☐

Samples in proper container/bottle?

Yes ☐

No ☐

Sample containers intact?

Yes ☐

No ☐

Sufficient sample volume for indicated test?

Yes ☐

No ☐

All samples received within holding time?

Yes ☐

No ☐

Container/Temp Blank temperature in compliance?

Yes ☐

No ☐

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



☒ ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1310672

NAVAJO REFINING: Navajo Refining Company

Project: WDW 1 & 2 Qtrly Inj Well 136



(Tel) 616.399.6185
(Fax) 616.399.6185

Customer Information			Project Information				Parameter/Method Request for Analysis													
Purchase Order		Project Name	WDW-1 & 2 Qtrly Inj Well 136				A	Fl, Catlon/anlon balance, Br / 40 CFR 136.3												
Work Order		Project Number					B	**See Notes Below**												
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company				C													
Send Report To	Aaron Strange	Invoice Attn:	Aaron Strange				D													
Address	P. O. Box 159	Address	501 East Main				E													
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210				F													
Phone	(575) 748-3311	Phone	(575) 748-3311				G													
Fax	(575) 746-5451	Fax	(575) 746-5451				H													
e-Mail Address	Aaron.Strange@holyfrontier.com	e-Mail Address	Aaron.Strange@holyfrontier.com				I													
							J													
No.	Sample Description	Date	Time	Matrix	Pres	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	WDW-1 & 2 WW Effluent	9/27/13	11:55	Liquid	Neat	1	X													
2	Temperature Blank			Liquid	Neat	1														
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
Sampler(s): Please Print & Sign Aaron Strange		Shipment Method: FedEx		Required Turnaround Time: ☒ STD 10 WK Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour			Results Due Date: Other _____													
Refrinquished by: <i>Aaron Strange</i>		Date: 9/27/13	Time: 16:15	Received by: <i>[Signature]</i>			Notes: Report these results separately from all other Chain of Custody kits provided.													
Refrinquished by:		Date:	Time:	Received by (Laboratory): <i>[Signature]</i> 9/28/13			QC Package: (Check Box Below)													
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):			Cooler Temp: _____													
							X	Level II: Standard QC							TRRP-Checklist					
								Level III: Std QC + Raw Data							TRRP Level IV					
								Level IV: SW846 CLP-Like												
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							Other: _____													

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

Copyright 2008 by ALS Laboratory Group

TRK# 5614 5589 2370 SATURDAY 12:00P
0201 PRIORITY OVERNIGHT

XO SGRA

77099
TX-US
IAH



942426 28Sep 01:42 MEMH 512C1/0256/060

	ALS Environmental
	10450 Stancliff Rd., Suite 210
	Houston, Texas 77099
	Tel. +1 281 530 5656 Fax. +1 281 530 5887

CUSTODY SEAL		Seal/Chain ID:
Date: 9-27-13	Time: 16:13	ADH 9/28/13
Name: Haven Groves		
Company: Navajo Reclaiming Co.		



RECEIVED OCD

July 25, 2013

2013 AUG -1 P 2: 59

Mr. Carl Chavez, CHMM
NM Energy, Minerals & Natural
Resources Dept., O.C.D. Env. Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

Certified Mail/Return Receipt

7011 3500 0001 4786 1381

RE: 2013 2nd Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3 Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2013 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. The volumes for the three annular space fluid tanks are reported in the attached Well Annulus Measurement System (WAMS) table. The Pressure Falloff Tests on all three wells were completed in November 2012, and all passed.

This report covers the period from April 1, 2013 to June 30, 2013. We have disposed a total of 1,289,861 barrels of fluid into the three wells during the second quarter 2013. The volume per well is:

- 402,855 barrels into WDW-1
- 382,410 barrels into WDW-2
- 504,596 barrels into WDW-3

Please note that the first quarter report letter dated April 24, 2013, requires correction of the flow data summary to reflect the first quarter flows rather than the cumulative flows since the program began. Cumulative flows can be found on the attached spread sheet. The correct numbers for first quarter 2013 are:
Total first quarter flow – 1,283,306 barrels

- 531,187 barrels into WDW-1
- 353,662 barrels into WDW-2
- 398,457 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

MWH, RAC, MLS, AMS
Navajo: (ART: REF 13- 4.A.02.D)

2013 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													33,078,081
Apr-13	908	922	883	118	136	92	406	531	232	4,047	4,661	3,165	121,412	33,199,493
May-13	944	1,014	914	119	155	55	480	734	208	4,067	5,301	1,869	126,086	33,325,579
Jun-13	985	1,047	846	148	164	137	481	692	323	5,073	5,620	4,712	152,178	33,477,757
WDW-2	Previous Quarter													20,199,139
Apr-13	865	910	671	142	150	128	679	1,022	388	4,876	5,154	4,404	146,276	20,345,415
May-13	906	920	889	139	148	125	780	955	402	4,762	5,060	4,289	147,623	20,493,037
Jun-13	903	928	846	176	287	131	577	808	417	6,044	9,844	4,491	181,307	20,674,345
WDW-3	Previous Quarter													10,555,976
Apr-13	897	908	860	112	276	76	384	580	253	3,839	9,477	2,609	115,169	10,671,145
May-13	908	922	889	102	134	86	631	804	248	3,507	4,601	2,941	108,703	10,779,848
Jun-13	910	936	890	166	309	86	635	762	526	5,704	10,588	2,945	171,111	10,950,959
Total Injected fluids:														65,103,061

2013 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/2/13	4/10/13	4/17/13	4/22/13	4/29/13	5/6/13	5/14/13	5/21/13	5/28/13	6/3/13	6/10/13	6/17/13	6/24/13
WDW -1 ¹	135	135	135	135	135	125	125	125	125	125	125	125	125
WDW-2 ¹	145	145	145	145	145	145	145	145	145	145	145	145	145
WDW-3 ¹	145	145	145	145	145	135	135	135	135	135	135	135	135
Comments:													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



12-Jul-2013

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1307042

Dear Aaron,

ALS Environmental received 2 samples on 28-Jun-2013 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 45.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Jurnoke M. Lawal

Sonia West
Project Manager



Certificate No: T104704231-13-12

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1307042

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1307042-01	WW Effluent	Liquid		6/27/2013 14:15	6/28/2013 09:20	☐
1307042-02	Trip blank - 031213-77	Water		6/27/2013	6/28/2013 09:20	☒

ALS Environmental

Date: 14-Jul-13

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1307042

Case Narrative

Sample received outside method holding time for pH. pH is an immediate test. Sample results are flagged with an "H" qualifier.

Batch R150152, Bromide 300.0, Sample 1307265 Spent Blast 13-122: This sample was analyzed at a dilution due to matrix interference from high Sulfate concentrations.

Batch 71254, Semivolatile Organics 8270, Sample SLCSDW1-130703: Insufficient sample was received for MS/MSD.

Batch 71235, Total Metals 200.8, Sample 1307088-05C: MS/MSD are for an unrelated sample.

Batch 71236 Total Metals 6020, Sample 13061143-05E: MS/MSD are for an unrelated sample.

Batch 71299 Total Mercury 7470, Sample 1307168-07C: MS/MSD are for an unrelated sample.

Batch R150118, Volatile Organics 8260, Sample 1307106-08A: MS/MSD are for an unrelated sample.

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 6/27/2013 02:15 PM

Work Order: 1307042

Lab ID: 1307042-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
TOTAL RECOVERABLE METALS			E200.8		E200.8		Analyst: SKS
Calcium	70.5		10.0	mg/L	20	7/3/2013	7/5/2013 01:39 PM
Magnesium	20.8		10.0	mg/L	20	7/3/2013	7/5/2013 01:39 PM
Potassium	16.1		5.00	mg/L	10	7/3/2013	7/3/2013 04:09 PM
Sodium	1,500		20.0	mg/L	100	7/3/2013	7/3/2013 03:10 PM
MERCURY-SW7470A			SW7470		SW7470		Analyst: OFO
Mercury	ND		0.000200	mg/L	1	7/5/2013	7/5/2013 03:34 PM
METALS			SW6020		SW3010A		Analyst: ALR
Aluminum	2.57		0.0200	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Arsenic	0.0367	*	0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Barium	0.0711		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Beryllium	ND		0.00400	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Boron	0.282		0.100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Cadmium	ND		0.00400	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Calcium	62.1		1.00	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Chromium	ND		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Cobalt	ND		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Copper	0.0268		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Iron	0.567		0.400	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Lead	ND		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Magnesium	20.1		0.400	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Manganese	0.0489		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Molybdenum	0.123		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Nickel	0.0125		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Potassium	16.0		2.00	mg/L	10	7/3/2013	7/5/2013 01:49 PM
Selenium	0.810	*	0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Silver	ND		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Sodium	1,400		2.00	mg/L	10	7/3/2013	7/5/2013 01:49 PM
Vanadium	0.0340		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
Zinc	0.0950		0.0100	mg/L	2	7/3/2013	7/4/2013 03:44 AM
SEMIVOLATILES - SW8270D			SW8270		SW3510		Analyst: JLJ
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
1-Methylnaphthalene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
2-Methylphenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 6/27/2013 02:15 PM

Work Order: 1307042

Lab ID: 1307042-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
2-Nitroaniline	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
2-Nitrophenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
3-Nitroaniline	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
4-Nitroaniline	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
4-Nitrophenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Acenaphthene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Acenaphthylene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Aniline	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Anthracene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Benzidine	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Hexachloroethane	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Isophorone	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Naphthalene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Nitrobenzene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Pentachlorophenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Phenanthrene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Phenol	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Pyrene	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Pyridine	ND		0.0050	mg/L	1	7/3/2013	7/3/2013 05:17 PM
Surr: 2,4,6-Tribromophenol	69.4		42-124	%REC	1	7/3/2013	7/3/2013 05:17 PM
Surr: 2-Fluorobiphenyl	52.5		48-120	%REC	1	7/3/2013	7/3/2013 05:17 PM
Surr: 2-Fluorophenol	55.5		20-120	%REC	1	7/3/2013	7/3/2013 05:17 PM
Surr: 4-Terphenyl-d14	65.3		51-135	%REC	1	7/3/2013	7/3/2013 05:17 PM
Surr: Nitrobenzene-d5	58.9		41-120	%REC	1	7/3/2013	7/3/2013 05:17 PM
Surr: Phenol-d6	71.0		20-120	%REC	1	7/3/2013	7/3/2013 05:17 PM

VOLATILES - SW8260C

SW8260

Analyst: PC

1,1,1-Trichloroethane	ND		0.0050	mg/L	1	7/7/2013 01:11 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	7/7/2013 01:11 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	7/7/2013 01:11 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	7/7/2013 01:11 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	7/7/2013 01:11 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	7/7/2013 01:11 PM
2-Butanone	ND		0.010	mg/L	1	7/7/2013 01:11 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 6/27/2013 02:15 PM

Work Order: 1307042

Lab ID: 1307042-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1		7/7/2013 01:11 PM
2-Hexanone	ND		0.010	mg/L	1		7/7/2013 01:11 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1		7/7/2013 01:11 PM
Acetone	0.014		0.010	mg/L	1		7/7/2013 01:11 PM
Benzene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Bromodichloromethane	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Bromoform	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Bromomethane	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Carbon disulfide	ND		0.010	mg/L	1		7/7/2013 01:11 PM
Carbon tetrachloride	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Chlorobenzene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Chloroethane	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Chloroform	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Chloromethane	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Dibromochloromethane	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Ethylbenzene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
m,p-Xylene	ND		0.010	mg/L	1		7/7/2013 01:11 PM
Methylene chloride	ND		0.010	mg/L	1		7/7/2013 01:11 PM
Styrene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Tetrachloroethene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Toluene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Trichloroethene	ND		0.0050	mg/L	1		7/7/2013 01:11 PM
Vinyl acetate	ND		0.010	mg/L	1		7/7/2013 01:11 PM
Vinyl chloride	ND		0.0020	mg/L	1		7/7/2013 01:11 PM
Xylenes, Total	ND		0.015	mg/L	1		7/7/2013 01:11 PM
Surr: 1,2-Dichloroethane-d4	104		70-125	%REC	1		7/7/2013 01:11 PM
Surr: 4-Bromofluorobenzene	99.8		72-125	%REC	1		7/7/2013 01:11 PM
Surr: Dibromofluoromethane	108		71-125	%REC	1		7/7/2013 01:11 PM
Surr: Toluene-d8	102		75-125	%REC	1		7/7/2013 01:11 PM

REACTIVE CYANIDE

SW-846

Analyst: SUB

Reactive Cyanide	ND	40.0 mg/Kg	1	7/3/2013 11:00 AM
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REACTIVE SULFIDE

SW-846

Analyst: SUB

Reactive Sulfide	ND	40.0 mg/Kg	1	7/3/2013 11:00 AM
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MISCELLANEOUS ANALYSIS

NA

Analyst: SUB

Miscellaneous Analysis	See Attached		1	7/5/2013
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ANIONS - EPA 300.0 (1993)

E300

Analyst: JKP

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 6/27/2013 02:15 PM

Work Order: 1307042

Lab ID: 1307042-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Bromide	ND		0.500	mg/L	5		7/8/2013 12:52 PM
Chloride	265		2.50	mg/L	5		7/8/2013 12:52 PM
Fluoride	3.97		0.500	mg/L	5		7/8/2013 12:52 PM
Sulfate	3,560		50.0	mg/L	100		7/8/2013 01:17 PM
Surr: Selenate (surr)	110		85-115	%REC	5		7/8/2013 12:52 PM
Surr: Selenate (surr)	102		85-115	%REC	100		7/8/2013 01:17 PM
ALKALINITY-SM2320B			SM2320B				Analyst: KL
Alkalinity, Bicarbonate (As CaCO ₃)	195		6.00	mg/L	1		7/2/2013 10:53 AM
Alkalinity, Carbonate (As CaCO ₃)	ND		6.00	mg/L	1		7/2/2013 10:53 AM
Alkalinity, Total (As CaCO ₃)	195		6.00	mg/L	1		7/2/2013 10:53 AM
SPECIFIC CONDUCTIVITY			M2510 B				Analyst: KL
Specific Conductivity	7,530		1.00	µmhos/cm	1		7/2/2013 10:53 AM
IGNITIBILITY			SW1010				Analyst: Avijeet
Ignitability	> 212		50.0	°F	1		7/5/2013 02:40 PM
ION BALANCE - SM1030E			SM1030E				Analyst: DCP
Anions	86		0.10	meq/L	1		7/4/2013
Cations	71		0.10	meq/L	1		7/4/2013
Ion Balance % Diff.	9.3		0.10	%	1		7/4/2013
PH - SW9040C			SW9040				Analyst: KL
pH	7.53	H	0.100	pH units	1		7/2/2013 10:53 AM
TOTAL DISSOLVED SOLIDS			M2540C				Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	5,300		10.0	mg/L	1		7/3/2013 12:40 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71235 Instrument ID ICPMS05 Method: E200.8

MBLK Sample ID: **MBLKW1-070313-71235** Units: **µg/L** Analysis Date: **7/3/2013 03:03 PM**

Client ID: Run ID: **ICPMS05_130703A** SeqNo: **3277636** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	ND	500								
Magnesium	ND	500								
Potassium	ND	500								
Sodium	ND	200								

LCS Sample ID: **MLCSW1-070313-71235** Units: **µg/L** Analysis Date: **7/3/2013 03:05 PM**

Client ID: Run ID: **ICPMS05_130703A** SeqNo: **3277637** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	5056	500	5000	0	101	85-115				
Magnesium	5140	500	5000	0	103	85-115				
Potassium	4975	500	5000	0	99.5	85-115				
Sodium	4942	200	5000	0	98.8	85-115				

MS Sample ID: **1307088-05CMS** Units: **µg/L** Analysis Date: **7/3/2013 03:32 PM**

Client ID: Run ID: **ICPMS05_130703A** SeqNo: **3277653** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	77070	500	5000	73180	77.7	70-130				O
Magnesium	30480	500	5000	26200	85.6	70-130				O
Potassium	8765	500	5000	3973	95.8	70-130				
Sodium	54460	200	5000	51090	67.6	70-130				SO

MSD Sample ID: **1307088-05CMSD** Units: **µg/L** Analysis Date: **7/3/2013 03:34 PM**

Client ID: Run ID: **ICPMS05_130703A** SeqNo: **3277655** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	76740	500	5000	73180	71	70-130	77070	0.435	20	O
Magnesium	30730	500	5000	26200	90.6	70-130	30480	0.816	20	O
Potassium	8679	500	5000	3973	94.1	70-130	8765	0.986	20	
Sodium	55220	200	5000	51090	82.7	70-130	54460	1.38	20	O

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71235 Instrument ID ICPMS05 Method: E200.8

DUP	Sample ID: 1307088-05CDUP			Units: µg/L			Analysis Date: 7/3/2013 03:29 PM			
Client ID:	Run ID: ICPMS05_130703A			SeqNo: 3277647			Prep Date: 7/3/2013		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	73270	500					73180	0.117	20	
Magnesium	27240	500					26200	3.87	20	
Potassium	4024	500					3973	1.28	20	
Sodium	52930	200					51090	3.55	20	

The following samples were analyzed in this batch: 1307042-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **71236** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW2-070313-71236** Units: **mg/L** Analysis Date: **7/4/2013 01:18 AM**

Client ID: Run ID: **ICP7500_130703A** SeqNo: **3278531** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: **MBLKW2-070313-71236** Units: **mg/L** Analysis Date: **7/5/2013 01:34 PM**

Client ID: Run ID: **ICP7500_130705A** SeqNo: **3279307** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	ND	0.20								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **71236** Instrument ID **ICP7500** Method: **SW6020**

LCS Sample ID: **MLCSW2-070313-71236** Units: **mg/L** Analysis Date: **7/4/2013 01:23 AM**

Client ID: Run ID: **ICP7500_130703A** SeqNo: **3278532** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1074	0.010	0.1	0	107	80-120				
Arsenic	0.04665	0.0050	0.05	0	93.3	80-120				
Barium	0.04916	0.0050	0.05	0	98.3	80-120				
Beryllium	0.04715	0.0020	0.05	0	94.3	80-120				
Boron	0.4363	0.050	0.5	0	87.3	80-120				
Cadmium	0.04595	0.0020	0.05	0	91.9	80-120				
Calcium	4.939	0.50	5	0	98.8	80-120				
Chromium	0.04645	0.0050	0.05	0	92.9	80-120				
Cobalt	0.04542	0.0050	0.05	0	90.8	80-120				
Copper	0.04757	0.0050	0.05	0	95.1	80-120				
Iron	4.597	0.20	5	0	91.9	80-120				
Lead	0.04602	0.0050	0.05	0	92	80-120				
Magnesium	4.949	0.20	5	0	99	80-120				
Manganese	0.04668	0.0050	0.05	0	93.4	80-120				
Molybdenum	0.04473	0.0050	0.05	0	89.5	80-120				
Nickel	0.04568	0.0050	0.05	0	91.4	80-120				
Selenium	0.04568	0.0050	0.05	0	91.4	80-120				
Silver	0.04504	0.0050	0.05	0	90.1	80-120				
Sodium	4.96	0.20	5	0	99.2	80-120				
Vanadium	0.04681	0.0050	0.05	0	93.6	80-120				
Zinc	0.04614	0.0050	0.05	0	92.3	80-120				

LCS Sample ID: **MLCSW2-070313-71236** Units: **mg/L** Analysis Date: **7/5/2013 01:39 PM**

Client ID: Run ID: **ICP7500_130705A** SeqNo: **3279308** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	4.947	0.20	5	0	98.9	80-120				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71236 Instrument ID ICP7500 Method: SW6020

MS Sample ID: 13061143-05EMS Units: mg/L Analysis Date: 7/4/2013 01:42 AM

Client ID: Run ID: ICP7500_130703A SeqNo: 3278537 Prep Date: 7/3/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2053	0.010	0.1	0.09859	107	80-120				
Arsenic	0.05031	0.0050	0.05	0.002259	96.1	80-120				
Barium	0.1431	0.0050	0.05	0.09807	90.1	80-120				
Beryllium	0.04734	0.0020	0.05	0.0001126	94.5	80-120				
Boron	0.5806	0.050	0.5	0.1514	85.8	80-120				
Cadmium	0.04592	0.0020	0.05	0.0000368	91.8	80-120				
Calcium	95.25	0.50	5	91.12	82.6	80-120				O
Chromium	0.04806	0.0050	0.05	0.0002598	95.6	80-120				
Cobalt	0.04564	0.0050	0.05	-0.00005296	91.4	80-120				
Copper	0.04806	0.0050	0.05	0.001675	92.8	80-120				
Iron	4.797	0.20	5	0.05061	94.9	80-120				
Lead	0.04596	0.0050	0.05	0.0006849	90.6	80-120				
Magnesium	12.63	0.20	5	8.112	90.4	80-120				
Manganese	0.05341	0.0050	0.05	0.006173	94.5	80-120				
Molybdenum	0.04519	0.0050	0.05	0.001619	87.1	80-120				
Nickel	0.04625	0.0050	0.05	0.0006686	91.2	80-120				
Selenium	0.04928	0.0050	0.05	0.002189	94.2	80-120				
Silver	0.04375	0.0050	0.05	0.0005337	86.4	80-120				
Sodium	28.7	0.20	5	24.6	82	80-120				O
Vanadium	0.05167	0.0050	0.05	0.002773	97.8	80-120				
Zinc	0.08137	0.0050	0.05	0.03883	85.1	80-120				

MS Sample ID: 13061143-05EMS Units: mg/L Analysis Date: 7/5/2013 03:13 PM

Client ID: Run ID: ICP7500_130705A SeqNo: 3280382 Prep Date: 7/3/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	5.866	0.20	5	0.6949	103	80-120				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **71236** Instrument ID **ICP7500** Method: **SW6020**

MSD Sample ID: **13061143-05EMSD** Units: **mg/L** Analysis Date: **7/4/2013 01:47 AM**

Client ID: Run ID: **ICP7500_130703A** SeqNo: **3278538** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2066	0.010	0.1	0.09859	108	80-120	0.2053	0.631	15	
Arsenic	0.049	0.0050	0.05	0.002259	93.5	80-120	0.05031	2.64	15	
Barium	0.1457	0.0050	0.05	0.09807	95.3	80-120	0.1431	1.8	15	
Beryllium	0.04846	0.0020	0.05	0.0001126	96.7	80-120	0.04734	2.34	15	
Boron	0.5825	0.050	0.5	0.1514	86.2	80-120	0.5806	0.327	15	
Cadmium	0.04686	0.0020	0.05	0.0000368	93.6	80-120	0.04592	2.03	15	
Calcium	94	0.50	5	91.12	57.6	80-120	95.25	1.32	15	SO
Chromium	0.04638	0.0050	0.05	0.0002598	92.2	80-120	0.04806	3.56	15	
Cobalt	0.04402	0.0050	0.05	-0.00005296	88.1	80-120	0.04564	3.61	15	
Copper	0.04538	0.0050	0.05	0.001675	87.4	80-120	0.04806	5.74	15	
Iron	4.612	0.20	5	0.05061	91.2	80-120	4.797	3.93	15	
Lead	0.04674	0.0050	0.05	0.0006849	92.1	80-120	0.04596	1.68	15	
Magnesium	12.59	0.20	5	8.112	89.6	80-120	12.63	0.317	15	
Manganese	0.05142	0.0050	0.05	0.006173	90.5	80-120	0.05341	3.8	15	
Molybdenum	0.04545	0.0050	0.05	0.001619	87.7	80-120	0.04519	0.574	15	
Nickel	0.04512	0.0050	0.05	0.0006686	88.9	80-120	0.04625	2.47	15	
Selenium	0.0475	0.0050	0.05	0.002189	90.6	80-120	0.04928	3.68	15	
Silver	0.04336	0.0050	0.05	0.0005337	85.7	80-120	0.04375	0.895	15	
Sodium	28.7	0.20	5	24.6	82	80-120	28.7	0	15	O
Vanadium	0.04929	0.0050	0.05	0.002773	93	80-120	0.05167	4.71	15	
Zinc	0.07916	0.0050	0.05	0.03883	80.7	80-120	0.08137	2.75	15	

MSD Sample ID: **13061143-05EMSD** Units: **mg/L** Analysis Date: **7/5/2013 03:18 PM**

Client ID: Run ID: **ICP7500_130705A** SeqNo: **3280383** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	5.83	0.20	5	0.6949	103	80-120	5.866	0.616	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1307042
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71236 Instrument ID ICP7500 Method: SW6020

DUP Sample ID: 13061143-05EDUP Units: mg/L Analysis Date: 7/4/2013 01:32 AM

Client ID: Run ID: ICP7500_130703A SeqNo: 3278535 Prep Date: 7/3/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09583	0.010					0.09859	2.84	25	
Arsenic	ND	0.0050					0.002259	0	25	
Barium	0.09501	0.0050					0.09807	3.17	25	
Beryllium	ND	0.0020					0.0001126	0	25	
Boron	0.1477	0.050					0.1514	2.47	25	
Cadmium	ND	0.0020					0.0000368	0	25	
Calcium	87.82	0.50					91.12	3.69	25	
Chromium	ND	0.0050					0.0002598	0	25	
Cobalt	ND	0.0050					-0.00005296	0	25	
Copper	ND	0.0050					0.001675	0	25	
Iron	ND	0.20					0.05061	0	25	
Lead	ND	0.0050					0.0006849	0	25	
Magnesium	7.868	0.20					8.112	3.05	25	
Manganese	0.005695	0.0050					0.006173	8.06	25	
Molybdenum	ND	0.0050					0.001619	0	25	
Nickel	ND	0.0050					0.0006686	0	25	
Selenium	ND	0.0050					0.002189	0	25	
Silver	ND	0.0050					0.0005337	0	25	
Sodium	23.94	0.20					24.6	2.72	25	
Vanadium	ND	0.0050					0.002773	0	25	
Zinc	0.03391	0.0050					0.03883	13.5	25	

DUP Sample ID: 13061143-05EDUP Units: mg/L Analysis Date: 7/5/2013 03:03 PM

Client ID: Run ID: ICP7500_130705A SeqNo: 3280380 Prep Date: 7/3/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Potassium	0.6928	0.20					0.6949	0.303	25	

The following samples were analyzed in this batch: 1307042-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **71299** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW3-070513-71299** Units: **mg/L** Analysis Date: **7/5/2013 03:18 PM**

Client ID: Run ID: **MERCURY_130703A** SeqNo: **3279620** Prep Date: **7/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW3-070513-71299** Units: **mg/L** Analysis Date: **7/5/2013 03:20 PM**

Client ID: Run ID: **MERCURY_130703A** SeqNo: **3279621** Prep Date: **7/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00458	0.00020	0.005	0	91.6	85-115				

MS Sample ID: **1307168-07CMS** Units: **mg/L** Analysis Date: **7/5/2013 03:26 PM**

Client ID: Run ID: **MERCURY_130703A** SeqNo: **3279624** Prep Date: **7/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00306	0.00020	0.005	-0.000002	61.2	85-115				S

MSD Sample ID: **1307168-07CMSD** Units: **mg/L** Analysis Date: **7/5/2013 03:28 PM**

Client ID: Run ID: **MERCURY_130703A** SeqNo: **3279625** Prep Date: **7/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00311	0.00020	0.005	-0.000002	62.2	85-115	0.00306	1.62	20	S

DUP Sample ID: **1307168-07CDUP** Units: **mg/L** Analysis Date: **7/5/2013 03:24 PM**

Client ID: Run ID: **MERCURY_130703A** SeqNo: **3279623** Prep Date: **7/5/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020					-0.000002	0	20	

The following samples were analyzed in this batch: 1307042-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **71254** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW1-130703-71254** Units: **µg/L** Analysis Date: **7/3/2013 01:05 PM**

Client ID: Run ID: **SV-3_130703A** SeqNo: **3279556** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	71.1	5.0	100	0	71.1	42-124	0			
Surr: 2-Fluorobiphenyl	78.23	5.0	100	0	78.2	48-120	0			
Surr: 2-Fluorophenol	80.51	5.0	100	0	80.5	20-120	0			
Surr: 4-Terphenyl-d14	84.28	5.0	100	0	84.3	51-135	0			
Surr: Nitrobenzene-d5	84.47	5.0	100	0	84.5	41-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71254	Instrument ID SV-3	Method: SW8270						
<i>Surr: Phenol-d6</i>	78.65	5.0	100	0	78.6	20-120	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **71254** Instrument ID **SV-3** Method: **SW8270**

LCS Sample ID: **SLCSW1-130703-71254** Units: **µg/L** Analysis Date: **7/3/2013 01:28 PM**

Client ID: Run ID: **SV-3_130703A** SeqNo: **3279557** Prep Date: **7/3/2013** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	32.66	5.0	50	0	65.3	50-120				
1-Methylnaphthalene	35.97	5.0	50	0	71.9	55-120				
2,4,5-Trichlorophenol	61.88	5.0	100	0	61.9	50-120				
2,4,6-Trichlorophenol	59.33	5.0	100	0	59.3	50-120				
2,4-Dinitrotoluene	33.03	5.0	50	0	66.1	50-120				
2-Methylnaphthalene	34.54	5.0	50	0	69.1	55-120				
2-Methylphenol	75.01	5.0	100	0	75	50-120				
2-Nitroaniline	44.76	5.0	50	0	89.5	55-125				
2-Nitrophenol	67.19	5.0	100	0	67.2	55-120				
3&4-Methylphenol	116.3	5.0	150	0	77.5	45-120				
3-Nitroaniline	16.95	5.0	50	0	33.9	25-120				
4-Nitroaniline	26.85	5.0	50	0	53.7	50-120				
4-Nitrophenol	78.89	5.0	100	0	78.9	45-120				
Acenaphthene	35.13	5.0	50	0	70.3	55-120				
Acenaphthylene	36.2	5.0	50	0	72.4	55-120				
Aniline	21.59	5.0	50	0	43.2	30-120				
Anthracene	36.76	5.0	50	0	73.5	55-120				
Benz(a)anthracene	33.98	5.0	50	0	68	55-120				
Benzidine	6.753	5.0	50	0	13.5	10-120				
Hexachlorobenzene	31.63	5.0	50	0	63.3	55-120				
Hexachloroethane	34.14	5.0	50	0	68.3	55-120				
Indeno(1,2,3-cd)pyrene	28.76	5.0	50	0	57.5	55-120				
Isophorone	35.06	5.0	50	0	70.1	55-120				
Naphthalene	35.81	5.0	50	0	71.6	55-120				
Nitrobenzene	36.11	5.0	50	0	72.2	55-120				
N-Nitrosodimethylamine	33.57	5.0	50	0	67.1	45-120				
N-Nitrosodi-n-propylamine	39.77	5.0	50	0	79.5	50-120				
N-Nitrosodiphenylamine	35.9	5.0	50	0	71.8	55-120				
Pentachlorophenol	64.26	5.0	100	0	64.3	55-120				
Phenanthrene	36.6	5.0	50	0	73.2	55-120				
Phenol	76.26	5.0	100	0	76.3	50-120				
Pyrene	36.84	5.0	50	0	73.7	55-120				
Pyridine	25.94	5.0	50	0	51.9	35-120				
Surr: 2,4,6-Tribromophenol	67.81	5.0	100	0	67.8	42-124	0			
Surr: 2-Fluorobiphenyl	68.38	5.0	100	0	68.4	48-120	0			
Surr: 2-Fluorophenol	80.68	5.0	100	0	80.7	20-120	0			
Surr: 4-Terphenyl-d14	78.23	5.0	100	0	78.2	51-135	0			
Surr: Nitrobenzene-d5	75.02	5.0	100	0	75	41-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71254	Instrument ID SV-3	Method: SW8270						
<i>Surr: Phenol-d6</i>	84.37	5.0	100	0	84.4	20-120	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1307042
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71254 Instrument ID SV-3 Method: SW8270

LCSD Sample ID: SLCSDW1-130703-71254 Units: µg/L Analysis Date: 7/3/2013 01:51 PM

Client ID: Run ID: SV-3_130703A SeqNo: 3279558 Prep Date: 7/3/2013 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	34.02	5.0	50	0	68	50-120	32.66	4.05	20	
1-Methylnaphthalene	37.34	5.0	50	0	74.7	55-120	35.97	3.74	20	
2,4,5-Trichlorophenol	63.87	5.0	100	0	63.9	50-120	61.88	3.17	20	
2,4,6-Trichlorophenol	61.58	5.0	100	0	61.6	50-120	59.33	3.74	20	
2,4-Dinitrotoluene	34.24	5.0	50	0	68.5	50-120	33.03	3.59	20	
2-Methylnaphthalene	35.38	5.0	50	0	70.8	55-120	34.54	2.41	20	
2-Methylphenol	76.09	5.0	100	0	76.1	50-120	75.01	1.42	20	
2-Nitroaniline	43.78	5.0	50	0	87.6	55-125	44.76	2.21	20	
2-Nitrophenol	68.91	5.0	100	0	68.9	55-120	67.19	2.52	20	
3&4-Methylphenol	117.2	5.0	150	0	78.2	45-120	116.3	0.827	20	
3-Nitroaniline	14.19	5.0	50	0	28.4	25-120	16.95	17.8	20	
4-Nitroaniline	26.05	5.0	50	0	52.1	50-120	26.85	3.04	20	
4-Nitrophenol	76.21	5.0	100	0	76.2	45-120	78.89	3.45	20	
Acenaphthene	35.06	5.0	50	0	70.1	55-120	35.13	0.204	20	
Acenaphthylene	35.4	5.0	50	0	70.8	55-120	36.2	2.24	20	
Aniline	22.93	5.0	50	0	45.9	30-120	21.59	6.05	20	
Anthracene	36.95	5.0	50	0	73.9	55-120	36.76	0.526	20	
Benz(a)anthracene	34.94	5.0	50	0	69.9	55-120	33.98	2.8	20	
Benzidine	6.621	5.0	50	0	13.2	10-120	6.753	1.97	20	
Hexachlorobenzene	32.55	5.0	50	0	65.1	55-120	31.63	2.86	20	
Hexachloroethane	35.22	5.0	50	0	70.4	55-120	34.14	3.1	20	
Indeno(1,2,3-cd)pyrene	32.92	5.0	50	0	65.8	55-120	28.76	13.5	20	
Isophorone	36.19	5.0	50	0	72.4	55-120	35.06	3.19	20	
Naphthalene	36.54	5.0	50	0	73.1	55-120	35.81	2.03	20	
Nitrobenzene	36.8	5.0	50	0	73.6	55-120	36.11	1.91	20	
N-Nitrosodimethylamine	35.54	5.0	50	0	71.1	45-120	33.57	5.71	20	
N-Nitrosodi-n-propylamine	39.51	5.0	50	0	79	50-120	39.77	0.671	20	
N-Nitrosodiphenylamine	37.25	5.0	50	0	74.5	55-120	35.9	3.69	20	
Pentachlorophenol	68.57	5.0	100	0	68.6	55-120	64.26	6.49	20	
Phenanthrene	36.39	5.0	50	0	72.8	55-120	36.6	0.568	20	
Phenol	77.4	5.0	100	0	77.4	50-120	76.26	1.48	20	
Pyrene	40.7	5.0	50	0	81.4	55-120	36.84	9.94	20	
Pyridine	27.64	5.0	50	0	55.3	35-120	25.94	6.33	20	
Surr: 2,4,6-Tribromophenol	67.51	5.0	100	0	67.5	42-124	67.81	0.449	20	
Surr: 2-Fluorobiphenyl	64.93	5.0	100	0	64.9	48-120	68.38	5.19	20	
Surr: 2-Fluorophenol	82.59	5.0	100	0	82.6	20-120	80.68	2.35	20	
Surr: 4-Terphenyl-d14	82.4	5.0	100	0	82.4	51-135	78.23	5.19	20	
Surr: Nitrobenzene-d5	73.38	5.0	100	0	73.4	41-120	75.02	2.22	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 71254	Instrument ID SV-3	Method: SW8270								
Surr: Phenol-d6	84.04	5.0	100	0	84	20-120	84.37	0.39	20	

The following samples were analyzed in this batch: 1307042-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150118** Instrument ID **VOA1** Method: **SW8260**

MBLK		Sample ID: VBLKW-130707-R150118				Units: µg/L		Analysis Date: 7/7/2013 12:22 PM		
Client ID:		Run ID: VOA1_130707A				SeqNo: 3280506		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.64	5.0	50	0	99.3	70-125	0			
Surr: 4-Bromofluorobenzene	49.36	5.0	50	0	98.7	72-125	0			
Surr: Dibromofluoromethane	52.68	5.0	50	0	105	71-125	0			
Surr: Toluene-d8	48.95	5.0	50	0	97.9	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150118** Instrument ID **VOA1** Method: **SW8260**

LCS Sample ID: **VLCSW-130707-R150118** Units: **µg/L** Analysis Date: **7/7/2013 11:07 AM**

Client ID: Run ID: **VOA1_130707A** SeqNo: **3280505** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.23	5.0	50	0	94.5	80-120				
1,1,2,2-Tetrachloroethane	46.05	5.0	50	0	92.1	72-120				
1,1,2-Trichloroethane	44.76	5.0	50	0	89.5	80-120				
1,1-Dichloroethane	47.64	5.0	50	0	95.3	76-120				
1,1-Dichloroethene	50.04	5.0	50	0	100	73-124				
1,2-Dichloroethane	44.56	5.0	50	0	89.1	78-120				
2-Butanone	102.6	10	100	0	103	58-132				
2-Chloroethyl vinyl ether	83.88	10	100	0	83.9	74-120				
2-Hexanone	99.9	10	100	0	99.9	61-130				
4-Methyl-2-pentanone	97.23	10	100	0	97.2	65-127				
Acetone	111	10	100	0	111	59-137				
Benzene	47.49	5.0	50	0	95	73-121				
Bromodichloromethane	45.89	5.0	50	0	91.8	75-125				
Bromoform	53.56	5.0	50	0	107	70-130				
Bromomethane	46.86	5.0	50	0	93.7	60-145				
Carbon disulfide	96.8	10	100	0	96.8	68-141				
Carbon tetrachloride	50.15	5.0	50	0	100	75-125				
Chlorobenzene	48.4	5.0	50	0	96.8	80-120				
Chloroethane	51.29	5.0	50	0	103	70-130				
Chloroform	47.7	5.0	50	0	95.4	70-130				
Chloromethane	50.53	5.0	50	0	101	67-123				
cis-1,3-Dichloropropene	47.63	5.0	50	0	95.3	80-120				
Dibromochloromethane	50.94	5.0	50	0	102	80-120				
Ethylbenzene	47.32	5.0	50	0	94.6	80-120				
m,p-Xylene	91.83	10	100	0	91.8	78-121				
Methylene chloride	46.18	10	50	0	92.4	65-133				
Styrene	48.91	5.0	50	0	97.8	80-120				
Tetrachloroethene	46.69	5.0	50	0	93.4	79-120				
Toluene	48.21	5.0	50	0	96.4	80-120				
trans-1,3-Dichloropropene	46.66	5.0	50	0	93.3	80-120				
Trichloroethene	46.15	5.0	50	0	92.3	80-120				
Vinyl acetate	91.39	10	100	0	91.4	67-139				
Vinyl chloride	49.7	2.0	50	0	99.4	70-127				
Xylenes, Total	140.9	15	150	0	93.9	80-120				
Surr: 1,2-Dichloroethane-d4	47.65	5.0	50	0	95.3	70-125		0		
Surr: 4-Bromofluorobenzene	47.09	5.0	50	0	94.2	72-125		0		
Surr: Dibromofluoromethane	49.5	5.0	50	0	99	71-125		0		
Surr: Toluene-d8	48.29	5.0	50	0	96.6	75-125		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150118** Instrument ID **VOA1** Method: **SW8260**

MS Sample ID: **1307106-08AMS** Units: **µg/L** Analysis Date: **7/7/2013 01:36 PM**

Client ID: Run ID: **VOA1_130707A** SeqNo: **3280509** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.13	5.0	50	0	92.3	80-120				
1,1,2,2-Tetrachloroethane	45.61	5.0	50	0	91.2	72-120				
1,1,2-Trichloroethane	47.98	5.0	50	0	96	80-120				
1,1-Dichloroethane	48.94	5.0	50	0	97.9	76-120				
1,1-Dichloroethene	47.26	5.0	50	0	94.5	73-124				
1,2-Dichloroethane	49.63	5.0	50	0	99.3	78-120				
2-Butanone	102.2	10	100	0	102	58-132				
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120				S
2-Hexanone	110.3	10	100	0	110	61-130				
4-Methyl-2-pentanone	110	10	100	0	110	65-127				
Acetone	116	10	100	6.409	110	59-137				
Benzene	47.52	5.0	50	0	95	73-121				
Bromodichloromethane	46.56	5.0	50	0	93.1	75-125				
Bromoform	52.62	5.0	50	0	105	70-130				
Bromomethane	31.82	5.0	50	0	63.6	60-145				
Carbon disulfide	89.89	10	100	0	89.9	68-141				
Carbon tetrachloride	45	5.0	50	0	90	75-125				
Chlorobenzene	47.19	5.0	50	0	94.4	80-120				
Chloroethane	50.63	5.0	50	0	101	70-130				
Chloroform	46.47	5.0	50	0	92.9	70-130				
Chloromethane	40.11	5.0	50	0	80.2	67-123				
cis-1,3-Dichloropropene	43.61	5.0	50	0	87.2	80-120				
Dibromochloromethane	48.88	5.0	50	0	97.8	80-120				
Ethylbenzene	45.18	5.0	50	0	90.4	80-120				
m,p-Xylene	88.7	10	100	0	88.7	78-121				
Methylene chloride	45.7	10	50	0	91.4	65-133				
Styrene	46.62	5.0	50	0	93.2	80-120				
Tetrachloroethene	43.62	5.0	50	0	87.2	79-120				
Toluene	45.75	5.0	50	0	91.5	80-120				
trans-1,3-Dichloropropene	47.51	5.0	50	0	95	80-120				
Trichloroethene	43.42	5.0	50	0	86.8	80-120				
Vinyl acetate	98.22	10	100	0	98.2	67-139				
Vinyl chloride	47.43	2.0	50	0	94.9	70-127				
Xylenes, Total	134.2	15	150	0	89.4	80-120				
Surr: 1,2-Dichloroethane-d4	47.66	5.0	50	0	95.3	70-125		0		
Surr: 4-Bromofluorobenzene	48.19	5.0	50	0	96.4	72-125		0		
Surr: Dibromofluoromethane	50.74	5.0	50	0	101	71-125		0		
Surr: Toluene-d8	50.96	5.0	50	0	102	75-125		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150118** Instrument ID **VOA1** Method: **SW8260**

MSD Sample ID: **1307106-08AMSD** Units: **µg/L** Analysis Date: **7/7/2013 02:01 PM**

Client ID: Run ID: **VOA1_130707A** SeqNo: **3280510** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.68	5.0	50	0	97.4	80-120	46.13	5.38	20	
1,1,2,2-Tetrachloroethane	47.05	5.0	50	0	94.1	72-120	45.61	3.11	20	
1,1,2-Trichloroethane	46.2	5.0	50	0	92.4	80-120	47.98	3.77	20	
1,1-Dichloroethane	46.83	5.0	50	0	93.7	76-120	48.94	4.42	20	
1,1-Dichloroethene	51.93	5.0	50	0	104	73-124	47.26	9.42	20	
1,2-Dichloroethane	47.91	5.0	50	0	95.8	78-120	49.63	3.53	20	
2-Butanone	98.64	10	100	0	98.6	58-132	102.2	3.5	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	105.8	10	100	0	106	61-130	110.3	4.17	20	
4-Methyl-2-pentanone	108.9	10	100	0	109	65-127	110	1.03	20	
Acetone	116	10	100	6.409	110	59-137	116	0.0304	20	
Benzene	46.45	5.0	50	0	92.9	73-121	47.52	2.28	20	
Bromodichloromethane	49.77	5.0	50	0	99.5	75-125	46.56	6.66	20	
Bromoform	52.4	5.0	50	0	105	70-130	52.62	0.427	20	
Bromomethane	35.97	5.0	50	0	71.9	60-145	31.82	12.3	20	
Carbon disulfide	95.8	10	100	0	95.8	68-141	89.89	6.36	20	
Carbon tetrachloride	49.12	5.0	50	0	98.2	75-125	45	8.77	20	
Chlorobenzene	47.2	5.0	50	0	94.4	80-120	47.19	0.0303	20	
Chloroethane	46.14	5.0	50	0	92.3	76-121	50.63	9.28	20	
Chloroform	46.84	5.0	50	0	93.7	70-130	46.47	0.798	20	
Chloromethane	41.02	5.0	50	0	82	67-123	40.11	2.24	20	
cis-1,3-Dichloropropene	45.49	5.0	50	0	91	80-120	43.61	4.22	20	
Dibromochloromethane	49.14	5.0	50	0	98.3	80-120	48.88	0.525	20	
Ethylbenzene	44.6	5.0	50	0	89.2	80-120	45.18	1.31	20	
m,p-Xylene	90.46	10	100	0	90.5	78-121	88.7	1.96	20	
Methylene chloride	45.23	10	50	0	90.5	65-133	45.7	1.04	20	
Styrene	48.01	5.0	50	0	96	80-120	46.62	2.92	20	
Tetrachloroethene	43.63	5.0	50	0	87.3	79-120	43.62	0.0174	20	
Toluene	45.02	5.0	50	0	90	80-120	45.75	1.6	20	
trans-1,3-Dichloropropene	47.46	5.0	50	0	94.9	80-120	47.51	0.108	20	
Trichloroethene	46.87	5.0	50	0	93.7	80-120	43.42	7.64	20	
Vinyl acetate	99.58	10	100	0	99.6	67-139	98.22	1.38	20	
Vinyl chloride	48.43	2.0	50	0	96.9	70-127	47.43	2.07	20	
Xylenes, Total	136.9	15	150	0	91.2	78-121	134.2	1.99	20	
Surr: 1,2-Dichloroethane-d4	46.03	5.0	50	0	92.1	70-125	47.66	3.48	20	
Surr: 4-Bromofluorobenzene	47.15	5.0	50	0	94.3	72-125	48.19	2.18	20	
Surr: Dibromofluoromethane	50.44	5.0	50	0	101	71-125	50.74	0.588	20	
Surr: Toluene-d8	49.2	5.0	50	0	98.4	75-125	50.96	3.52	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150118** Instrument ID **VOA1** Method: **SW8260**

The following samples were analyzed in this batch: 1307042-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R149885** Instrument ID **ManTech01** Method: **SW9040** (Dissolve)

LCS Sample ID: **LCS-PH-R149885** Units: **pH units** Analysis Date: **7/2/2013 10:46 AM**

Client ID: Run ID: **MANTECH01_130702A** SeqNo: **3275512** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110				

DUP Sample ID: **1307042-01CDUP** Units: **pH units** Analysis Date: **7/2/2013 10:59 AM**

Client ID: **WW Effluent** Run ID: **MANTECH01_130702A** SeqNo: **3275515** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.55	0.10					7.53	0.265	20	H
Temp Deg C @pH	22.32	0					22.31	0.0448		H

The following samples were analyzed in this batch: 1307042-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R149886** Instrument ID **ManTech01** Method: **M2510 B** (Dissolve)

MBLK Sample ID: **WBLKW1-130702-R149886** Units: **µmhos/cm** Analysis Date: **7/2/2013 10:37 AM**

Client ID: Run ID: **MANTECH01_130702B** SeqNo: **3275537** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **LCS-COND-R149886** Units: **µmhos/cm** Analysis Date: **7/2/2013 10:48 AM**

Client ID: Run ID: **MANTECH01_130702B** SeqNo: **3275540** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1396	1.0	1413		0	98.8	80-120			

DUP Sample ID: **1307042-01DDUP** Units: **µmhos/cm** Analysis Date: **7/2/2013 10:59 AM**

Client ID: **WW Effluent** Run ID: **MANTECH01_130702B** SeqNo: **3275542** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	7535	1.0					7535	0	20	

The following samples were analyzed in this batch: 1307042-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R149890** Instrument ID **ManTech01** Method: **SM2320B** (Dissolve)

MBLK Sample ID: **WBLKW1-130702-R149890** Units: **mg/L** Analysis Date: **7/2/2013 10:37 AM**

Client ID: Run ID: **MANTECH01_130702D** SeqNo: **3275608** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO ₃)	ND	6.0								
Alkalinity, Carbonate (As CaCO ₃)	ND	6.0								
Alkalinity, Total (As CaCO ₃)	ND	6.0								

LCS Sample ID: **WLC5W1-130702-R149890** Units: **mg/L** Analysis Date: **7/2/2013 10:43 AM**

Client ID: Run ID: **MANTECH01_130702D** SeqNo: **3275609** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO ₃)	1133	6.0	1000	0	113	80-120				

DUP Sample ID: **1307042-01DDUP** Units: **mg/L** Analysis Date: **7/2/2013 10:59 AM**

Client ID: **WW Effluent** Run ID: **MANTECH01_130702D** SeqNo: **3275613** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO ₃)	194.1	6.0					194.5	0.232	0	
Alkalinity, Carbonate (As CaCO ₃)	ND	6.0					0	0	0	
Alkalinity, Total (As CaCO ₃)	194.1	6.0					194.5	0.232	20	

DUP Sample ID: **13061194-01BDUP** Units: **mg/L** Analysis Date: **7/2/2013 11:17 AM**

Client ID: Run ID: **MANTECH01_130702D** SeqNo: **3275620** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO ₃)	389.1	6.0					385	1.05	0	
Alkalinity, Carbonate (As CaCO ₃)	ND	6.0					0	0	0	
Alkalinity, Total (As CaCO ₃)	389.1	6.0					385	1.05	20	

The following samples were analyzed in this batch: 1307042-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1307042
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150069** Instrument ID **WetChem** Method: **SW1010** (**Dissolve**)

LCS Sample ID: **LCS-R150069-R150069** Units: **°F** Analysis Date: **7/5/2013 02:40 PM**

Client ID: Run ID: **WETCHEM_130705H** SeqNo: **3279441** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	84	50	84		0	100	80-120			

DUP Sample ID: **1307042-01CDUP** Units: **°F** Analysis Date: **7/5/2013 02:40 PM**

Client ID: **WW Effluent** Run ID: **WETCHEM_130705H** SeqNo: **3280576** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50						0	0	25

The following samples were analyzed in this batch: 1307042-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1307042
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150088** Instrument ID: **BALANCE1** Method: **M2540C** (Dissolve)

MBLK Sample ID: **WBLK-070313-R150088** Units: **mg/L** Analysis Date: **7/3/2013 12:40 PM**

Client ID: Run ID: **BALANCE1_130703E** SeqNo: **3279789** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **WLCS-070313-R150088** Units: **mg/L** Analysis Date: **7/3/2013 12:40 PM**

Client ID: Run ID: **BALANCE1_130703E** SeqNo: **3279790** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1036	10	1000	0	104	85-115				

DUP Sample ID: **13061143-04FDUP** Units: **mg/L** Analysis Date: **7/3/2013 12:40 PM**

Client ID: Run ID: **BALANCE1_130703E** SeqNo: **3279772** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	794	10					794	0	20	

DUP Sample ID: **13061143-05FDUP** Units: **mg/L** Analysis Date: **7/3/2013 12:40 PM**

Client ID: Run ID: **BALANCE1_130703E** SeqNo: **3279774** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	384	10					374	2.64	20	

The following samples were analyzed in this batch: 1307042-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1307042
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R150152** Instrument ID **ICS2100** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKW1-R150152** Units: **mg/L** Analysis Date: **7/8/2013 12:27 PM**

Client ID: Run ID: **ICS2100_130708A** SeqNo: **3281090** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	ND	0.10								
Chloride	ND	0.50								
Fluoride	ND	0.10								
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.342	0.10	5	0	107	85-115	0			

LCS Sample ID: **WLCSW1-R150152** Units: **mg/L** Analysis Date: **7/8/2013 12:12 PM**

Client ID: Run ID: **ICS2100_130708A** SeqNo: **3281088** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	4.301	0.10	4	0	108	90-110				
Chloride	21.01	0.50	20	0	105	90-110				
Fluoride	4.297	0.10	4	0	107	90-110				
Sulfate	21.25	0.50	20	0	106	90-110				
Surr: Selenate (surr)	4.815	0.10	5	0	96.3	85-115	0			

MS Sample ID: **1307042-01DMS** Units: **mg/L** Analysis Date: **7/8/2013 01:32 PM**

Client ID: **WW Effluent** Run ID: **ICS2100_130708A** SeqNo: **3281094** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	213.5	10	200	0	107	80-120				
Chloride	1267	50	1000	283	98.4	80-120				
Fluoride	220.2	10	200	2.83	109	80-120				
Sulfate	4729	50	1000	3564	116	80-120				
Surr: Selenate (surr)	496.9	10	500	0	99.4	85-115	0			

MSD Sample ID: **1307042-01DMSD** Units: **mg/L** Analysis Date: **7/8/2013 01:46 PM**

Client ID: **WW Effluent** Run ID: **ICS2100_130708A** SeqNo: **3281095** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	217.7	10	200	0	109	80-120	213.5	1.94	20	
Chloride	1288	50	1000	283	100	80-120	1267	1.61	20	
Fluoride	224.8	10	200	2.83	111	80-120	220.2	2.06	20	
Sulfate	4750	50	1000	3564	119	80-120	4729	0.456	20	
Surr: Selenate (surr)	506.6	10	500	0	101	85-115	496.9	1.95	20	

The following samples were analyzed in this batch: 1307042-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date: 12-Jul-13

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1307042

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
%	
°F	Fahrenheit degrees
µmhos/cm	
meq/L	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **28-Jun-13 09:20**

Work Order: **1307042**

Received by: **RDH**

Checklist completed by *Purend M. Egan*
eSignature

01-Jul-13
Date

Reviewed by: *Samir West*
eSignature

02-Jul-13
Date

Matrices: **Liquid**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.2c/1.2c C/U</u>		<u>IR1</u>
Cooler(s)/Kit(s):	<u>3493</u>		
Date/Time sample(s) sent to storage:	<u>7/1/13 17:30</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			

Login Notes: Trip Blank sample was received but was not listed on the COC. This sample has been placed on hold.

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



☒ ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1307042

NAVAJO REFINING: Navajo Refining Company

Project: Injection Well Quarterly



ALS Project Manager: _____

Customer Information				Project Information																
Purchase Order				Project Name	Injection Well Quarterly			A	VOC (8260) Select											
Work Order				Project Number				B	SVOC (8270) Select											
Company Name	Navajo Refining Copany			Bill To Company	Navajo Refining Copany			C	Total Metals (6020/7470) Heavy Metals Including As & Hg											
Send Report To	Aaron Strange			Invoice Attn.	Aaron Strange			D	Total Metals (200.8) Ca, K, Mg, Na											
Address	501 East Main			Address	501 East Main			E	Anions (300) F, Cl, SO4, Br											
								F	Alkalinity (Bicarbonate & Carbonate)											
City/State/Zip	Artesia, NM 88210			City/State/Zip	Artesia, NM 88210			G	pH & Temperature											
Phone	(575) 748-3311			Phone	(575) 748-3311			H	Conductivity											
Fax	(575) 746-5451			Fax	(575) 746-5451			I	TDS, Cation/Anion Balance											
e-Mail Address	aaron.strange@hollyfrontier.com			e-Mail Address	aaron.strange@hollyfrontier.com			J	RCI, Specific Gravity											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold			
1	WW Effluent	06/27/13	2:15 PM	Liquid	Yes	10	X	X	X	X	X	X	X	X	X	X				
2	Trip Blank																			
3	Temperature Blank																			
4																				
5																				
6																				
7																				
8																				
9																				
10																				
Sampler(s): Please Print & Sign Aaron Strange				Shipment Method: Fed Ex		Required Turnaround Time: ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour				Results Due Date:										
Relinquished by:		Date:	Time:	Received by:			Notes:													
Relinquished by:		Date:	Time:	Received by (Laboratory):			Cooler Temp.													
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):			QC Package: (Check Box Below)													
							☒ Level II: Standard QC ☐ TRRP-Checklist													
							☐ Level III: Std QC + Raw Data ☐ TRRP Level IV													
							☐ Level IV: SW846 CLP-Like													
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							Other:													

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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Navajo Refining Company, LLC
501 E. Main
Artesia, NM 88210
(Tel) 575.748.3311
(Fax) 575.746.5451

Injection Well Quarterly Sample Details Attachment



Project Name	Injection Well Quarterly
Samplers Name	Aaron Strange
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	6/27/2013 @ 14:10
End Date and Time	6/27/2013 @ 14:20

Sample Type	
Grab	☒
Time Weighted Composite	☐
Flow Weighted Composite	☐

Parts / Sample Intervals	One
--------------------------	-----

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

Type of Sampler	Directly to sample jars
-----------------	-------------------------

Outfall / Sample Location:	Waste water effluent pumps to injection wells.	☐ P-849 sample point	☐ P-856 sample point
		☒ P-854 sample point	☐ P-857 sample point

Preservatives												Analysis and/or Method Requested
Containers	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	
1	40-mL	VOA	3		X							VOC (8260) Select
2	1L	Amber Glass	2	X								SVOC (8270) Select
3	500-mL	Plastic	1			X						Total Metals (6020 / 7470) Heavy Metals Including As & Hg Total Metals 200.8 Ca, K, Mg, Na
4	1L	Plastic	2	X								R.C.I. Profile, and Conductivity
5	1L	Plastic	1	X								Anions (300) Cl, F, SO4, Br
6		with Anions										Alkalinity - EPA 310.1
7		with Anions										TDS
8	500-mL	Plastic	1	X								Specific Gravity
9												
10												

Field Data (Weather, Observations, Etc):	6/27/2012 14:15 Tmp. 102.2, Humidity 8%, Wind Dir. SSE, Wind Speed 15 mph, Conditions Clear
Date and Time:	

Gave 2 40-mL glas VOAs to Baker Chemical to analyze for ORP and pH.

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐

ORIGIN ID: ROWA (575) 748-3311

NAVAJO ARTESIA
501 E MAIN

ARTESIA, NM 882109440
UNITED STATES US

SHIP DATE: 27JUN13
ACTWGT: 54.0 LB MAN
CAD: 634483/CAFE2608

BILL RECIPIENT

TO SONIA WEST
ALS LABORATORY GROUP
10450 STANCLIFF RD., SUITE 210

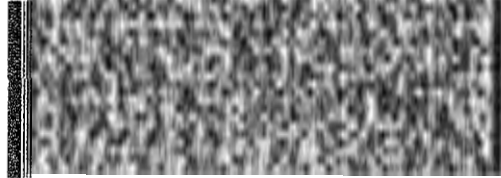
HOUSTON TX 77099

(281) 530-5656

REF:

INV:

DEPT:



FedEx
Express



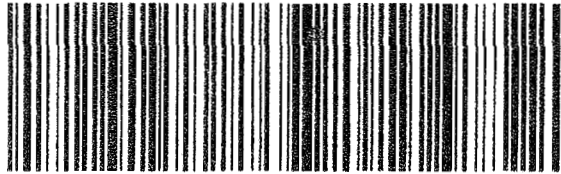
J12131218058125

TRKH# 5614 5589 0735
0201

FRI - 28 JUN 10:30A
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US IAH



ALS Environmental

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5387

CUSTODY SEAL

Date:

to:

Name:

Company:

6-27-13 Time: 16:15
Name: Aaron Strauss
Company: Navajo Petroleum Co.

Seal Broken By:

Date:

6/28/13

ALS Group USA, Corp

Date: 05-Jul-13

Client: ALS Environmental

Project: 1307042

Work Order: 1307031

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1307031-01	1307042-01G	Liquid		6/27/2013 14:15	7/2/2013 09:00	

Client: ALS Environmental
Project: 1307042
WorkOrder: 1307031

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
TDL	Target Detection Limit
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram
none	

ALS Group USA, Corp

Date: 05-Jul-13

Client: ALS Environmental
Project: 1307042
Sample ID: 1307042-01G
Collection Date: 6/27/2013 02:15 PM

Work Order: 1307031
Lab ID: 1307031-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE Cyanide, Reactive	ND		SW7.3.3.2 40.0	mg/Kg	1	Analyst: CH 7/3/2013 11:00 AM
SPECIFIC GRAVITY Specific Gravity	1.0103		D5057-90	none	1	Analyst: CH 7/3/2013 11:20 AM
SULFIDE, REACTIVE Sulfide, Reactive	ND		SW7.3.4.2 40.0	mg/Kg	1	Analyst: CH 7/3/2013 11:00 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 05-Jul-13

Client: ALS Environmental
Work Order: 1307031
Project: 1307042

QC BATCH REPORT

Batch ID: **R123148** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **MB-R123148-R123148** Units: **mg/Kg** Analysis Date: **7/3/2013 11:00 AM**
 Client ID: Run ID: **WETCHEM_130703H** SeqNo: **2369067** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

LCS Sample ID: **LCS-R123148-R123148** Units: **mg/Kg** Analysis Date: **7/3/2013 11:00 AM**
 Client ID: Run ID: **WETCHEM_130703H** SeqNo: **2369068** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	828	40	1075	0	77	60-120	0			

The following samples were analyzed in this batch: 1307031-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1307031
Project: 1307042

QC BATCH REPORT

Batch ID: **R123149** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **MB-R123149-R123149** Units: **mg/Kg** Analysis Date: **7/3/2013 11:00 AM**

Client ID: Run ID: **WETCHEM_130703I** SeqNo: **2369077** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **LCS-R123149-R123149** Units: **mg/Kg** Analysis Date: **7/3/2013 11:00 AM**

Client ID: Run ID: **WETCHEM_130703I** SeqNo: **2369078** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250		0	99.8	75-125	0		

MS Sample ID: **1307058-02D MS** Units: **mg/Kg** Analysis Date: **7/3/2013 11:00 AM**

Client ID: Run ID: **WETCHEM_130703I** SeqNo: **2369082** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	278.4	40	250		0	111	50-150	0		

MSD Sample ID: **1307058-02D MSD** Units: **mg/Kg** Analysis Date: **7/3/2013 11:00 AM**

Client ID: Run ID: **WETCHEM_130703I** SeqNo: **2369083** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	278.4	40	250		0	111	50-150	278.4	0	35

The following samples were analyzed in this batch: 1307031-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 01-Jul-13
COC ID: 14352
Due Date 05-Jul-13

Salesperson Houston House Acct

1307031

Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order		Project Name	1307042	A	Specific Gravity Sub to ALS Michigan										
Work Order		Project Number		B	Reactive Cyanide (SW-846)										
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C	Reactive Sulfide (SW-846)										
Send Report To	Sonia West	Inv Attn	Accounts Payable	D											
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E											
				F											
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G											
Phone	(281) 530-5656	Phone	(281) 530-5656	H											
Fax	(281) 530-5887	Fax	(281) 530-5887	I											
eMail Address	Sonia.West@alsglobal.com	eMail CC		J											
Sample ID		Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J	
1307042-01G (WW Effluent)		Liquid	27/Jun/2013 14:15	(1) 1LPNEAT	X	X	X								

Comments:

Please analyze for reactive cyanide, reactive sulfide & Specific Gravity. Due on 4/5/13. Send report to sonia.west@alsglobal.com & cc : results.tojumoke.lawal@alsglobal.com & luke.hernandez@alsglobal.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
<i>[Signature]</i>	7/1/13 1800	FEDEX			Std
Relinquished by:	Date/Time	Received by:	Date/Time		
FEDEX	7/2/13 0400	<i>[Signature]</i>			

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: **ALS - HOUSTON**

Date/Time Received: **02-Jul-13 09:00**

Work Order: **1307031**

Received by: **AB**

Checklist completed by *Ashley Beard*
eSignature

02-Jul-13
Date

Reviewed by: *Tam Brumish*
eSignature

02-Jul-13
Date

Matrices: **liquid**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>5.0c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>7/2/2013 9:50:17 AM</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	-		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

**ALS Environmental**

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 7-1-13 Time: _____
Name: P. Glaser
Company: ALS HMO

Seal Broken By: _____

Date: _____

**ALS Environmental**

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 7-1-13 Time: _____
Name: P. Glaser
Company: ALS HMO

Seal Broken By: _____

Date: _____

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

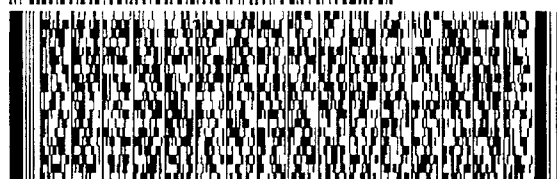
SHIP DATE: 01JUL13
ACTWGT: 21.5 LB
CAD: 300130/CAFE2608
DIMS: 19x16x13 IN
BILL SENDER

TO **JEFF GLASER**
ALS ENVIRONMENTAL
3352 128TH AVE.

HOLLAND MI 49424

(281) 530-5656

REF: (SUBCONTRACT) PMG



FedEx
Express



512131210050126

TRK# 4340 2176 3354
0201

TUE - 02 JUL 10:30A
PRIORITY OVERNIGHT

NA GRRRA

49424,
MI-US GRR





RECEIVED OGD
2012 NOV -1 P 12:40

October 30, 2012

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

CERTIFIED MAIL/RETURN RECEIPT
7007 3020 0000 3028 7980

**RE: 2012 Third Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the third quarter of 2012 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better method to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. The table shows that the graduated tank level at WDW-1 has been dropping at a very slow rate this quarter. The Annulus Pressure Tests (APT's) on all three wells were completed on September 17, 2012 and certified by a third party Engineer. One of the Mechanical Integrity Tests (MIT), on WDW-1, was completed in September 2012. A quarterly Bradenhead for WDW-3 was last done on September 17, 2012, and passed.

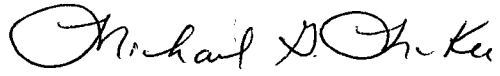
You will also notice that the minimum annular pressure for the Mewbourne Well (WDW-1) shows a low reading in September. The low reading was from September 9th to September 14th 2012. Navajo investigated the low pressure and discovered that both annulus pumps were vapor locked. The pumps were re primed and tested in place. Since then, the annular pressure in WDW-1 has returned to normal operating pressures.

This report covers the period from July 1, 2012 to September 30, 2012. We have disposed a total of 61,367,515 barrels of fluid into the three wells as of September 30, 2012. The volume per well is:

- 32,291,941 barrels into WDW-1
- 19,261,517 barrels into WDW-2
- 9,814,057 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

A handwritten signature in black ink, appearing to read "Michael McKee". The signature is fluid and cursive, with the first name "Michael" and last name "McKee" clearly distinguishable.

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

JEL, RAC, MLS, AMS
Navajo: (ART: REF - 4 A 02 D)

2012 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													31,885,580
Jul-12	838	877	734	129	150	113	350	621	216	4,421	5,132	3,876	137,047	32,022,626
Aug-12	819	850	799	131	139	127	334	519	193	4,501	4,750	4,340	139,534	32,162,160
Sep-12	820	868	611	126	138	80	310	666	84	4,326	4,723	2,759	129,781	32,291,941
WDW-2	Previous Quarter													18,790,517
Jul-12	781	871	708	153	159	133	637	1,049	210	5,256	5,447	4,544	162,951	18,953,468
Aug-12	780	820	736	150	156	112	669	918	454	5,135	5,337	3,857	159,171	19,112,639
Sep-12	748	829	597	145	158	99	407	647	112	4,963	5,423	3,389	148,878	19,261,517
WDW-3	Previous Quarter													9,406,393
Jul-12	818	861	686	120	133	76	531	977	288	4,117	4,575	2,596	127,625	9,534,018
Aug-12	805	830	783	155	357	97	434	706	278	5,301	12,257	3,341	164,326	9,698,344
Sep-12	791	856	581	112	193	22	424	803	228	3,857	6,628	768	115,713	9,814,057
Total Injected fluids:														61,367,515

2012 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/2/12	7/9/12	7/16/12	7/23/12	7/31/12	8/6/12	8/13/12	8/20/12	8/27/12	9/4/12	9/10/12	9/17/12	9/24/12
WDW -1 ¹	160	160	150	150	150	No Data	150	145	145	145	145	140	140
WDW-2 ¹	150	150	145	145	145	No Data	145	145	145	145	145	145	145
WDW-3 ¹	145	145	145	145	145	No Data	145	145	145	145	145	145	145
Comments:													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



23-Oct-2012

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1209741

Dear Aaron,

ALS Environmental received 2 samples on 20-Sep-2012 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 53.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Jumoke M. Lawal

Patricia L. Lynch
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Standliff Rd, Suite 210 Houston, Texas 77066-4339 | PHONE (281) 530-5656 | FAX (281) 530-5857

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Environmental

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ALS Environmental

Date: 23-Oct-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1209741

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1209741-01	WW Effluent	Liquid		9/19/2012 09:30	9/20/2012 09:10	☐
1209741-01	WW Effluent	Liquid		9/19/2012 09:30	9/20/2012 09:10	☐
1209741-02	Trip Blank - 071712-98	Water		9/19/2012	9/20/2012 09:10	☐

Client: Navajo Refining Company**Project:** Injection Well Quarterly**Work Order:** 1209741**Case Narrative**

The temperature at the time of the pH measurement is reported. Please note that all pH results are already normalized to a temperature of 25 degrees C.

The result for pH (corrosivity) is flagged with H indicating that the holding time was exceeded. Per 40CFR136, the holding time for pH is "immediate."

Batch 64533, Metals, Sample 1209795-01: MS/MSD recoveries and duplicate RPD are for an unrelated sample.

Batch 64499, Metals, Sample 1209752-01: MS/MSD recoveries and duplicate RPDs are for an unrelated sample.

Batch R135700, Volatile Organics, Sample 1209697-03: MS/MSD recoveries are for an unrelated sample.

The analyses for reactivity were performed at ALS Environmental in Holland, MI.

The analyses for radium-226 and 228 were performed at ALS Environmental located in Burlington, Ontario.

ALS Environmental

Date: 23-Oct-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 9/19/2012 09:30 AM

Work Order: 1209741

Lab ID: 1209741-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
PCBS BY SW8082A			SW8082		Analyst: JLJ		
Aroclor 1016	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Aroclor 1221	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Aroclor 1232	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Aroclor 1242	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Aroclor 1248	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Aroclor 1254	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Aroclor 1260	ND		0.500	µg/L	1	9/22/2012	9/25/2012 06:47 PM
Surr: Decachlorobiphenyl	59.8		54-140	%REC	1	9/22/2012	9/25/2012 06:47 PM
Surr: Tetrachloro-m-xylene	80.5		53-137	%REC	1	9/22/2012	9/25/2012 06:47 PM
MERCURY-SW7470A			SW7470		Analyst: JCJ		
Mercury	ND		0.000200	mg/L	1	9/26/2012	9/26/2012 11:56 AM
METALS			SW6020		Analyst: ALR		
Aluminum	1.11		0.0100	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Arsenic	0.0468		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Barium	0.0182		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Boron	0.253		0.100	mg/L	2	9/27/2012	9/27/2012 05:47 PM
Cadmium	ND		0.00200	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Chromium	ND		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Cobalt	ND		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Copper	0.0108		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Iron	0.882		0.200	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Lead	ND		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Manganese	0.0329		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Molybdenum	0.243		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Nickel	0.0112		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Selenium	1.00		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Silver	ND		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Uranium	ND		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
Zinc	0.0560		0.00500	mg/L	1	9/26/2012	9/26/2012 10:06 PM
LOW-LEVEL SEMIVOLATILES			SW8270		Analyst: LG		
1-Methylnaphthalene	ND		0.20	µg/L	1	9/24/2012	9/24/2012 11:16 PM
2-Methylnaphthalene	ND		0.20	µg/L	1	9/24/2012	9/24/2012 11:16 PM
Benzo(a)pyrene	ND		0.20	µg/L	1	9/24/2012	9/24/2012 11:16 PM
Naphthalene	ND		0.20	µg/L	1	9/24/2012	9/24/2012 11:16 PM
Surr: 2,4,6-Tribromophenol	67.4		34-129	%REC	1	9/24/2012	9/24/2012 11:16 PM
Surr: 2-Fluorobiphenyl	65.4		40-125	%REC	1	9/24/2012	9/24/2012 11:16 PM
Surr: 2-Fluorophenol	72.7		20-120	%REC	1	9/24/2012	9/24/2012 11:16 PM
Surr: 4-Terphenyl-d14	90.0		40-135	%REC	1	9/24/2012	9/24/2012 11:16 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 23-Oct-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 9/19/2012 09:30 AM

Work Order: 1209741

Lab ID: 1209741-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Surr: Nitrobenzene-d5	72.0		41-120	%REC	1	9/24/2012	9/24/2012 11:16 PM
Surr: Phenol-d6	74.1		20-120	%REC	1	9/24/2012	9/24/2012 11:16 PM
VOLATILES - SW8260C			SW8260				Analyst: PC
1,1,1-Trichloroethane	ND		5.0	µg/L	1		9/26/2012 08:06 PM
1,1,2,2-Tetrachloroethane	ND		5.0	µg/L	1		9/26/2012 08:06 PM
1,1,2-Trichloroethane	ND		5.0	µg/L	1		9/26/2012 08:06 PM
1,1-Dichloroethane	ND		5.0	µg/L	1		9/26/2012 08:06 PM
1,1-Dichloroethene	ND		5.0	µg/L	1		9/26/2012 08:06 PM
1,2-Dibromoethane	ND		5.0	µg/L	1		9/26/2012 08:06 PM
1,2-Dichloroethane	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Benzene	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Carbon tetrachloride	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Chloroform	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Ethylbenzene	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Methylene chloride	ND		10	µg/L	1		9/26/2012 08:06 PM
Tetrachloroethene	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Toluene	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Trichloroethene	ND		5.0	µg/L	1		9/26/2012 08:06 PM
Vinyl chloride	ND		2.0	µg/L	1		9/26/2012 08:06 PM
Xylenes, Total	ND		15	µg/L	1		9/26/2012 08:06 PM
Surr: 1,2-Dichloroethane-d4	90.6		70-125	%REC	1		9/26/2012 08:06 PM
Surr: 4-Bromofluorobenzene	95.5		72-125	%REC	1		9/26/2012 08:06 PM
Surr: Dibromofluoromethane	98.9		71-125	%REC	1		9/26/2012 08:06 PM
Surr: Toluene-d8	96.3		75-125	%REC	1		9/26/2012 08:06 PM
REACTIVE CYANIDE			SW-846				Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1		9/26/2012 12:00 PM
REACTIVE SULFIDE			SW-846				Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1		9/26/2012 12:00 PM
MISCELLANEOUS ANALYSIS			NA				Analyst: SUB
Miscellaneous Analysis	See Attached				1		10/19/2012
ANIONS - EPA 300.0 (1993)			E300				Analyst: JKP
Chloride	458		5.00	mg/L	10		9/26/2012 06:18 AM
Sulfate	3,460		50.0	mg/L	100		9/26/2012 09:24 PM
Surr: Selenate (surr)	98.7		85-115	%REC	10		9/26/2012 06:18 AM
Surr: Selenate (surr)	95.7		85-115	%REC	100		9/26/2012 09:24 PM
ALKALINITY-SM2320B			SM2320B				Analyst: RPM
Alkalinity, Bicarbonate (As CaCO3)	284		10.0	mg/L	1		9/27/2012 12:22 PM
Alkalinity, Carbonate (As CaCO3)	ND		10.0	mg/L	1		9/27/2012 12:22 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 23-Oct-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: WW Effluent

Collection Date: 9/19/2012 09:30 AM

Work Order: 1209741

Lab ID: 1209741-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Alkalinity, Hydroxide (As CaCO ₃)	ND		10.0	mg/L	1		9/27/2012 12:22 PM
Alkalinity, Total (As CaCO ₃)	284		10.0	mg/L	1		9/27/2012 12:22 PM
CYANIDE - SM4500CN E			M4500CN E&G				Analyst: EDG
Cyanide	0.113		0.0200	mg/L	1		9/26/2012 11:00 AM
CONDUCTIVITY - EPA 120.1			E120.1				Analyst: VAN
Specific Conductance	8,370		1.00	µmhos/cm	1		9/25/2012 11:00 AM
IGNITIBILITY			SW1010				Analyst: KL
Ignitability	> 212		50.0	°F	1		9/22/2012 10:00 AM
PH - SM4500H+ B			SM4500H+ B				Analyst: KL
pH	7.33	H	0.100	pH Units	1		9/22/2012 12:00 PM
Temp Deg C @pH	20.6	H		°C	1		9/22/2012 12:00 PM
PHENOLICS - EPA 420.1			E420.1				Analyst: EDG
Phenolics, Total Recoverable	ND		0.0500	mg/L	1		9/27/2012 12:00 PM
TOTAL DISSOLVED SOLIDS			M2540C				Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	6,140		10.0	mg/L	1		9/25/2012 03:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 23-Oct-12

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **64401** Instrument ID **ECD_7** Method: **SW8082**

MBLK	Sample ID: PBLKW3-120922-64401			Units: µg/L		Analysis Date: 9/24/2012 10:19 AM				
Client ID:	Run ID: ECD_7_120924A			SeqNo: 2952444		Prep Date: 9/22/2012		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.50								
Aroclor 1221	ND	0.50								
Aroclor 1232	ND	0.50								
Aroclor 1242	ND	0.50								
Aroclor 1248	ND	0.50								
Aroclor 1254	ND	0.50								
Aroclor 1260	ND	0.50								
Surr: Decachlorobiphenyl	0.1561	0.050	0.2	0	78	54-140	0			
Surr: Tetrachloro-m-xylene	0.154	0.050	0.2	0	77	53-137	0			

LCS	Sample ID: PLCSW3-120922-64401			Units: µg/L		Analysis Date: 9/24/2012 10:34 AM				
Client ID:	Run ID: ECD_7_120924A			SeqNo: 2952445		Prep Date: 9/22/2012		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	3.601	0.50	5	0	72	54-138	0			
Aroclor 1260	3.622	0.50	5	0	72.4	57-136	0			
Surr: Decachlorobiphenyl	0.1418	0.050	0.2	0	70.9	54-140	0			
Surr: Tetrachloro-m-xylene	0.1466	0.050	0.2	0	73.3	53-137	0			

LCSD	Sample ID: PLCSDW3-120922-64401			Units: µg/L		Analysis Date: 9/24/2012 10:49 AM				
Client ID:	Run ID: ECD_7_120924A			SeqNo: 2952446		Prep Date: 9/22/2012		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	3.616	0.50	5	0	72.3	54-138	3.601	0.419	20	
Aroclor 1260	3.754	0.50	5	0	75.1	57-136	3.622	3.58	20	
Surr: Decachlorobiphenyl	0.1468	0.050	0.2	0	73.4	54-140	0.1418	3.42	20	
Surr: Tetrachloro-m-xylene	0.1449	0.050	0.2	0	72.4	53-137	0.1466	1.15	20	

The following samples were analyzed in this batch:

1209741-01G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64478 Instrument ID Mercury Method: SW7470

MBLK Sample ID: GBLKW1-092612-64478 Units: mg/L Analysis Date: 9/26/2012 11:08 AM

Client ID: Run ID: MERCURY_120926A SeqNo: 2957285 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW1-092612-64478 Units: mg/L Analysis Date: 9/26/2012 11:13 AM

Client ID: Run ID: MERCURY_120926A SeqNo: 2957287 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	0	96.4	85-115	0			

MS Sample ID: 1209661-01CMS Units: mg/L Analysis Date: 9/26/2012 11:21 AM

Client ID: Run ID: MERCURY_120926A SeqNo: 2957294 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00461	0.00020	0.005	0	92.2	85-115	0			

MSD Sample ID: 1209661-01CMSD Units: mg/L Analysis Date: 9/26/2012 11:23 AM

Client ID: Run ID: MERCURY_120926A SeqNo: 2957295 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00463	0.00020	0.005	0	92.6	85-115	0.00461	0.433	20	

DUP Sample ID: 1209661-01CDUP Units: mg/L Analysis Date: 9/26/2012 11:19 AM

Client ID: Run ID: MERCURY_120926A SeqNo: 2957291 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0	0	20	

The following samples were analyzed in this batch:

1209741-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 2 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64499 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW2-092612-64499 Units: mg/L Analysis Date: 9/26/2012 08:25 PM

Client ID: Run ID: ICPMS03_120926A SeqNo: 2958290 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.008563	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Iron	ND	0.20								
Lead	0.001333	0.0050								J
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Uranium	ND	0.0050								
Zinc	0.004838	0.0050								J

MBLK Sample ID: MBLKW2-092612-64499 Units: mg/L Analysis Date: 9/27/2012 03:52 PM

Client ID: Run ID: ICPMS03_120927A SeqNo: 2959693 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Copper	ND	0.0050								

LCS Sample ID: MLC5W2-092612-64499 Units: mg/L Analysis Date: 9/26/2012 08:30 PM

Client ID: Run ID: ICPMS03_120926A SeqNo: 2958291 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1165	0.010	0.1	0	116	80-120	0			
Arsenic	0.0493	0.0050	0.05	0	98.6	80-120	0			
Barium	0.05486	0.0050	0.05	0	110	80-120	0			
Cadmium	0.05326	0.0020	0.05	0	107	80-120	0			
Chromium	0.04987	0.0050	0.05	0	99.7	80-120	0			
Cobalt	0.04931	0.0050	0.05	0	98.6	80-120	0			
Iron	4.994	0.20	5	0	99.9	80-120	0			
Lead	0.05114	0.0050	0.05	0	102	80-120	0			
Manganese	0.04891	0.0050	0.05	0	97.8	80-120	0			
Molybdenum	0.05169	0.0050	0.05	0	103	80-120	0			
Nickel	0.04993	0.0050	0.05	0	99.9	80-120	0			
Selenium	0.04902	0.0050	0.05	0	98	80-120	0			
Silver	0.05223	0.0050	0.05	0	104	80-120	0			
Uranium	0.09499	0.0050	0.1	0	95	80-120	0			
Zinc	0.05166	0.0050	0.05	0	103	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64499 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW2-092612-64499 Units: mg/L Analysis Date: 9/27/2012 03:57 PM

Client ID: Run ID: ICPMS03_120927A SeqNo: 2959694 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Copper	0.0541	0.0050	0.05	0	108	80-120	0			

MS Sample ID: 1209752-01DMS Units: mg/L Analysis Date: 9/26/2012 08:49 PM

Client ID: Run ID: ICPMS03_120926A SeqNo: 2958295 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.114	0.010	0.1	0.8954	219	80-120	0			SO
Arsenic	0.05973	0.0050	0.05	0.01046	98.5	80-120	0			
Barium	0.1772	0.0050	0.05	0.1276	99.2	80-120	0			
Cadmium	0.05217	0.0020	0.05	-0.0001141	105	80-120	0			
Chromium	0.05208	0.0050	0.05	0.005381	93.4	80-120	0			
Cobalt	0.05271	0.0050	0.05	0.006827	91.8	80-120	0			
Copper	0.0479	0.0050	0.05	0.002631	90.5	80-120	0			
Iron	7.521	0.20	5	2.91	92.2	80-120	0			
Lead	0.05872	0.0050	0.05	0.02165	74.1	80-120	0			S
Manganese	2.384	0.0050	0.05	2.455	-142	80-120	0			SEO
Molybdenum	0.05351	0.0050	0.05	0.002713	102	80-120	0			
Nickel	0.05745	0.0050	0.05	0.01299	88.9	80-120	0			
Selenium	0.05012	0.0050	0.05	0.0002906	99.7	80-120	0			
Silver	0.04856	0.0050	0.05	0.0002773	96.6	80-120	0			
Uranium	0.1033	0.0050	0.1	0.004138	99.2	80-120	0			
Zinc	0.07212	0.0050	0.05	0.06916	5.92	80-120	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 4 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64499 Instrument ID ICPMS03 Method: SW6020

MSD Sample ID: 1209752-01DMSD Units: mg/L Analysis Date: 9/26/2012 08:54 PM

Client ID: Run ID: ICPMS03_120926A SeqNo: 2958296 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.119	0.010	0.1	0.8954	224	80-120	1.114	0.448	15	SO
Arsenic	0.06087	0.0050	0.05	0.01046	101	80-120	0.05973	1.89	15	
Barium	0.1774	0.0050	0.05	0.1276	99.6	80-120	0.1772	0.113	15	
Cadmium	0.05172	0.0020	0.05	-0.0001141	104	80-120	0.05217	0.866	15	
Chromium	0.05187	0.0050	0.05	0.005381	93	80-120	0.05208	0.404	15	
Cobalt	0.05308	0.0050	0.05	0.006827	92.5	80-120	0.05271	0.699	15	
Copper	0.04857	0.0050	0.05	0.002631	91.9	80-120	0.0479	1.39	15	
Iron	7.556	0.20	5	2.91	92.9	80-120	7.521	0.464	15	
Lead	0.05893	0.0050	0.05	0.02165	74.6	80-120	0.05872	0.357	15	S
Manganese	2.43	0.0050	0.05	2.455	-50	80-120	2.384	1.91	15	SEO
Molybdenum	0.05185	0.0050	0.05	0.002713	98.3	80-120	0.05351	3.15	15	
Nickel	0.05678	0.0050	0.05	0.01299	87.6	80-120	0.05745	1.17	15	
Selenium	0.05093	0.0050	0.05	0.0002906	101	80-120	0.05012	1.6	15	
Silver	0.04747	0.0050	0.05	0.0002773	94.4	80-120	0.04856	2.27	15	
Uranium	0.1016	0.0050	0.1	0.004138	97.5	80-120	0.1033	1.66	15	
Zinc	0.07601	0.0050	0.05	0.06916	13.7	80-120	0.07212	5.25	15	S

DUP Sample ID: 1209752-01DDUP Units: mg/L Analysis Date: 9/26/2012 08:39 PM

Client ID: Run ID: ICPMS03_120926A SeqNo: 2958293 Prep Date: 9/26/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.8229	0.010	0	0	0	0-0	0.8954	8.44	25	
Arsenic	0.01012	0.0050	0	0	0	0-0	0.01046	3.3	25	
Barium	0.1204	0.0050	0	0	0	0-0	0.1276	5.81	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0001141	0	25	
Chromium	0.004977	0.0050	0	0	0	0-0	0.005381	0	25	J
Cobalt	0.00658	0.0050	0	0	0	0-0	0.006827	3.68	25	
Copper	0.002505	0.0050	0	0	0	0-0	0.002631	0	25	J
Iron	2.766	0.20	0	0	0	0-0	2.91	5.07	25	
Lead	0.01622	0.0050	0	0	0	0-0	0.02165	28.7	25	R
Molybdenum	0.002062	0.0050	0	0	0	0-0	0.002713	0	25	J
Nickel	0.01203	0.0050	0	0	0	0-0	0.01299	7.67	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0002906	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0002773	0	25	
Uranium	ND	0.0050	0	0	0	0-0	0.004138	0	25	
Zinc	0.02174	0.0050	0	0	0	0-0	0.06916	104	25	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 5 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **64499** Instrument ID **ICPMS03** Method: **SW6020**

DUP Sample ID: **1209752-01DDUP** Units: **mg/L** Analysis Date: **9/27/2012 02:00 PM**

Client ID: Run ID: **ICPMS03_120927A** SeqNo: **2959282** Prep Date: **9/26/2012** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.628	0.050	0	0	0	0-0	2.502	4.91	25	

The following samples were analyzed in this batch:

1209741-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 6 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64533 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW1-092712-64533 Units: mg/L Analysis Date: 9/27/2012 05:28 PM

Client ID: Run ID: ICPMS03_120927A SeqNo: 2959991 Prep Date: 9/27/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004095	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	0.001339	0.0050								J
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	ND	0.0050								

LCS Sample ID: MLCSW1-092712-64533 Units: mg/L Analysis Date: 9/27/2012 05:33 PM

Client ID: Run ID: ICPMS03_120927A SeqNo: 2959992 Prep Date: 9/27/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1122	0.010	0.1	0	112	80-120	0			
Arsenic	0.05277	0.0050	0.05	0	106	80-120	0			
Barium	0.05551	0.0050	0.05	0	111	80-120	0			
Boron	0.4854	0.050	0.5	0	97.1	80-120	0			
Cadmium	0.05264	0.0020	0.05	0	105	80-120	0			
Chromium	0.05256	0.0050	0.05	0	105	80-120	0			
Cobalt	0.05238	0.0050	0.05	0	105	80-120	0			
Copper	0.05273	0.0050	0.05	0	105	80-120	0			
Iron	5.287	0.20	5	0	106	80-120	0			
Lead	0.0516	0.0050	0.05	0	103	80-120	0			
Manganese	0.05341	0.0050	0.05	0	107	80-120	0			
Molybdenum	0.05023	0.0050	0.05	0	100	80-120	0			
Nickel	0.05234	0.0050	0.05	0	105	80-120	0			
Selenium	0.05342	0.0050	0.05	0	107	80-120	0			
Silver	0.05089	0.0050	0.05	0	102	80-120	0			
Zinc	0.05609	0.0050	0.05	0	112	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 7 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64533 Instrument ID ICPMS03 Method: SW6020

MS Sample ID: 1209795-01BMS Units: mg/L Analysis Date: 9/27/2012 06:07 PM

Client ID: Run ID: ICPMS03_120927A SeqNo: 2959999 Prep Date: 9/27/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	2.335	0.010	0.1	2.985	-650	80-120	0			SEO
Arsenic	0.05909	0.0050	0.05	0.002724	113	80-120	0			
Barium	0.2581	0.0050	0.05	0.2086	99	80-120	0			O
Boron	1.928	0.050	0.5	1.265	133	80-120	0			SE
Cadmium	0.05312	0.0020	0.05	0.00004071	106	80-120	0			
Chromium	0.05706	0.0050	0.05	0.004623	105	80-120	0			
Cobalt	0.05307	0.0050	0.05	0.001284	104	80-120	0			
Copper	0.05214	0.0050	0.05	0.001405	101	80-120	0			
Iron	7.089	0.20	5	1.784	106	80-120	0			
Lead	0.05252	0.0050	0.05	0.003686	97.7	80-120	0			
Manganese	0.126	0.0050	0.05	0.07233	107	80-120	0			
Molybdenum	0.05943	0.0050	0.05	0.009966	98.9	80-120	0			
Nickel	0.05865	0.0050	0.05	0.01165	94	80-120	0			
Selenium	0.0575	0.0050	0.05	0.0009498	113	80-120	0			
Silver	0.0494	0.0050	0.05	0.0003613	98.1	80-120	0			
Zinc	0.06306	0.0050	0.05	0.00818	110	80-120	0			

MSD Sample ID: 1209795-01BMSD Units: mg/L Analysis Date: 9/27/2012 06:11 PM

Client ID: Run ID: ICPMS03_120927A SeqNo: 2960000 Prep Date: 9/27/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	2.668	0.010	0.1	2.985	-317	80-120	2.335	13.3	15	SEO
Arsenic	0.05867	0.0050	0.05	0.002724	112	80-120	0.05909	0.713	15	
Barium	0.2572	0.0050	0.05	0.2086	97.2	80-120	0.2581	0.349	15	O
Boron	1.942	0.050	0.5	1.265	135	80-120	1.928	0.724	15	SE
Cadmium	0.05189	0.0020	0.05	0.00004071	104	80-120	0.05312	2.34	15	
Chromium	0.05721	0.0050	0.05	0.004623	105	80-120	0.05706	0.263	15	
Cobalt	0.05366	0.0050	0.05	0.001284	105	80-120	0.05307	1.11	15	
Copper	0.05328	0.0050	0.05	0.001405	104	80-120	0.05214	2.16	15	
Iron	7.16	0.20	5	1.784	108	80-120	7.089	0.997	15	
Lead	0.05195	0.0050	0.05	0.003686	96.5	80-120	0.05252	1.09	15	
Manganese	0.1249	0.0050	0.05	0.07233	105	80-120	0.126	0.877	15	
Molybdenum	0.05917	0.0050	0.05	0.009966	98.4	80-120	0.05943	0.438	15	
Nickel	0.05912	0.0050	0.05	0.01165	94.9	80-120	0.05865	0.798	15	
Selenium	0.05719	0.0050	0.05	0.0009498	112	80-120	0.0575	0.541	15	
Silver	0.04839	0.0050	0.05	0.0003613	96.1	80-120	0.0494	2.07	15	
Zinc	0.06441	0.0050	0.05	0.00818	112	80-120	0.06306	2.12	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 8 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **64533** Instrument ID **ICPMS03** Method: **SW6020**

DUP Sample ID: **1209795-01BDUP** Units: **mg/L** Analysis Date: **9/27/2012 05:57 PM**

Client ID: Run ID: **ICPMS03_120927A** SeqNo: **2959997** Prep Date: **9/27/2012** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	2.409	0.010	0	0	0	0-0	2.985	21.4	25	E
Arsenic	0.002695	0.0050	0	0	0	0-0	0.002724	0	25	J
Barium	0.2071	0.0050	0	0	0	0-0	0.2086	0.722	25	
Boron	1.338	0.050	0	0	0	0-0	1.265	5.61	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.00004071	0	25	
Chromium	0.00397	0.0050	0	0	0	0-0	0.004623	0	25	J
Cobalt	0.001393	0.0050	0	0	0	0-0	0.001284	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.001405	0	25	
Iron	1.736	0.20	0	0	0	0-0	1.784	2.73	25	
Lead	0.002311	0.0050	0	0	0	0-0	0.003686	0	25	J
Manganese	0.07259	0.0050	0	0	0	0-0	0.07233	0.359	25	
Molybdenum	0.009482	0.0050	0	0	0	0-0	0.009966	4.98	25	
Nickel	0.007492	0.0050	0	0	0	0-0	0.01165	43.4	25	R
Selenium	ND	0.0050	0	0	0	0-0	0.0009498	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0003613	0	25	
Zinc	0.006838	0.0050	0	0	0	0-0	0.00818	17.9	25	

The following samples were analyzed in this batch:

1209741-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 9 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 64413 Instrument ID SV-6 Method: SW8270

MBLK Sample ID: SBLKW1-120924-64413 Units: µg/L Analysis Date: 9/24/2012 03:57 PM
 Client ID: Run ID: SV-6_120924B SeqNo: 2955756 Prep Date: 9/24/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Naphthalene	ND	0.20								
Surr: 2,4,6-Tribromophenol	3.821	0.20	5	0	76.4	34-129	0			
Surr: 2-Fluorobiphenyl	4.387	0.20	5	0	87.7	40-125	0			
Surr: 2-Fluorophenol	4.244	0.20	5	0	84.9	20-120	0			
Surr: 4-Terphenyl-d14	4.923	0.20	5	0	98.5	40-135	0			
Surr: Nitrobenzene-d5	4.315	0.20	5	0	86.3	41-120	0			
Surr: Phenol-d6	4.333	0.20	5	0	86.7	20-120	0			

LCS Sample ID: SLCSW1-120924-64413 Units: µg/L Analysis Date: 9/24/2012 04:17 PM
 Client ID: Run ID: SV-6_120924B SeqNo: 2955757 Prep Date: 9/24/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.565	0.20	5	0	91.3	45-120	0			
2-Methylnaphthalene	4.528	0.20	5	0	90.6	50-120	0			
Benzo(a)pyrene	4.632	0.20	5	0	92.6	45-120	0			
Naphthalene	4.581	0.20	5	0	91.6	45-120	0			
Surr: 2,4,6-Tribromophenol	4.311	0.20	5	0	86.2	34-129	0			
Surr: 2-Fluorobiphenyl	4.449	0.20	5	0	89	40-125	0			
Surr: 2-Fluorophenol	4.363	0.20	5	0	87.3	20-120	0			
Surr: 4-Terphenyl-d14	5.15	0.20	5	0	103	40-135	0			
Surr: Nitrobenzene-d5	4.525	0.20	5	0	90.5	41-120	0			
Surr: Phenol-d6	4.465	0.20	5	0	89.3	20-120	0			

LCSD Sample ID: SLCSW1-120924-64413 Units: µg/L Analysis Date: 9/24/2012 04:37 PM
 Client ID: Run ID: SV-6_120924B SeqNo: 2955758 Prep Date: 9/24/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1-Methylnaphthalene	4.266	0.20	5	0	85.3	45-120	4.565	6.76	20	
2-Methylnaphthalene	4.253	0.20	5	0	85.1	50-120	4.528	6.25	20	
Benzo(a)pyrene	4.24	0.20	5	0	84.8	45-120	4.632	8.83	20	
Naphthalene	4.297	0.20	5	0	85.9	45-120	4.581	6.42	20	
Surr: 2,4,6-Tribromophenol	4.014	0.20	5	0	80.3	34-129	4.311	7.12	0	
Surr: 2-Fluorobiphenyl	4.31	0.20	5	0	86.2	40-125	4.449	3.18	0	
Surr: 2-Fluorophenol	4.253	0.20	5	0	85.1	20-120	4.363	2.56	0	
Surr: 4-Terphenyl-d14	4.76	0.20	5	0	95.2	40-135	5.15	7.86	0	
Surr: Nitrobenzene-d5	4.229	0.20	5	0	84.6	41-120	4.525	6.77	0	
Surr: Phenol-d6	4.266	0.20	5	0	85.3	20-120	4.465	4.56	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **64413** Instrument ID **SV-6** Method: **SW8270**

The following samples were analyzed in this batch:

1209741-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 11 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135700** Instrument ID **VOA1** Method: **SW8260**

MBLK Sample ID: **VBLKW-092612-R135700** Units: **µg/L** Analysis Date: **9/26/2012 12:32 PM**

Client ID: Run ID: **VOA1_120926B** SeqNo: **2958657** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dibromoethane	ND	5.0								
1,2-Dichloroethane	ND	5.0								
Benzene	ND	5.0								
Carbon tetrachloride	ND	5.0								
Chloroform	ND	5.0								
Ethylbenzene	ND	5.0								
Methylene chloride	ND	10								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>43.36</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>86.7</i>	<i>70-125</i>	<i>0</i>			
<i>Surr: 4-Bromofluorobenzene</i>	<i>47.81</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>95.6</i>	<i>72-125</i>	<i>0</i>			
<i>Surr: Dibromofluoromethane</i>	<i>47.93</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>95.9</i>	<i>71-125</i>	<i>0</i>			
<i>Surr: Toluene-d8</i>	<i>48.66</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>97.3</i>	<i>75-125</i>	<i>0</i>			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 12 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R135700 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-092612-R135700 Units: µg/L Analysis Date: 9/26/2012 11:39 AM

Client ID: Run ID: VOA1_120926B SeqNo: 2958655 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.08	5.0	50	0	94.2	80-120	0			
1,1,2,2-Tetrachloroethane	42.58	5.0	50	0	85.2	72-120	0			
1,1,2-Trichloroethane	48.84	5.0	50	0	97.7	80-120	0			
1,1-Dichloroethane	45.53	5.0	50	0	91.1	76-120	0			
1,1-Dichloroethene	48.12	5.0	50	0	96.2	73-124	0			
1,2-Dibromoethane	49.75	5.0	50	0	99.5	80-120	0			
1,2-Dichloroethane	48.32	5.0	50	0	96.6	78-120	0			
Benzene	50.08	5.0	50	0	100	73-121	0			
Carbon tetrachloride	50.17	5.0	50	0	100	75-124	0			
Chloroform	45.44	5.0	50	0	90.9	80-120	0			
Ethylbenzene	47.49	5.0	50	0	95	80-120	0			
Methylene chloride	42.74	10	50	0	85.5	65-133	0			
Tetrachloroethene	52.05	5.0	50	0	104	79-120	0			
Toluene	45.45	5.0	50	0	90.9	80-120	0			
Trichloroethene	54.99	5.0	50	0	110	80-120	0			
Vinyl chloride	53.87	2.0	50	0	108	70-127	0			
Xylenes, Total	154.3	15	150	0	103	80-120	0			
Surr: 1,2-Dichloroethane-d4	42.46	5.0	50	0	84.9	70-125	0			
Surr: 4-Bromofluorobenzene	50.15	5.0	50	0	100	72-125	0			
Surr: Dibromofluoromethane	47.08	5.0	50	0	94.2	71-125	0			
Surr: Toluene-d8	47.91	5.0	50	0	95.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 13 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R135700 Instrument ID VOA1 Method: SW8260

MS		Sample ID: 1209697-03ZMS				Units: µg/L		Analysis Date: 9/26/2012 02:46 PM		
Client ID:		Run ID: VOA1_120926B				SeqNo: 2958659		Prep Date:		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	3932	500	5000	0	78.6	80-120	0			S
1,1,2,2-Tetrachloroethane	4384	500	5000	0	87.7	72-120	0			
1,1,2-Trichloroethane	4779	500	5000	0	95.6	80-120	0			
1,1-Dichloroethane	3934	500	5000	0	78.7	76-120	0			
1,1-Dichloroethene	3687	500	5000	0	73.7	73-124	0			
1,2-Dibromoethane	5053	500	5000	0	101	80-120	0			
1,2-Dichloroethane	4743	500	5000	0	94.9	78-120	0			
Benzene	5347	500	5000	590.7	95.1	73-121	0			
Carbon tetrachloride	3860	500	5000	0	77.2	75-124	0			
Chloroform	4120	500	5000	0	82.4	80-120	0			
Ethylbenzene	5467	500	5000	844.3	92.5	80-120	0			
Methylene chloride	4342	1,000	5000	0	86.8	65-133	0			
Tetrachloroethene	4582	500	5000	0	91.6	79-120	0			
Toluene	8238	500	5000	3552	93.7	80-120	0			
Trichloroethene	4936	500	5000	0	98.7	80-120	0			
Vinyl chloride	5105	200	5000	0	102	70-127	0			
Xylenes, Total	19420	1,500	15000	5792	90.8	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	4263	500	5000	0	85.3	70-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	5059	500	5000	0	101	72-125	0			
<i>Surr: Dibromofluoromethane</i>	4653	500	5000	0	93.1	71-125	0			
<i>Surr: Toluene-d8</i>	4691	500	5000	0	93.8	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R135700 Instrument ID VOA1 Method: SW8260

MSD		Sample ID: 1209697-03ZMSD				Units: µg/L		Analysis Date: 9/26/2012 03:13 PM			
Client ID:		Run ID: VOA1_120926B				SeqNo: 2958660		Prep Date:		DF: 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	3891	500	5000	0	77.8	80-120	3932	1.06	20	S	
1,1,2,2-Tetrachloroethane	4181	500	5000	0	83.6	72-120	4384	4.74	20		
1,1,2-Trichloroethane	4597	500	5000	0	91.9	80-120	4779	3.89	20		
1,1-Dichloroethane	3820	500	5000	0	76.4	76-120	3934	2.93	20		
1,1-Dichloroethene	3484	500	5000	0	69.7	73-124	3687	5.67	20	S	
1,2-Dibromoethane	4983	500	5000	0	99.7	80-120	5053	1.39	20		
1,2-Dichloroethane	4371	500	5000	0	87.4	78-120	4743	8.18	20		
Benzene	4842	500	5000	590.7	85	73-121	5347	9.91	20		
Carbon tetrachloride	3597	500	5000	0	71.9	75-124	3860	7.05	20	S	
Chloroform	4137	500	5000	0	82.7	80-120	4120	0.403	20		
Ethylbenzene	5080	500	5000	844.3	84.7	80-120	5467	7.34	20		
Methylene chloride	4101	1,000	5000	0	82	65-133	4342	5.71	20		
Tetrachloroethene	4424	500	5000	0	88.5	79-120	4582	3.51	20		
Toluene	7633	500	5000	3552	81.6	80-120	8238	7.62	20		
Trichloroethene	4607	500	5000	0	92.1	80-120	4936	6.89	20		
Vinyl chloride	4638	200	5000	0	92.8	70-127	5105	9.58	20		
Xylenes, Total	18910	1,500	15000	5792	87.5	80-120	19420	2.63	20		
Surr: 1,2-Dichloroethane-d4	4267	500	5000	0	85.3	70-125	4263	0.0901	20		
Surr: 4-Bromofluorobenzene	4957	500	5000	0	99.1	72-125	5059	2.03	20		
Surr: Dibromofluoromethane	4674	500	5000	0	93.5	71-125	4653	0.441	20		
Surr: Toluene-d8	4519	500	5000	0	90.4	75-125	4691	3.73	20		

The following samples were analyzed in this batch:

1209741-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 15 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135401** Instrument ID **WetChem** Method: **SW1010** (Dissolve)

LCS Sample ID: **WLCSW1-120922-R135401** Units: °F Analysis Date: **9/22/2012 10:00 AM**

Client ID: Run ID: **WETCHEM_120922A** SeqNo: **2951469** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	86	50	84	0	102	80-120	0			

DUP Sample ID: **1209741-01EDUP** Units: °F Analysis Date: **9/22/2012 10:00 AM**

Client ID: **WW Effluent** Run ID: **WETCHEM_120922A** SeqNo: **2951473** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch:

1209741-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 16 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135403** Instrument ID **WetChem** Method: **SM4500H+ B (Dissolve)**

LCS Sample ID: **WLCSW1-120922-R135403** Units: **pH Units** Analysis Date: **9/22/2012 12:00 PM**

Client ID: Run ID: **WETCHEM_120922C** SeqNo: **2951480** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	90-110	0			

DUP Sample ID: **1209741-01EDUP** Units: **pH Units** Analysis Date: **9/22/2012 12:00 PM**

Client ID: **WW Effluent** Run ID: **WETCHEM_120922C** SeqNo: **2951483** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.36	0.10	0	0	0	0-0	7.33	0.408	20	H
Temp Deg C @pH	20.5	0	0	0	0		20.6	0.487		H

The following samples were analyzed in this batch:

1209741-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 17 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135521** Instrument ID **WetChem** Method: **E120.1** (Dissolve)

MBLK Sample ID: **WBLKW1-092512-R135521** Units: **µmhos/cm** Analysis Date: **9/25/2012 11:00 AM**

Client ID: Run ID: **WETCHEM_120925B** SeqNo: **2954232** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	ND	1.0								

LCS Sample ID: **WLCSW1-092512-R135521** Units: **µmhos/cm** Analysis Date: **9/25/2012 11:00 AM**

Client ID: Run ID: **WETCHEM_120925B** SeqNo: **2954233** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	1380	1.0	1413	0	97.7	80-120	0			

DUP Sample ID: **1209741-01EDUP** Units: **µmhos/cm** Analysis Date: **9/25/2012 11:00 AM**

Client ID: **WW Effluent** Run ID: **WETCHEM_120925B** SeqNo: **2954236** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductance	8420	1.0	0	0	0	0-0	8370	0.596	20	

The following samples were analyzed in this batch:

1209741-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 18 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135641** Instrument ID: **ICS3000** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKW1-R135641** Units: **mg/L** Analysis Date: **9/25/2012 11:55 PM**

Client ID: Run ID: **ICS3000_120925A** SeqNo: **2957148** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Surr: Selenate (surr)	4.743	0.10	5	0	94.9	85-115	0			

LCS Sample ID: **WLCSW1-R135641** Units: **mg/L** Analysis Date: **9/26/2012 12:16 AM**

Client ID: Run ID: **ICS3000_120925A** SeqNo: **2957151** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.22	0.50	20	0	101	90-110	0			
Surr: Selenate (surr)	4.524	0.10	5	0	90.5	85-115	0			

MS Sample ID: **1209741-01DMS** Units: **mg/L** Analysis Date: **9/26/2012 06:39 AM**

Client ID: **WW Effluent** Run ID: **ICS3000_120925A** SeqNo: **2957194** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	539.9	5.0	100	457.6	82.3	80-120	0			O
Surr: Selenate (surr)	48.23	1.0	50	0	96.5	85-115	0			

MSD Sample ID: **1209741-01DMSD** Units: **mg/L** Analysis Date: **9/26/2012 07:01 AM**

Client ID: **WW Effluent** Run ID: **ICS3000_120925A** SeqNo: **2957197** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	540.7	5.0	100	457.6	83.2	80-120	539.9	0.154	20	O
Surr: Selenate (surr)	48.35	1.0	50	0	96.7	85-115	48.23	0.246	20	

The following samples were analyzed in this batch:

1209741-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 19 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R135645 Instrument ID UV-2450 Method: M4500CN E&G (Dissolve)

MBLK Sample ID: WBLKW1-092612-R135645 Units: mg/L Analysis Date: 9/26/2012 11:00 AM

Client ID: Run ID: UV-2450_120926C SeqNo: 2957222 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.004	0.020								J

LCS Sample ID: WLC SW1-092612-R135645 Units: mg/L Analysis Date: 9/26/2012 11:00 AM

Client ID: Run ID: UV-2450_120926C SeqNo: 2957223 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.194	0.020	0.2	0	97	80-120	0			

LCSD Sample ID: WLCSDW1-092612-R135645 Units: mg/L Analysis Date: 9/26/2012 11:00 AM

Client ID: Run ID: UV-2450_120926C SeqNo: 2957230 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.196	0.020	0.2	0	98	80-120	0.194	1.03	20	

MS Sample ID: 1209616-01CMS Units: mg/L Analysis Date: 9/26/2012 11:00 AM

Client ID: Run ID: UV-2450_120926C SeqNo: 2957229 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide	0.188	0.020	0.2	0.007	90.5	80-120	0			

The following samples were analyzed in this batch:

1209741-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 20 of 24

Client: Navajo Refining Company
 Work Order: 1209741
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R135668 Instrument ID Balance1 Method: M2540C (Dissolve)

MBLK Sample ID: WBLK-092512-R135668 Units: mg/L Analysis Date: 9/25/2012 03:00 PM

Client ID: Run ID: BALANCE1_120925H SeqNo: 2957699 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: WLCS-092512-R135668 Units: mg/L Analysis Date: 9/25/2012 03:00 PM

Client ID: Run ID: BALANCE1_120925H SeqNo: 2957700 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1002	10	1000	0	100	85-115	0			

DUP Sample ID: 1209603-01HDUP Units: mg/L Analysis Date: 9/25/2012 03:00 PM

Client ID: Run ID: BALANCE1_120925H SeqNo: 2957679 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1052	10	0	0	0	0-0	1052	0	20	

DUP Sample ID: 1209759-02CDUP Units: mg/L Analysis Date: 9/25/2012 03:00 PM

Client ID: Run ID: BALANCE1_120925H SeqNo: 2957695 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	748	10	0	0	0	0-0	744	0.536	20	

The following samples were analyzed in this batch:

1209741-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 21 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135704** Instrument ID **ICS3000** Method: **E300** (Dissolve)

MBLK Sample ID: **WBLKW1-R135704** Units: **mg/L** Analysis Date: **9/26/2012 02:40 PM**

Client ID: Run ID: **ICS3000_120926A** SeqNo: **2958696** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	ND	0.50								
Surr: Selenate (surr)	4.747	0.10	5	0	94.9	85-115	0			

LCS Sample ID: **WLCSW1-R135704** Units: **mg/L** Analysis Date: **9/26/2012 03:01 PM**

Client ID: Run ID: **ICS3000_120926A** SeqNo: **2958697** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	18.24	0.50	20	0	91.2	90-110	0			
Surr: Selenate (surr)	4.527	0.10	5	0	90.5	85-115	0			

MS Sample ID: **1209752-09CMS** Units: **mg/L** Analysis Date: **9/26/2012 08:42 PM**

Client ID: Run ID: **ICS3000_120926A** SeqNo: **2958719** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1075	50	1000	48.63	103	80-120	0			
Surr: Selenate (surr)	484.6	10	500	0	96.9	85-115	0			

MSD Sample ID: **1209752-09CMSD** Units: **mg/L** Analysis Date: **9/26/2012 09:03 PM**

Client ID: Run ID: **ICS3000_120926A** SeqNo: **2958721** Prep Date: DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	1080	50	1000	48.63	103	80-120	1075	0.428	20	
Surr: Selenate (surr)	486.1	10	500	0	97.2	85-115	484.6	0.313	20	

The following samples were analyzed in this batch:

1209741-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 22 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135767** Instrument ID **ManTech01** Method: **SM2320B** (Dissolve)

MBLK Sample ID: **WBLKW1-092712-R135767** Units: mg/L Analysis Date: **9/27/2012 12:09 PM**

Client ID: Run ID: **MANTECH01_120927A** SeqNo: **2959446** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	10								
Alkalinity, Carbonate (As CaCO3)	ND	10								
Alkalinity, Hydroxide (As CaCO3)	ND	10								
Alkalinity, Total (As CaCO3)	ND	10								

LCS Sample ID: **WLCSW1-092712-R135767** Units: mg/L Analysis Date: **9/27/2012 12:16 PM**

Client ID: Run ID: **MANTECH01_120927A** SeqNo: **2959447** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1005	10	1000	0	101	80-120	0			

DUP Sample ID: **1209741-01DDUP** Units: mg/L Analysis Date: **9/27/2012 12:27 PM**

Client ID: **WW Effluent** Run ID: **MANTECH01_120927A** SeqNo: **2959449** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	282.7	10	0	0	0	0-0	283.8	0.402	0	
Alkalinity, Carbonate (As CaCO3)	ND	10	0	0	0	0-0	0	0	0	
Alkalinity, Hydroxide (As CaCO3)	ND	10	0	0	0	0-0	0	0	0	
Alkalinity, Total (As CaCO3)	282.7	10	0	0	0	0-0	283.8	0.402	20	

The following samples were analyzed in this batch:

1209741-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 23 of 24

Client: Navajo Refining Company
Work Order: 1209741
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R135772** Instrument ID **UV-2450** Method: **E420.1** (Dissolve)

MBLK Sample ID: **WBLKW1-092712-R135772** Units: mg/L Analysis Date: **9/27/2012 12:00 PM**

Client ID: Run ID: **UV-2450_120927B** SeqNo: **2959542** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	ND	0.050								

LCS Sample ID: **WLCSW1-092712-R135772** Units: mg/L Analysis Date: **9/27/2012 12:00 PM**

Client ID: Run ID: **UV-2450_120927B** SeqNo: **2959543** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.501	0.050	0.5	0	100	80-120	0			

LCSD Sample ID: **WLCSDW1-092712-R135772** Units: mg/L Analysis Date: **9/27/2012 12:00 PM**

Client ID: Run ID: **UV-2450_120927B** SeqNo: **2959553** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.508	0.050	0.5	0	102	80-120	0.501	1.39	20	

MS Sample ID: **1209741-01HMS** Units: mg/L Analysis Date: **9/27/2012 12:00 PM**

Client ID: **WW Effluent** Run ID: **UV-2450_120927B** SeqNo: **2959550** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Phenolics, Total Recoverable	0.458	0.050	0.5	0.04	83.6	80-120	0			

The following samples were analyzed in this batch:

1209741-01H

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 24 of 24

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°C	Celsius degrees
°F	Fahrenheit degrees
µg/L	Micrograms per Liter
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH Units	

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 20-Sep-12 09:10

Work Order: 1209741

Received by: RNG

Checklist completed by Roshell D. Moran 24-Sep-12
eSignature Date

Reviewed by: Patricia L. Lynch 24-Sep-12
eSignature Date

Matrices: water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☒	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.3c u/c</u> <u>004</u>		
Cooler(s)/Kit(s):	<u>2592</u>		
Date/Time sample(s) sent to storage:	<u>9/21 15:15</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u></u>		

Login Notes: Client used old chain logged samples in with information on the bottles. Sample Id: WWW Effluent Date and Time: 9/12/12 09:30

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

Corrective Action:



☒ ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

☐ ALS Laboratory Group
3352 128th Avenue
Holland, Michigan 49424
(Tel) 616.399.6070
(Fax) 616.399.6185

Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order				Project Name	Injection Well Quarterly			A VOC (8260) Select											
Work Order				Project Number				B SVOC (8270) Select											
Company Name	Navajo Refining Company			Bill To Company	Navajo Refining Company			C Total Metals (6020 / 7000) Select											
Send Report To	Aaron Strange			Invoice Attn	Aaron Strange			D R.C.I. Profile											
Address	P. O. Box 159			Address	501 East Main			E Anions (300) Cl, SO4											
City/State/Zip	Artesia, New Mexico 88211-0159			City/State/Zip	Artesia, New Mexico 88210			F Alkalinity											
Phone	(575) 748-3311			Phone	(575) 748-3311			G pH											
Fax	(575) 746-5451			Fax	(575) 746-5451			H Conductivity											
e-Mail Address	Aaron.Strange@hollyfrontier.com			e-Mail Address	Aaron.Strange@hollyfrontier.com			I TDS											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	WW Effluent	9/19/12	9:30	Liquid	Yes	16	X	X	X	X	X	X	X	X	X	X			
2	Trip Blank					2													
3	Temperature Blank					1													
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign Aaron Strange				Shipment Method: FedEx		Required Turnaround Time: ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour				Results Due Date:									
Relinquished by: 		Date: 9/19/2012	Time: 16:15	Received by:			Notes:												
Relinquished by:		Date:	Time:	Received by (Laboratory):			Cooler Temp:	QC Package: (Check Box Below)											
Logged by (Laboratory):		Date:	Time:	Checked by (Laboratory):				Level II: Standard QC						TRRP-Checklist					
								Level III: Std QC + Raw Data						TRRP Level IV					
								Level IV: SW846 CLP-Like											
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							Other:												

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

Copyright 2008 by ALS Laboratory Group

	ALS Environmental		Date: _____ Name: _____ Company: _____
	10450 Stancliff Rd., Suite 210		
	Houston, Texas 77099		
	Tel. +1 281 530 5656		
	Fax. +1 281 530 5887		

CUSTODY SEAL		Broken By:  Date: <u>9/20/12</u>
<u>9-19-12</u> <u>Harold, Steiner</u> <u>y: Novajo Refining Co.</u>	Time: <u>16:15</u>	



October 19, 2012

Ms. Pat Lynch
ALS Environmental
10450 Stancliff Rd, Suite 210
Houston, TX 77099

Re: ALS Workorder: 12-09-367
Project Name: 1209741
Project Number: None Submitted

Dear Ms. Lynch:

One water sample was received from ALS Environmental on September 2, 2012. The sample was scheduled for the following analyses:

Radium-226
Radium-228

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Jeff Kujawa
Project Manager

JRK/jmh
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 PHONE +1 970 490 1511 FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group A Campbell Brothers Limited Company



www.alsglobal.com

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1209367

Radium-228:

The sample was analyzed for the presence of ^{228}Ra by low background gas flow proportional counting of ^{228}Ac , which is the ingrown progeny of ^{228}Ra , according to the current revision of SOP 724.

All acceptance criteria were met, with the following exceptions:

The ^{228}Ra recovery in laboratory control sample RA121002-1LCS was below the lower control limit of 70% at 52.1%. The sample was re-milked and re-counted on 10/14/2012. All criteria for the LCS is in control following the re-count. Results are submitted without further qualification.

Due to uncertainty associated with the ICP-AES determination of barium concentration in the samples, the calculated yield for sample RA121002-1LCSD fell between 100% and 110%. To minimize the potential for low bias, results have been calculated conservatively assuming quantitative chemical yield (100%). The magnitude of the low bias is estimated to be less than 10% of the reported value and is acceptable according the ALS LQAP. This sample is identified with an "Y1" flag on the final reports.

Radium-226:

This sample was prepared and analyzed according to the current revision of SOP 783.

All acceptance criteria were met.

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
 Project: 1209741
 Sample ID: 1209741-01J (WW Effluent)
 Legal Location:
 Collection Date: 9/19/2012 09:30

Date: 18-Oct-12
 Work Order: 1209367
 Lab ID: 1209367-1
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
RA-226 BY RADON EMANATION - METHOD 903.1						
Ra-226	0.87 (+/- 0.45)	LT	PAI 783	0.42 pCi/l	NA	Prep Date: 9/25/2012 PrepBy: PJW 10/3/2012 14:24
Carr: BARIUM	75.9		40-110	%REC	NA	10/3/2012 14:24
RADIUM-228 ANALYSIS BY GFPC						
Ra-228	ND (+/- 0.31)	U	PAI 724	0.62 pCi/l	NA	Prep Date: 10/2/2012 PrepBy: EKG 10/14/2012 10:55
Carr: BARIUM	89.8		40-110	%REC	NA	10/14/2012 10:55

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
 Project: 1209741
 Sample ID: 1209741-01J (WW Effluent)
 Legal Location:
 Collection Date: 9/19/2012 09:30

Date: 18-Oct-12
 Work Order: 1209367
 Lab ID: 1209367-1
 Matrix: WATER
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
----------	--------	------	--------------	-------	-----------------	---------------

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.
 Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.
 Y2 - Chemical Yield outside default limits.
 W - DER is greater than Warning Limit of 1.42
 * - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
 # - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
 G - Sample density differs by more than 15% of LCS density.
 D - DER is greater than Control Limit
 M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
 L - LCS Recovery below lower control limit.
 H - LCS Recovery above upper control limit.
 P - LCS, Matrix Spike Recovery within control limits.
 N - Matrix Spike Recovery outside control limits
 NC - Not Calculated for duplicate results less than 5 times MDC
 B - Analyte concentration greater than MDC.
 B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).
 U or ND - Indicates that the compound was analyzed for but not detected.
 E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.
 M - Duplicate injection precision was not met.
 N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.
 Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.
 * - Duplicate analysis (relative percent difference) not within control limits.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.
 B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
 E - Analyte concentration exceeds the upper level of the calibration range.
 J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
 A - A tentatively identified compound is a suspected aldol-condensation product.
 X - The analyte was diluted below an accurate quantitation level.
 * - The spike recovery is equal to or outside the control criteria used.
 + - The relative percent difference (RPD) equals or exceeds the control criteria.

Diesel Range Organics:

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: ALS Environmental
Project: 1209741
Sample ID: 1209741-01J (WW Effluent)
Legal Location:
Collection Date: 9/19/2012 09:30

Date: 18-Oct-12
Work Order: 1209367
Lab ID: 1209367-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
G - A pattern resembling gasoline was detected in this sample. D - A pattern resembling diesel was detected in this sample. M - A pattern resembling motor oil was detected in this sample. C - A pattern resembling crude oil was detected in this sample. 4 - A pattern resembling JP-4 was detected in this sample. 5 - A pattern resembling JP-5 was detected in this sample. H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest. L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest. Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products: - gasoline - JP-8 - diesel - mineral spirits - motor oil - Stoddard solvent - bunker C						

ALS Environmental -- FC

Date: 10/18/2012 10:4

Client: ALS Environmental

QC BATCH REPORT

Work Order: 1209367

Project: 1209741

Batch ID: RE120925-1-4

Instrument ID: Alpha Scin

Method: Ra-226 by Radon Emanation - Me

LCS	Sample ID: RE120925-1				Units: pCi/l		Analysis Date: 10/3/2012 15:40			
Client ID:	Run ID: RE120925-1A						Prep Date: 9/25/2012		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	37.9 (+/- 9.5)	0.2	37.5		101	67-120				P
Carr: BARIUM	14820		15360		96.4	40-110				

LCSD	Sample ID: RE120925-1				Units: pCi/l		Analysis Date: 10/3/2012 15:40			
Client ID:	Run ID: RE120925-1A						Prep Date: 9/25/2012		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	39 (+/- 9.7)	0.3	37.5		104	67-120	37.9	0.086	2.13	P
Carr: BARIUM	14730		15360		95.9	40-110	14820			

MB	Sample ID: RE120925-1				Units: pCi/l		Analysis Date: 10/3/2012 15:40			
Client ID:	Run ID: RE120925-1A						Prep Date: 9/25/2012		DF: NA	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-226	ND	0.122								U
Carr: BARIUM	14510		15360		94.4	40-110				

The following samples were analyzed in this batch:

1209367-1

Client: ALS Environmental
 Work Order: 1209367
 Project: 1209741

QC BATCH REPORT

Batch ID: RA121002-1-5 Instrument ID: LB4100-A Method: Radium-228 Analysis by GFPC

LCS		Sample ID: RA121002-1		Units: pCi/l		Analysis Date: 10/14/2012 11:45				
Client ID:		Run ID: RA121002-1A		Prep Date: 10/2/2012		DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	8.8 (+/- 2.2)	0.8	10.63		82.4	70-130				P
Carr: BARIUM	29790		30690		97.1	40-110				

LCSD		Sample ID: RA121002-1		Units: pCi/l		Analysis Date: 10/14/2012 11:45				
Client ID:		Run ID: RA121002-1A		Prep Date: 10/2/2012		DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	10 (+/- 2.4)	0.8	10.63		94	70-130	8.8	0.377	2.13	P,Y1
Carr: BARIUM	30690		30690		100	40-110	29790			Y1

MB		Sample ID: RA121002-1		Units: pCi/l		Analysis Date: 10/14/2012 10:55				
Client ID:		Run ID: RA121002-1A		Prep Date: 10/2/2012		DF: NA				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	DER Ref Value	DER	DER Limit	Qual
Ra-228	ND	0.36								U
Carr: BARIUM	29830		30700		97.2	40-110				

The following samples were analyzed in this batch:

1209367-1

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Washington	C1280
Utah	CO00078
Arizona	AZ0742
Alaska	UST-086
Alaska	CO00078
Florida	E87914
Missouri	175
North Dakota	R-057
New Jersey	CO003
Nevada	CO000782008A
California	06251CA
Kansas	E-10381
Maryland	285
Pennsylvania	68-03116
Texas	T104704241-09-1
Colorado	CO00078
Connecticut	PH-0232
Idaho	CO00078
Tennessee	2976
Kentucky	90137
L-A-B (DoD ELAP/ISO 17025)	L2257

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1209367

Client Name: ALS Environmental

Client Project Name: 1209741

Client Project Number:

Client PO Number: 10-1209741

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1209741-01J (WW Effluent)	1209367-1		WATER	19-Sep-12	9:30

**Subcontractor:**ALS Environmental
225 Commerce Drive

TEL: (800) 443-1511

FAX: (970) 490-1522

Fort Collins, CO 80524

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 21-Sep-12COC ID: 12595Due Date 26-Sep-12Salesperson Mala H. Belmonte1209367

Customer Information		Project Information		Parameter/Method Request for Analysis											
Purchase Order		Project Name	1209741	A	Ra-226/228										
Work Order		Project Number		B											
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C											
Send Report To	Patricia L. Lynch	Inv Attn	Accounts Payable	D											
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E											
				F											
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G											
Phone	(281) 530-5656	Phone	(281) 530-5656	H											
Fax	(281) 530-5887	Fax	(281) 530-5887	I											
eMail Address	pat.lynch@alsglobal.com	eMail CC		J											

Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J
1209741-01J (WW Effluent)	Liquid	19/Sep/2012 9:30	(2) 1LPHNO3	X									

Comments:

Please analyze for Rad-226/Rad-228. Due on 9/26/12. Send report to pat.lynch@alsglobal.com and cc : results to yvan.ty@alsglobal.com

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/QC Level

Relinquished by:

Date/Time

Received by:

Date/Time



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS TX

Workorder No: 1209367

Project Manager: IRK

Initials: LAS Date: 9/22/12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	☒ NO
2. Are custody seals on shipping containers intact?	<u>LAS 9/22/12</u> NONE	☒ YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		☒ YES	NO
5. Are the COC and bottle labels complete and legible?		☒ YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		☒ YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	☒ YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	☒ NO *
9. Are all aqueous non-preserved samples pH 4-9?	☒ N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		☒ YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		☒ YES	NO
12. Are all samples within holding times for the requested analyses?		☒ YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		☒ YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	☒ N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	☒ NO
16. Were the samples shipped on ice?		YES	☒ NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	☒ RAD ONLY	YES	☒ NO
Cooler #: <u>1</u>			
Temperature (°C): <u>AMB</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? ☒ YES / ☒ NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

*8) 1209367-1-1 and 1-2 (1209741-01J (WW Effluent)) both arrived at lab with pH=7. At 1300 on 9/22/12, LAS added 2.0mL HNO₃ (Lot # L08023) to each bottle. Final pH of both was < 2.

If applicable, was the client contacted? YES / NO / ☒ NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 9-29-12

ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 21SEP12
ACTWGT: 7.1 LB
CAD: 300130/CAFE2605

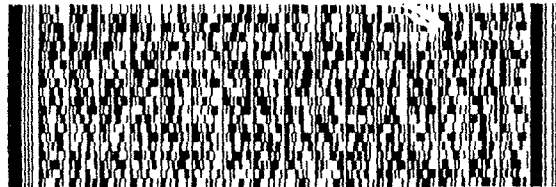
BILL SENDER

TO **KEN CAMPBELL**
ALS ENVIRONMENTAL
225 COMMERCE DRIVE

FORT COLLINS CO 80524

(970) 490-1611

REF: (SUBCONTRACT) PMG



FedEx
Express



JT2131203 00125

TRK# 4340 2172 4519
0201

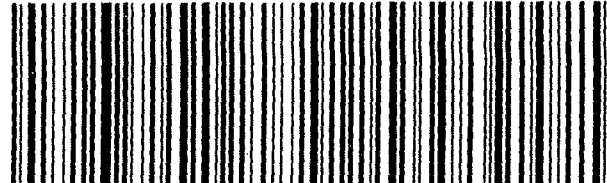
MON - 24 SEP A2
STANDARD OVERNIGHT

XH FTCA

80524

CO-US DEN

Printed 11/27/12 10:43 AM by 04/12: 08



1209367

0905

2

12

ALS Group USA, Corp

Date: 26-Sep-12

Client: ALS Environmental

Project: 1209741

Work Order: 1209632

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1209632-01	1209741-01I	Liquid		9/19/2012 09:30	9/22/2012 10:00	☐

Client: ALS Environmental
Project: 1209741
WorkOrder: 1209632

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: 26-Sep-12

Client: ALS Environmental
Project: 1209741
Sample ID: 1209741-011
Collection Date: 9/19/2012 09:30 AM

Work Order: 1209632
Lab ID: 1209632-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	ND		40.0	mg/Kg	1	9/26/2012 12:00 PM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	ND		40.0	mg/Kg	1	9/26/2012 12:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 26-Sep-12

Client: ALS Environmental
Work Order: 1209632
Project: 1209741

QC BATCH REPORT

Batch ID: R110285 Instrument ID WETCHEM Method: SW7.3.4.2

MBLK	Sample ID: WBLKW1-092612-R110285				Units: mg/Kg		Analysis Date: 9/26/2012 12:00 PM			
Client ID:	Run ID: WETCHEM_120926J				SeqNo: 2090885		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND		40							

The following samples were analyzed in this batch:

1209632-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 2

Client: ALS Environmental
 Work Order: 1209632
 Project: 1209741

QC BATCH REPORT

Batch ID: R110286 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK	Sample ID: WBLKW1-092612-R110286					Units: mg/Kg	Analysis Date: 9/26/2012 12:00 PM			
Client ID:	Run ID: WETCHEM_120926K					SeqNo: 2090903	Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive ND 40

LCS	Sample ID: WLCSW1-092612-R110286					Units: mg/Kg		Analysis Date: 9/26/2012 12:00 PM		
Client ID:	Run ID: WETCHEM_120926K					SeqNo: 2090904		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive 249.6 40 250 0 99.8 75-125 0

MS				Sample ID: 1209632-01A MS				Units: mg/Kg				Analysis Date: 9/26/2012 12:00 PM			
Client ID: 1209741-011				Run ID: WETCHEM_120926K				SeqNo: 2090909				Prep Date: DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual					

Cyanide, Reactive 234.9 40 250 0 94 50-150 0

MSD	Sample ID: 1209632-01A MSD				Units: mg/Kg		Analysis Date: 9/26/2012 12:00 PM			
Client ID: 1209741-011		Run ID: WETCHEM_120926K			SeqNo: 2090910		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive 249.6 40 250 0 99.8 50-150 234.9 6.06 35

The following samples were analyzed in this batch:

1209632-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 2 of 2

1209632



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 21-Sep-12
COC ID: 12594
Due Date 26-Sep-12

Salesperson Mala H. Belmonte

Customer Information		Project Information		Parameter/Method Request for Analysis										
Purchase Order		Project Name	1209741	A	Reactive Cyanide (SW-846)									
Work Order		Project Number		B	Reactive Sulfide (SW-846)									
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C										
Send Report To	Patricia L. Lynch	Inv Attn	Accounts Payable	D										
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E										
				F										
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G										
Phone	(281) 530-5656	Phone	(281) 530-5656	H										
Fax	(281) 530-5887	Fax	(281) 530-5887	I										
eMail Address	pat.lynch@alsglobal.com	eMail CC		J										
Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J	
1209741-011 (WW Effluent)	Liquid	19/Sep/2012 9:30	(1) 1LPNEAT	X	X									

Comments:

Please analyze for reactive cyanide & reactive sulfide. Due on 9/26/12. Send report to pat.lynch@alsglobal.com and cc : results to yvan.ty@alsglobal.com

4.0°C

Relinquished by:	Date/Time: 9/21/12, 1800.	Received by:	Date/Time: 9/22/12 1000	Cooler IDs	Report/QC Level Std.
Relinquished by:	Date/Time:	Received by:	Date/Time:		

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 22-Sep-12 10:00

Work Order: 1209632

Received by: KRW

Checklist completed by <u>Diane Shaw</u>	24-Sep-12	Reviewed by: <u>Bill Carey</u>	24-Sep-12
eSignature	Date	eSignature	Date

Matrices: Liquid

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>4.0 c</u>		
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	<u>9/24/2012 8:50:21 AM</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			
Login Notes:			

Client Contacted:	Date Contacted:	Person Contacted:
Contacted By:	Regarding:	

Comments:

CorrectiveAction:



RECEIVED OCD

2012 JUL 31 P 12:40

July 30, 2012

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

CERTIFIED MAIL/RETURN RECEIPT
7007 3020 0000 3028 7973

RE: 2012 Second Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3 Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the first quarter of 2012 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. An Annulus Pressure Test (APT) on the WDW-2 well was completed and certified by a third party Engineer on September 26, 2011. Two of the Mechanical Integrity Tests (MIT) were completed in 2011. As agreed with OCD, the last MIT was postponed to January 2012 due to an upset with our Waste Water Treatment Plant. A quarterly Bradenhead for WDW-3 was last done on June 29, 2012, and passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

You will notice additional analytical results for TDS (Total Dissolved Solids) attached to this report. While compiling this report we discovered that the lab did not run the analysis for TDS (Total Dissolved Solids) that was requested with the original set of samples. We immediately rushed another sample for TDS to the lab upon this discovery.

This report covers the period from April 1, 2012 to June 30, 2012. We have disposed a total of 60,082,490 barrels of fluid into the three wells as of March 31, 2012. The volume per well is:

- 31,885,580 barrels into WDW-1
- 18,790,517 barrels into WDW-2
- 9,406,393 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee

Vice-President, Navajo Refinery

Electronic cc (w/enc.):

JEL, RAC, MLS, AMS

Environmental File:

Navajo: (ART: REF - 4 A 02 D)

Navajo Refining Company, LLC

PO Box 159 • Artesia, NM 88211-0159 • (575) 748-3311

<http://www.hollyfrontier.com>

2012 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													31,520,320
Apr-12	782	837	706	111	121	98	310	461	190	3,821	4,134	3,360	114,624	31,634,945
May-12	848	904	650	121	129	91	384	561	234	4,141	4,437	3,128	128,360	31,763,305
Jun-12	859	878	825	119	121	114	370	443	328	4,076	4,138	3,920	122,275	31,885,580
WDW-2	Previous Quarter													18,309,388
Apr-12	736	788	658	148	158	132	648	895	386	5,072	5,423	4,534	152,170	18,461,558
May-12	779	890	604	157	170	111	752	1,049	249	5,393	5,815	3,809	167,183	18,628,741
Jun-12	808	854	759	157	160	149	500	635	294	5,393	5,473	5,106	161,776	18,790,517
WDW-3	Previous Quarter													9,025,671
Apr-12	765	815	686	110	134	77	558	786	352	3,773	4,608	2,636	113,190	9,138,862
May-12	824	886	595	125	158	23	626	904	289	4,286	5,433	796	132,866	9,271,728
Jun-12	835	855	797	131	136	112	486	598	409	4,489	4,662	3,824	134,666	9,406,393
Total Injected fluids:														60,082,490

2012 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/2/12	4/10/12	4/16/12	4/23/12	4/30/12	5/8/12	5/18/12	5/21/12	5/31/12	6/4/12	6/11/12	6/20/12	6/25/12
WDW -1 ¹	160	160	No Data	160	160	160	160	160	160	160	160	160	160
WDW-2 ¹	150	150	No Data	150	150	150	150	150	150	150	150	150	150
WDW-3 ¹	145	145	No Data	145	145	145	145	145	145	145	145	145	145
Comments:													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



05-Jun-2012

aaron.strange@hollycorp.com
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1205999

Dear aaron.strange@hollycorp.com,

ALS Environmental received 1 sample on 23-May-2012 08:45 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 28.

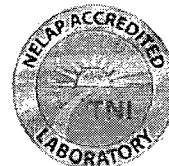
If you have any questions regarding this report, please feel free to call me.

Sincerely,

Patricia L. Lynch

Electronically approved by: Makenzie L. Henderson

Patricia L. Lynch
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company



RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1205999

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1205999-01	Injection Well Effluent	Liquid		5/21/2012 13:15	5/23/2012 08:45	☐

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1205999

Case Narrative

Batch 61460, Metals, Sample 1205937-01, MS/MSD was an unrelated sample.

Batch R128528, Volatile Organic, Sample 12051116-10, MS/MSD was an unrelated sample.

Batch R128879, Anions by E300, Sample Injection Well Effluent, MS/MSD recoveries were outside the control limits.

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Injection Well Effluent

Collection Date: 5/21/2012 01:15 PM

Work Order: 1205999

Lab ID: 1205999-01

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY			SW7470				Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	5/29/2012	5/29/2012 05:59 PM
METALS			SW6020				Analyst: ALR
Aluminum	0.394		0.0100	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Arsenic	0.0791	*	0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Barium	0.0202		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Beryllium	ND		0.00200	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Boron	0.238		0.0500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Cadmium	ND		0.00200	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Calcium	51.8		0.500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Chromium	ND		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Cobalt	ND		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Copper	ND		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Iron	1.17		0.200	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Lead	ND		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Magnesium	15.4		0.200	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Manganese	0.0524		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Molybdenum	0.154		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Nickel	0.0122		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Potassium	75.4		0.200	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Selenium	0.690	*	0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Silver	ND		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Sodium	1,320		20.0	mg/L	100	5/30/2012	6/1/2012 12:32 PM
Vanadium	0.00817		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
Zinc	0.0402		0.00500	mg/L	1	5/30/2012	6/1/2012 01:59 AM
SEMIVOLATILES - SW8270D			SW8270				Analyst: JLJ
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2-Methylphenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2-Nitroaniline	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
2-Nitrophenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
3-Nitroaniline	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
4-Nitroaniline	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
4-Nitrophenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Acenaphthene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1205999

Sample ID: Injection Well Effluent

Lab ID: 1205999-01

Collection Date: 5/21/2012 01:15 PM

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Acenaphthylene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Aniline	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Anthracene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Benzidine	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Hexachloroethane	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Isophorone	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Naphthalene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Nitrobenzene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Pentachlorophenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Phenanthrene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Phenol	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Pyrene	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Pyridine	ND		0.0050	mg/L	1	5/24/2012	5/24/2012 07:24 PM
Surr: 2,4,6-Tribromophenol	103		42-124	%REC	1	5/24/2012	5/24/2012 07:24 PM
Surr: 2-Fluorobiphenyl	70.3		48-120	%REC	1	5/24/2012	5/24/2012 07:24 PM
Surr: 2-Fluorophenol	71.0		20-120	%REC	1	5/24/2012	5/24/2012 07:24 PM
Surr: 4-Terphenyl-d14	96.2		51-135	%REC	1	5/24/2012	5/24/2012 07:24 PM
Surr: Nitrobenzene-d5	76.1		41-120	%REC	1	5/24/2012	5/24/2012 07:24 PM
Surr: Phenol-d6	80.9		20-120	%REC	1	5/24/2012	5/24/2012 07:24 PM
VOLATILES			SW8260			Analyst: PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
2-Butanone	ND		0.010	mg/L	1		5/27/2012 06:08 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1		5/27/2012 06:08 PM
2-Hexanone	ND		0.010	mg/L	1		5/27/2012 06:08 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1		5/27/2012 06:08 PM
Acetone	ND		0.010	mg/L	1		5/27/2012 06:08 PM
Benzene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Bromodichloromethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Bromoform	ND		0.0050	mg/L	1		5/27/2012 06:08 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1205999

Sample ID: Injection Well Effluent

Lab ID: 1205999-01

Collection Date: 5/21/2012 01:15 PM

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Bromomethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Carbon disulfide	ND		0.010	mg/L	1		5/27/2012 06:08 PM
Carbon tetrachloride	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Chlorobenzene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Chloroethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Chloroform	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Chloromethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Dibromochloromethane	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Ethylbenzene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
m,p-Xylene	ND		0.010	mg/L	1		5/27/2012 06:08 PM
Methylene chloride	ND		0.010	mg/L	1		5/27/2012 06:08 PM
Styrene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Tetrachloroethene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Toluene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Trichloroethene	ND		0.0050	mg/L	1		5/27/2012 06:08 PM
Vinyl acetate	ND		0.010	mg/L	1		5/27/2012 06:08 PM
Vinyl chloride	ND		0.0020	mg/L	1		5/27/2012 06:08 PM
Xylenes, Total	ND		0.015	mg/L	1		5/27/2012 06:08 PM
Surr: 1,2-Dichloroethane-d4	104		70-125	%REC	1		5/27/2012 06:08 PM
Surr: 4-Bromofluorobenzene	92.3		72-125	%REC	1		5/27/2012 06:08 PM
Surr: Dibromofluoromethane	102		71-125	%REC	1		5/27/2012 06:08 PM
Surr: Toluene-d8	95.9		75-125	%REC	1		5/27/2012 06:08 PM
REACTIVE CYANIDE			SW-846				Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1		5/29/2012 10:45 AM
REACTIVE SULFIDE			SW-846				Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1		5/29/2012 10:45 AM
ANIONS - EPA 300.0 (1993)			E300				Analyst: JKP
Chloride	646		5.00	mg/L	10		6/4/2012 08:56 AM
Sulfate	2,220		50.0	mg/L	100		6/4/2012 03:37 PM
Surr: Selenate (surr)	110		85-115	%REC	10		6/4/2012 08:56 AM
Surr: Selenate (surr)	106		85-115	%REC	100		6/4/2012 03:37 PM
ALKALINITY			SM2320B				Analyst: DM
Alkalinity, Bicarbonate (As CaCO3)	175		5.00	mg/L	1		6/4/2012 09:23 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1		6/4/2012 09:23 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1		6/4/2012 09:23 AM
Alkalinity, Total (As CaCO3)	175		5.00	mg/L	1		6/4/2012 09:23 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1205999

Sample ID: Injection Well Effluent

Lab ID: 1205999-01

Collection Date: 5/21/2012 01:15 PM

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
SPECIFIC CONDUCTIVITY			M2510 B				Analyst: RPM
Specific Conductivity	6,650			1.00 µmhos/cm	1		6/1/2012 12:00 PM
IGNITIBILITY			SW1010				Analyst: KAH
Ignitability	> 212			50.0 °F	1		6/1/2012 03:45 PM
PH			SW9040				Analyst: RPM
pH	6.76	H		0.100 pH units	1		5/30/2012 05:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 05-Jun-12

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61420 Instrument ID Mercury Method: SW7470

MBLK Sample ID: GBLKW2-052912-61420 Units: mg/L Analysis Date: 5/29/2012 04:59 PM

Client ID: Run ID: MERCURY_120529A SeqNo: 2798980 Prep Date: 5/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW2-052912-61420 Units: mg/L Analysis Date: 5/29/2012 05:01 PM

Client ID: Run ID: MERCURY_120529A SeqNo: 2798981 Prep Date: 5/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00519	0.00020	0.005	0	104	85-115	0			

MS Sample ID: 12051008-01DMS Units: mg/L Analysis Date: 5/29/2012 05:13 PM

Client ID: Run ID: MERCURY_120529A SeqNo: 2798984 Prep Date: 5/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0052	0.00020	0.005	-0.000013	104	85-115	0			

MSD Sample ID: 12051008-01DMSD Units: mg/L Analysis Date: 5/29/2012 05:15 PM

Client ID: Run ID: MERCURY_120529A SeqNo: 2798985 Prep Date: 5/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00517	0.00020	0.005	-0.000013	104	85-115	0.0052	0.579	20	

DUP Sample ID: 12051008-01DDUP Units: mg/L Analysis Date: 5/29/2012 05:11 PM

Client ID: Run ID: MERCURY_120529A SeqNo: 2798983 Prep Date: 5/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000013	0	20	

The following samples were analyzed in this batch:

1205999-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 18

Client: Navajo Refining Company
Work Order: 1205999
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61460 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW2-053012-61460 Units: mg/L Analysis Date: 5/30/2012 05:19 PM

Client ID: Run ID: ICPMS03_120530A SeqNo: 2800671 Prep Date: 5/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	0.1971	0.20								J
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 2 of 18

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61460 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW2-053012-61460 Units: mg/L Analysis Date: 5/30/2012 05:24 PM
 Client ID: Run ID: ICPMS03_120530A SeqNo: 2800672 Prep Date: 5/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1016	0.010	0.1	0	102	80-120	0			
Arsenic	0.0494	0.0050	0.05	0	98.8	80-120	0			
Barium	0.0475	0.0050	0.05	0	95	80-120	0			
Beryllium	0.04774	0.0020	0.05	0	95.5	80-120	0			
Boron	0.467	0.050	0.5	0	93.4	80-120	0			
Cadmium	0.04793	0.0020	0.05	0	95.9	80-120	0			
Calcium	4.994	0.50	5	0	99.9	80-120	0			
Chromium	0.04938	0.0050	0.05	0	98.8	80-120	0			
Cobalt	0.04973	0.0050	0.05	0	99.5	80-120	0			
Copper	0.04983	0.0050	0.05	0	99.7	80-120	0			
Iron	4.927	0.20	5	0	98.5	80-120	0			
Lead	0.04748	0.0050	0.05	0	95	80-120	0			
Magnesium	4.817	0.20	5	0	96.3	80-120	0			
Manganese	0.04919	0.0050	0.05	0	98.4	80-120	0			
Molybdenum	0.04633	0.0050	0.05	0	92.7	80-120	0			
Nickel	0.04962	0.0050	0.05	0	99.2	80-120	0			
Potassium	4.756	0.20	5	0	95.1	80-120	0			
Selenium	0.04756	0.0050	0.05	0	95.1	80-120	0			
Silver	0.04739	0.0050	0.05	0	94.8	80-120	0			
Sodium	4.859	0.20	5	0	97.2	80-120	0			
Vanadium	0.04926	0.0050	0.05	0	98.5	80-120	0			
Zinc	0.05274	0.0050	0.05	0	105	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61460 Instrument ID ICPMS03 Method: SW6020

MS Sample ID: 1205937-01EMS Units: mg/L Analysis Date: 5/30/2012 08:38 PM

Client ID: Run ID: ICPMS03_120530A SeqNo: 2801337 Prep Date: 5/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6815	0.010	0.1	0.5125	169	80-120	0			SO
Arsenic	0.0492	0.0050	0.05	0.002327	93.7	80-120	0			
Barium	0.293	0.0050	0.05	0.2375	111	80-120	0			O
Beryllium	0.04846	0.0020	0.05	0	96.9	80-120	0			
Boron	0.5529	0.050	0.5	0.05887	98.8	80-120	0			
Cadmium	0.04689	0.0020	0.05	0	93.8	80-120	0			
Calcium	61.44	0.50	5	56.3	103	80-120	0			O
Chromium	0.04673	0.0050	0.05	0	93.5	80-120	0			
Cobalt	0.04604	0.0050	0.05	0	92.1	80-120	0			
Copper	0.047	0.0050	0.05	0	94	80-120	0			
Iron	5.023	0.20	5	0.4267	91.9	80-120	0			
Lead	0.04665	0.0050	0.05	0	93.3	80-120	0			
Magnesium	14.11	0.20	5	8.916	104	80-120	0			
Manganese	0.07702	0.0050	0.05	0.03071	92.6	80-120	0			
Molybdenum	0.04832	0.0050	0.05	0	96.6	80-120	0			
Nickel	0.04626	0.0050	0.05	0	92.5	80-120	0			
Potassium	7.427	0.20	5	2.576	97	80-120	0			
Selenium	0.04622	0.0050	0.05	0	92.4	80-120	0			
Silver	0.04578	0.0050	0.05	0	91.6	80-120	0			
Sodium	193.2	0.20	5	177.1	322	80-120	0			SEO
Vanadium	0.05233	0.0050	0.05	0.005986	92.7	80-120	0			
Zinc	0.0498	0.0050	0.05	0.003672	92.3	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61460 Instrument ID ICPMS03 Method: SW6020

MSD		Sample ID: 1205937-01EMSD				Units: mg/L		Analysis Date: 5/30/2012 08:42 PM		
Client ID:		Run ID: ICPMS03_120530A				SeqNo: 2801338		Prep Date: 5/30/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.6676	0.010	0.1	0.5125	155	80-120	0.6815	2.06	15	SO
Arsenic	0.05198	0.0050	0.05	0.002327	99.3	80-120	0.0492	5.5	15	
Barium	0.3035	0.0050	0.05	0.2375	132	80-120	0.293	3.52	15	SO
Beryllium	0.05078	0.0020	0.05	0	102	80-120	0.04846	4.68	15	
Boron	0.5615	0.050	0.5	0.05887	101	80-120	0.5529	1.54	15	
Cadmium	0.04769	0.0020	0.05	0	95.4	80-120	0.04689	1.69	15	
Calcium	66.31	0.50	5	56.3	200	80-120	61.44	7.62	15	SO
Chromium	0.05062	0.0050	0.05	0	101	80-120	0.04673	7.99	15	
Cobalt	0.04878	0.0050	0.05	0	97.6	80-120	0.04604	5.78	15	
Copper	0.04894	0.0050	0.05	0	97.9	80-120	0.047	4.04	15	
Iron	5.36	0.20	5	0.4267	98.7	80-120	5.023	6.49	15	
Lead	0.04695	0.0050	0.05	0	93.9	80-120	0.04665	0.641	15	
Magnesium	14.37	0.20	5	8.916	109	80-120	14.11	1.83	15	
Manganese	0.08289	0.0050	0.05	0.03071	104	80-120	0.07702	7.34	15	
Molybdenum	0.0488	0.0050	0.05	0	97.6	80-120	0.04832	0.988	15	
Nickel	0.04927	0.0050	0.05	0	98.5	80-120	0.04626	6.3	15	
Potassium	7.651	0.20	5	2.576	102	80-120	7.427	2.97	15	
Selenium	0.05057	0.0050	0.05	0	101	80-120	0.04622	8.99	15	
Silver	0.04613	0.0050	0.05	0	92.3	80-120	0.04578	0.762	15	
Sodium	197.1	0.20	5	177.1	400	80-120	193.2	2	15	SEO
Vanadium	0.05584	0.0050	0.05	0.005986	99.7	80-120	0.05233	6.49	15	
Zinc	0.05193	0.0050	0.05	0.003672	96.5	80-120	0.0498	4.19	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61460 Instrument ID ICPMS03 Method: SW6020

DUP Sample ID: 1205937-01EDUP Units: mg/L Analysis Date: 5/30/2012 08:29 PM

Client ID: Run ID: ICPMS03_120530A SeqNo: 2801335 Prep Date: 5/30/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5715	0.010	0	0	0	0-0	0.5125	10.9	25	
Arsenic	0.002538	0.0050	0	0	0	0-0	0.002327	0	25	J
Barium	0.2584	0.0050	0	0	0	0-0	0.2375	8.43	25	
Beryllium	ND	0.0020	0	0	0	0-0	0.0001179	0	25	
Boron	0.06367	0.050	0	0	0	0-0	0.05887	7.83	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0001285	0	25	
Calcium	61.84	0.50	0	0	0	0-0	56.3	9.38	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0009115	0	25	
Cobalt	ND	0.0050	0	0	0	0-0	0.0004666	0	25	
Copper	ND	0.0050	0	0	0	0-0	0.0009528	0	25	
Iron	0.4597	0.20	0	0	0	0-0	0.4267	7.45	25	
Lead	ND	0.0050	0	0	0	0-0	0.0004137	0	25	
Magnesium	9.764	0.20	0	0	0	0-0	8.916	9.08	25	
Manganese	0.0343	0.0050	0	0	0	0-0	0.03071	11	25	
Molybdenum	ND	0.0050	0	0	0	0-0	0.001447	0	25	
Nickel	ND	0.0050	0	0	0	0-0	0.0005556	0	25	
Potassium	2.861	0.20	0	0	0	0-0	2.576	10.5	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0005805	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0002436	0	25	
Sodium	194.6	0.20	0	0	0	0-0	177.1	9.42	25	E
Vanadium	0.006707	0.0050	0	0	0	0-0	0.005986	11.4	25	
Zinc	0.002683	0.0050	0	0	0	0-0	0.003672	0	25	J

The following samples were analyzed in this batch:

1205999-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 6 of 18

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61328 Instrument ID SV-3 Method: SW8270

MBLK Sample ID: SBLKW1-120524-61328 Units: µg/L Analysis Date: 5/24/2012 11:50 AM

Client ID: Run ID: SV-3_120524B SeqNo: 2797813 Prep Date: 5/24/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	95.01	5.0	100	0	95	42-124	0			
Surr: 2-Fluorobiphenyl	101.3	5.0	100	0	101	48-120	0			
Surr: 2-Fluorophenol	98.53	5.0	100	0	98.5	20-120	0			
Surr: 4-Terphenyl-d14	108.2	5.0	100	0	108	51-135	0			
Surr: Nitrobenzene-d5	104.3	5.0	100	0	104	41-120	0			
Surr: Phenol-d6	88.15	5.0	100	0	88.1	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 7 of 18

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61328 Instrument ID SV-3 Method: SW8270

LCS Sample ID: SLCSW1-120524-61328 Units: µg/L Analysis Date: 5/24/2012 12:12 PM

Client ID: Run ID: SV-3_120524B SeqNo: 2797814 Prep Date: 5/24/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.02	5.0	50	0	98	50-120	0			
2,4,5-Trichlorophenol	90.12	5.0	100	0	90.1	50-120	0			
2,4,6-Trichlorophenol	91.87	5.0	100	0	91.9	50-120	0			
2,4-Dinitrotoluene	49.31	5.0	50	0	98.6	50-120	0			
2-Methylnaphthalene	49.32	5.0	50	0	98.6	55-120	0			
2-Methylphenol	81.59	5.0	100	0	81.6	50-120	0			
2-Nitroaniline	47.04	5.0	50	0	94.1	55-120	0			
2-Nitrophenol	94.02	5.0	100	0	94	55-120	0			
3&4-Methylphenol	131.9	5.0	150	0	87.9	55-120	0			
3-Nitroaniline	22.88	5.0	50	0	45.8	40-120	0			
4-Nitroaniline	36.1	5.0	50	0	72.2	50-120	0			
4-Nitrophenol	93.15	5.0	100	0	93.2	45-120	0			
Acenaphthene	49.6	5.0	50	0	99.2	55-120	0			
Acenaphthylene	48.78	5.0	50	0	97.6	55-120	0			
Aniline	15.64	5.0	50	0	31.3	30-120	0			
Anthracene	53.85	5.0	50	0	108	55-120	0			
Benz(a)anthracene	51.51	5.0	50	0	103	55-120	0			
Benzidine	6.528	5.0	50	0	13.1	10-120	0			
Hexachlorobenzene	54.39	5.0	50	0	109	55-120	0			
Hexachloroethane	47.33	5.0	50	0	94.7	55-120	0			
Indeno(1,2,3-cd)pyrene	48.08	5.0	50	0	96.2	55-120	0			
Isophorone	48.15	5.0	50	0	96.3	55-120	0			
Naphthalene	50.78	5.0	50	0	102	55-120	0			
Nitrobenzene	50.75	5.0	50	0	101	55-120	0			
N-Nitrosodimethylamine	46	5.0	50	0	92	45-120	0			
N-Nitrosodi-n-propylamine	43.69	5.0	50	0	87.4	50-120	0			
N-Nitrosodiphenylamine	54.56	5.0	50	0	109	55-120	0			
Pentachlorophenol	102.8	5.0	100	0	103	55-120	0			
Phenanthrene	49.76	5.0	50	0	99.5	55-120	0			
Phenol	83.06	5.0	100	0	83.1	50-120	0			
Pyrene	53.09	5.0	50	0	106	55-120	0			
Pyridine	36.51	5.0	50	0	73	35-120	0			
Surr: 2,4,6-Tribromophenol	98.04	5.0	100	0	98	42-124	0			
Surr: 2-Fluorobiphenyl	94.9	5.0	100	0	94.9	48-120	0			
Surr: 2-Fluorophenol	106.5	5.0	100	0	106	20-120	0			
Surr: 4-Terphenyl-d14	102.5	5.0	100	0	103	51-135	0			
Surr: Nitrobenzene-d5	101.2	5.0	100	0	101	41-120	0			
Surr: Phenol-d6	96.03	5.0	100	0	96	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 61328 Instrument ID SV-3 Method: SW8270

LCSD Sample ID: SLCS DW1-120524-61328 Units: µg/L Analysis Date: 5/24/2012 12:34 PM

Client ID: Run ID: SV-3_120524B SeqNo: 2797815 Prep Date: 5/24/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	49.23	5.0	50	0	98.5	50-120	49.02	0.445	20	
2,4,5-Trichlorophenol	92.13	5.0	100	0	92.1	50-120	90.12	2.2	20	
2,4,6-Trichlorophenol	89.59	5.0	100	0	89.6	50-120	91.87	2.51	20	
2,4-Dinitrotoluene	47.7	5.0	50	0	95.4	50-120	49.31	3.32	20	
2-Methylnaphthalene	49.28	5.0	50	0	98.6	55-120	49.32	0.0781	20	
2-Methylphenol	79.56	5.0	100	0	79.6	50-120	81.59	2.51	20	
2-Nitroaniline	45.02	5.0	50	0	90	55-120	47.04	4.39	20	
2-Nitrophenol	93.81	5.0	100	0	93.8	55-120	94.02	0.227	20	
3&4-Methylphenol	126.3	5.0	150	0	84.2	55-120	131.9	4.35	20	
3-Nitroaniline	23.64	5.0	50	0	47.3	40-120	22.88	3.29	20	
4-Nitroaniline	40.09	5.0	50	0	80.2	50-120	36.1	10.5	20	
4-Nitrophenol	95.25	5.0	100	0	95.3	45-120	93.15	2.23	20	
Acenaphthene	50.3	5.0	50	0	101	55-120	49.6	1.41	20	
Acenaphthylene	49.95	5.0	50	0	99.9	55-120	48.78	2.38	20	
Aniline	15.54	5.0	50	0	31.1	30-120	15.64	0.622	20	
Anthracene	55.58	5.0	50	0	111	55-120	53.85	3.15	20	
Benz(a)anthracene	50.92	5.0	50	0	102	55-120	51.51	1.15	20	
Benzidine	5.35	5.0	50	0	10.7	10-120	6.528	19.8	20	
Hexachlorobenzene	55.08	5.0	50	0	110	55-120	54.39	1.26	20	
Hexachloroethane	47.35	5.0	50	0	94.7	55-120	47.33	0.0577	20	
Indeno(1,2,3-cd)pyrene	47.48	5.0	50	0	95	55-120	48.08	1.25	20	
Isophorone	46.6	5.0	50	0	93.2	55-120	48.15	3.26	20	
Naphthalene	52.29	5.0	50	0	105	55-120	50.78	2.94	20	
Nitrobenzene	50.23	5.0	50	0	100	55-120	50.75	1.03	20	
N-Nitrosodimethylamine	46.57	5.0	50	0	93.1	45-120	46	1.23	20	
N-Nitrosodi-n-propylamine	41.43	5.0	50	0	82.9	50-120	43.69	5.3	20	
N-Nitrosodiphenylamine	54.68	5.0	50	0	109	55-120	54.56	0.235	20	
Pentachlorophenol	105	5.0	100	0	105	55-120	102.8	2.06	20	
Phenanthrene	51.75	5.0	50	0	103	55-120	49.76	3.91	20	
Phenol	81.49	5.0	100	0	81.5	50-120	83.06	1.91	20	
Pyrene	52.05	5.0	50	0	104	55-120	53.09	1.98	20	
Pyridine	38.08	5.0	50	0	76.2	35-120	36.51	4.2	20	
Surr: 2,4,6-Tribromophenol	97.22	5.0	100	0	97.2	42-124	98.04	0.843	20	
Surr: 2-Fluorobiphenyl	96.62	5.0	100	0	96.6	48-120	94.9	1.79	20	
Surr: 2-Fluorophenol	105.3	5.0	100	0	105	20-120	106.5	1.14	20	
Surr: 4-Terphenyl-d14	99.78	5.0	100	0	99.8	51-135	102.5	2.69	20	
Surr: Nitrobenzene-d5	98.49	5.0	100	0	98.5	41-120	101.2	2.75	20	
Surr: Phenol-d6	92.61	5.0	100	0	92.6	20-120	96.03	3.63	20	

The following samples were analyzed in this batch:

1205999-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R128528 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-052512-R128528 Units: µg/L Analysis Date: 5/27/2012 12:55 PM

Client ID: Run ID: VOA1_120527B SeqNo: 2797182 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	50.06	5.0	50	0	100	70-125	0			
Surr: 4-Bromofluorobenzene	49.08	5.0	50	0	98.2	72-125	0			
Surr: Dibromofluoromethane	49.93	5.0	50	0	99.9	71-125	0			
Surr: Toluene-d8	48.31	5.0	50	0	96.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R128528 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-052712-R128528 Units: µg/L Analysis Date: 5/27/2012 12:03 PM

Client ID: Run ID: VOA1_120527B SeqNo: 2797181 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.54	5.0	50	0	89.1	80-120	0			
1,1,2,2-Tetrachloroethane	43.41	5.0	50	0	86.8	72-120	0			
1,1,2-Trichloroethane	47.08	5.0	50	0	94.2	80-120	0			
1,1-Dichloroethane	47.66	5.0	50	0	95.3	76-120	0			
1,1-Dichloroethene	45.9	5.0	50	0	91.8	73-124	0			
1,2-Dichloroethane	48.96	5.0	50	0	97.9	78-120	0			
2-Butanone	94.7	10	100	0	94.7	58-132	0			
2-Chloroethyl vinyl ether	107	10	100	0	107	74-120	0			
2-Hexanone	93.55	10	100	0	93.6	61-130	0			
4-Methyl-2-pentanone	95.65	10	100	0	95.7	65-127	0			
Acetone	89.43	10	100	0	89.4	59-137	0			
Benzene	49.14	5.0	50	0	98.3	73-121	0			
Bromodichloromethane	47.51	5.0	50	0	95	80-120	0			
Bromoform	44.9	5.0	50	0	89.8	79-120	0			
Bromomethane	50.52	5.0	50	0	101	66-137	0			
Carbon disulfide	91.72	10	100	0	91.7	68-141	0			
Carbon tetrachloride	45.65	5.0	50	0	91.3	75-124	0			
Chlorobenzene	43.49	5.0	50	0	87	80-120	0			
Chloroethane	49.23	5.0	50	0	98.5	76-121	0			
Chloroform	44.86	5.0	50	0	89.7	80-120	0			
Chloromethane	44.18	5.0	50	0	88.4	67-123	0			
cis-1,3-Dichloropropene	47.84	5.0	50	0	95.7	80-120	0			
Dibromochloromethane	47.11	5.0	50	0	94.2	80-120	0			
Ethylbenzene	44	5.0	50	0	88	80-120	0			
m,p-Xylene	84.76	10	100	0	84.8	78-121	0			
Methylene chloride	44.89	10	50	0	89.8	65-133	0			
Styrene	43.91	5.0	50	0	87.8	80-120	0			
Tetrachloroethene	43.46	5.0	50	0	86.9	79-120	0			
Toluene	42.62	5.0	50	0	85.2	80-120	0			
trans-1,3-Dichloropropene	47.9	5.0	50	0	95.8	80-120	0			
Trichloroethene	46.87	5.0	50	0	93.7	80-120	0			
Vinyl acetate	94.67	10	100	0	94.7	67-139	0			
Vinyl chloride	45.19	2.0	50	0	90.4	70-127	0			
Xylenes, Total	130	15	150	0	86.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	48.19	5.0	50	0	96.4	70-125	0			
Surr: 4-Bromofluorobenzene	49.34	5.0	50	0	98.7	72-125	0			
Surr: Dibromofluoromethane	48.35	5.0	50	0	96.7	71-125	0			
Surr: Toluene-d8	45.86	5.0	50	0	91.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 11 of 18

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R128528 Instrument ID VOA1 Method: SW8260

MS Sample ID: 12051116-10AMS Units: µg/L Analysis Date: 5/27/2012 04:23 PM

Client ID: Run ID: VOA1_120527B SeqNo: 2798136 Prep Date: DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	417.4	50	500	0	83.5	80-120	0			
1,1,2,2-Tetrachloroethane	428.4	50	500	0	85.7	72-120	0			
1,1,2-Trichloroethane	454.8	50	500	0	91	80-120	0			
1,1-Dichloroethane	437.6	50	500	0	87.5	76-120	0			
1,1-Dichloroethene	420.3	50	500	0	84.1	73-124	0			
1,2-Dichloroethane	492.6	50	500	0	98.5	78-120	0			
2-Butanone	857.5	100	1000	0	85.7	58-132	0			
2-Chloroethyl vinyl ether	ND	100	1000	0	0	74-120	0			S
2-Hexanone	905.9	100	1000	0	90.6	61-130	0			
4-Methyl-2-pentanone	976.2	100	1000	0	97.6	65-127	0			
Acetone	804.7	100	1000	848.9	-4.42	59-137	0			S
Benzene	1322	50	500	887.6	86.9	73-121	0			
Bromodichloromethane	465	50	500	0	93	80-120	0			
Bromoform	465	50	500	0	93	79-120	0			
Bromomethane	400.1	50	500	0	80	66-137	0			
Carbon disulfide	779.3	100	1000	0	77.9	68-141	0			
Carbon tetrachloride	430.4	50	500	0	86.1	75-124	0			
Chlorobenzene	454.1	50	500	0	90.8	80-120	0			
Chloroethane	405	50	500	0	81	76-121	0			
Chloroform	455.9	50	500	0	91.2	80-120	0			
Chloromethane	378.5	50	500	0	75.7	67-123	0			
cis-1,3-Dichloropropene	459.3	50	500	0	91.9	80-120	0			
Dibromochloromethane	457.5	50	500	0	91.5	80-120	0			
Ethylbenzene	423.3	50	500	0	84.7	80-120	0			
m,p-Xylene	852	100	1000	0	85.2	78-121	0			
Methylene chloride	387.9	100	500	0	77.6	65-133	0			
Styrene	446.6	50	500	0	89.3	80-120	0			
Tetrachloroethene	372.9	50	500	0	74.6	79-120	0			S
Toluene	435.9	50	500	0	87.2	80-120	0			
trans-1,3-Dichloropropene	499.2	50	500	0	99.8	80-120	0			
Trichloroethene	433.4	50	500	0	86.7	80-120	0			
Vinyl acetate	915.1	100	1000	0	91.5	67-139	0			
Vinyl chloride	384.5	20	500	0	76.9	70-127	0			
Xylenes, Total	1269	150	1500	0	84.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	481	50	500	0	96.2	70-125	0			
Surr: 4-Bromofluorobenzene	499.9	50	500	0	100	72-125	0			
Surr: Dibromofluoromethane	490.8	50	500	0	98.2	71-125	0			
Surr: Toluene-d8	489.9	50	500	0	98	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 12 of 18

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R128528 Instrument ID VOA1 Method: SW8260

MSD Sample ID: 12051116-10AMSD Units: µg/L Analysis Date: 5/27/2012 04:50 PM

Client ID: Run ID: VOA1_120527B SeqNo: 2798137 Prep Date: DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	512.6	50	500	0	103	80-120	417.4	20.5	20	R
1,1,2,2-Tetrachloroethane	486.2	50	500	0	97.2	72-120	428.4	12.6	20	
1,1,2-Trichloroethane	469.4	50	500	0	93.9	80-120	454.8	3.16	20	
1,1-Dichloroethane	507.7	50	500	0	102	76-120	437.6	14.8	20	
1,1-Dichloroethene	514.3	50	500	0	103	73-124	420.3	20.1	20	R
1,2-Dichloroethane	471.5	50	500	0	94.3	78-120	492.6	4.37	20	
2-Butanone	974	100	1000	0	97.4	58-132	857.5	12.7	20	
2-Chloroethyl vinyl ether	ND	100	1000	0	0	74-120	0	0	20	S
2-Hexanone	996.5	100	1000	0	99.7	61-130	905.9	9.53	20	
4-Methyl-2-pentanone	1052	100	1000	0	105	65-127	976.2	7.49	20	
Acetone	912.1	100	1000	848.9	6.32	59-137	804.7	12.5	20	S
Benzene	1192	50	500	887.6	60.9	73-121	1322	10.4	20	S
Bromodichloromethane	470.5	50	500	0	94.1	80-120	465	1.16	20	
Bromoform	481.1	50	500	0	96.2	79-120	465	3.4	20	
Bromomethane	527.9	50	500	0	106	66-137	400.1	27.5	20	R
Carbon disulfide	967	100	1000	0	96.7	68-141	779.3	21.5	20	R
Carbon tetrachloride	444.7	50	500	0	88.9	75-124	430.4	3.29	20	
Chlorobenzene	465.6	50	500	0	93.1	80-120	454.1	2.5	20	
Chloroethane	532.9	50	500	0	107	76-121	405	27.3	20	R
Chloroform	514.5	50	500	0	103	80-120	455.9	12.1	20	
Chloromethane	456.2	50	500	0	91.2	67-123	378.5	18.6	20	
cis-1,3-Dichloropropene	469.3	50	500	0	93.9	80-120	459.3	2.16	20	
Dibromochloromethane	483	50	500	0	96.6	80-120	457.5	5.42	20	
Ethylbenzene	464.5	50	500	0	92.9	80-120	423.3	9.28	20	
m,p-Xylene	934.5	100	1000	0	93.4	78-121	852	9.23	20	
Methylene chloride	515.3	100	500	0	103	65-133	387.9	28.2	20	R
Styrene	467.6	50	500	0	93.5	80-120	446.6	4.6	20	
Tetrachloroethene	438.2	50	500	0	87.6	79-120	372.9	16.1	20	
Toluene	453.7	50	500	0	90.7	80-120	435.9	4	20	
trans-1,3-Dichloropropene	501.7	50	500	0	100	80-120	499.2	0.509	20	
Trichloroethene	467.6	50	500	0	93.5	80-120	433.4	7.59	20	
Vinyl acetate	1040	100	1000	0	104	67-139	915.1	12.8	20	
Vinyl chloride	472	20	500	0	94.4	70-127	384.5	20.4	20	R
Xylenes, Total	1398	150	1500	0	93.2	80-120	1269	9.67	20	
Surr: 1,2-Dichloroethane-d4	485.6	50	500	0	97.1	70-125	481	0.945	20	
Surr: 4-Bromofluorobenzene	505.1	50	500	0	101	72-125	499.9	1.04	20	
Surr: Dibromofluoromethane	544.5	50	500	0	109	71-125	490.8	10.4	20	
Surr: Toluene-d8	478.8	50	500	0	95.8	75-125	489.9	2.3	20	

The following samples were analyzed in this batch: 1205999-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1205999
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R128783** Instrument ID **WetChem** Method: **M2510 B** (Dissolve)

MBLK Sample ID: **WBLKW1-060112-R128783** Units: **µmhos/cm** Analysis Date: **6/1/2012 12:00 PM**

Client ID: Run ID: **WETCHEM_120601A** SeqNo: **2803695** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **WLCSW1-060112-R128783** Units: **µmhos/cm** Analysis Date: **6/1/2012 12:00 PM**

Client ID: Run ID: **WETCHEM_120601A** SeqNo: **2803696** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1420	1.0	1413		0	100	80-120	0		

DUP Sample ID: **12051021-01GDUP** Units: **µmhos/cm** Analysis Date: **6/1/2012 12:00 PM**

Client ID: Run ID: **WETCHEM_120601A** SeqNo: **2803714** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	343	1.0	0		0	0	342	0.292	20	

The following samples were analyzed in this batch:

1205999-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1205999
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R128810** Instrument ID **WetChem** Method: **SW1010** (Dissolve)

LCS Sample ID: **WLCS-060112-R128810** Units: °F Analysis Date: **6/1/2012 03:45 PM**

Client ID: Run ID: **WETCHEM_120601E** SeqNo: **2804237** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	86	50	83	0	104	80-120	0			

LCSD Sample ID: **WLCSD-060112-R128810** Units: °F Analysis Date: **6/1/2012 03:45 PM**

Client ID: Run ID: **WETCHEM_120601E** SeqNo: **2804247** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	85	50	83	0	102	80-120	86	1.17	25	

DUP Sample ID: **12051036-01CDUP** Units: °F Analysis Date: **6/1/2012 03:45 PM**

Client ID: Run ID: **WETCHEM_120601E** SeqNo: **2804248** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	86	50	0	0	0	0-0	85	1.17	25	

The following samples were analyzed in this batch:

1205999-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R128866 Instrument ID WetChem Method: SM2320B (Dissolve)

MBLK Sample ID: WBLKW1-060412-R128866 Units: mg/L Analysis Date: 6/4/2012 09:23 AM

Client ID: Run ID: WETCHEM_120604A SeqNo: 2805657 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-060412-R128866 Units: mg/L Analysis Date: 6/4/2012 09:23 AM

Client ID: Run ID: WETCHEM_120604A SeqNo: 2805658 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1054	5.0	1000	0	105	80-120	0			

DUP Sample ID: 12051008-01GDUP Units: mg/L Analysis Date: 6/4/2012 09:23 AM

Client ID: Run ID: WETCHEM_120604A SeqNo: 2805682 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	271.5	5.0	0	0	0	0-0	270.4	0.41	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	271.5	5.0	0	0	0	0-0	270.4	0.41	20	

The following samples were analyzed in this batch: 1205999-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1205999
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R128869** Instrument ID **WetChem** Method: **SW9040** (Dissolve)

LCS Sample ID: **WLCSW1-053012-R128869** Units: **pH units** Analysis Date: **5/30/2012 05:00 PM**

Client ID: Run ID: **WETCHEM_1205300** SeqNo: **2805754** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.01	0.10	6	0	100	90-110	0			

DUP Sample ID: **12051212-01ZDUP** Units: **pH units** Analysis Date: **5/30/2012 05:00 PM**

Client ID: Run ID: **WETCHEM_1205300** SeqNo: **2805757** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.41	0.10	0	0	0	0-0	7.39	0.27	20	

The following samples were analyzed in this batch:

1205999-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 17 of 18

Client: Navajo Refining Company
 Work Order: 1205999
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R128879** Instrument ID **ICS3K2** Method: **E300** (Dissolve)

MBLK	Sample ID: WBLKW1-060412-R128879				Units: mg/L		Analysis Date: 6/4/2012 02:25 AM			
Client ID:	Run ID: ICS3K2_120604A				SeqNo: 2805913		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.459	0.50								J
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.97	0.10	6	0	99.5	85-115	0			

LCS	Sample ID: WLCSW1-060412-R128879					Units: mg/L		Analysis Date: 6/4/2012 02:47 AM		
Client ID:	Run ID: ICS3K2_120604A				SeqNo: 2805915		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.73	0.50	20	0	93.6	90-110	0			
Sulfate	19.12	0.50	20	0	95.6	90-110	0			
Surr: Selenate (surr)	5.319	0.10	5	0	106	85-115	0			

MS	Sample ID: 1205999-01CMS				Units: mg/L		Analysis Date: 6/4/2012 09:18 AM			
Client ID: Injection Well Effluent			Run ID: ICS3K2_120604A		SeqNo: 2805954		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	597.6	5.0	100	646.1	-48.6	80-120	0			SO
Sulfate	2070	5.0	100	2240	-170	80-120	0			SEO
Surr: Selenate (surr)	101.4	1.0	50	0	203	85-115	0			S

MSD	Sample ID: 1205999-01CMSD				Units: mg/L		Analysis Date: 6/4/2012 09:39 AM			
Client ID: Injection Well Effluent			Run ID: ICS3K2_120604A		SeqNo: 2805957		Prep Date:		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	602.5	5.0	100	646.1	-43.6	80-120	597.6	0.824	20	SO
Sulfate	2088	5.0	100	2240	-152	80-120	2070	0.875	20	SEO
Surr: Selenate (surr)	102.4	1.0	50	0	205	85-115	101.4	1.02	20	S

MSD	Sample ID: 1205999-01CMS					Units: mg/L		Analysis Date: 6/4/2012 04:02 PM		
Client ID: Injection Well Effluent			Run ID: ICS3K2_120604A			SeqNo: 2806528		Prep Date:		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1583	50	1000	637.2	94.6	80-120	597.6	0	20	
Sulfate	3161	50	1000	2224	93.7	80-120	2070	0	20	
Surr: Selenate (surr)	515.3	10	500	0	103	85-115	101.4	0	20	

The following samples were analyzed in this batch: 1205999-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Project: Injection Well Quarterly
 WorkOrder: 1205999

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

ALS Environmental

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 23-May-12 08:45

Work Order: 1205999

Received by: RNG

Checklist completed by Raymond N Gamboa

23-May-12

Reviewed by: Hector Coronado

13-Jun-12

eSignature

Date

eSignature

Date

Matrices: Liquid

Carrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

1.7c

003

Cooler(s)/Kit(s):

4236

Water - VOA vials have zero headspace?

Yes ☒

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

pH adjusted?

Yes ☐

No ☐

N/A ☒

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



23-Jul-2012

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1207951**

Dear Aaron,

ALS Environmental received 1 sample on 20-Jul-2012 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 9.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Patricia L. Lynch
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Standiff Rd, Suite 210 Houston, Texas 77059-4336 | PHONE (281) 530-5656 | FAX (281) 530-5887

FOR YOUR USE ONLY: Please do not write on this page. If you need to add information, please use the back of the report.

Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1207951

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1207951-01	Injection Well Missed/Late TDS	Liquid		7/19/2012 14:46	7/20/2012 09:20	☐

ALS Environmental

Date: 24-Jul-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1207951

Case Narrative

No exceptions

ALS Environmental

Date: 23-Jul-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1207951

Sample ID: Injection Well Missed/Late TDS

Lab ID: 1207951-01

Collection Date: 7/19/2012 02:46 PM

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
TOTAL DISSOLVED SOLIDS			M2540C				Analyst: IAB
Total Dissolved Solids (Residue, Filterable)	3,100		10.0	mg/L	1		7/20/2012 08:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 23-Jul-12

Client: Navajo Refining Company
Work Order: 1207951
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R131613** Instrument ID **Balance1** Method: **M2540C** (Dissolve)

MBLK Sample ID: **WBLK-072012-R131613** Units: **mg/L** Analysis Date: **7/20/2012 08:00 AM**

Client ID: Run ID: **BALANCE1_120720H** SeqNo: **2868494** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: **WLCS-072012-R131613** Units: **mg/L** Analysis Date: **7/20/2012 08:00 AM**

Client ID: Run ID: **BALANCE1_120720H** SeqNo: **2868495** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	920	10	1000	0	92	85-115	0			

DUP Sample ID: **1207682-01FDUP** Units: **mg/L** Analysis Date: **7/20/2012 08:00 AM**

Client ID: Run ID: **BALANCE1_120720H** SeqNo: **2868484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	182	10	0	0	0	0-0	184	1.09	20	

The following samples were analyzed in this batch:

1207951-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1207951

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 20-Jul-12 09:20

Work Order: 1207951

Received by: RNG

Checklist completed by Robert D. Harris
eSignature

21-Jul-12
Date

Reviewed by: Patricia L. Lynch
eSignature

21-Jul-12
Date

Matrices: liquids

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.2c c/u</u> <u>003</u>		
Cooler(s)/Kit(s):	<u>1086</u>		
Date/Time sample(s) sent to storage:	<u>7/21/12 10:30</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	<u>-</u>		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stancil Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5387

Chain of Custody Form

Page 1 of 1

1207951

NAVAJO REFINING: Navajo Refining Company

Project: Injection Well Quarterly



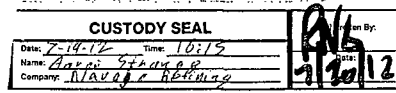
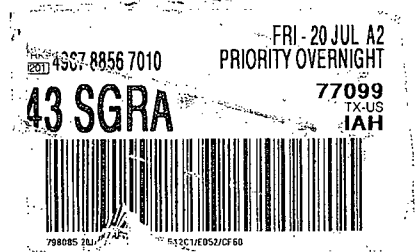
ALS Project Manager: Chris Bryson

Customer Information			Project Information			Parameter/Method Request for Analysis												
Purchase Order			Project Name	Injection Well Quarterly		A VOC (8260) Select												
Work Order			Project Number			B SVOC (8270) Select												
Company Name	Navajo Refining Company		Bill To Company	Navajo Refining Company		C Total Metals (8020/17000) Select												
Send Report To	Aaron Strange		Invoice Attn	Aaron Strange		D R.C.I. Profile												
Address	P. O. Box 159		Address	501 East Main		E Anions (300) Cl, SO4												
City/State/Zip	Artesia, New Mexico 88211-0159		City/State/Zip	Artesia, New Mexico 88210		F Alkalinity												
Phone	(575) 748-3311		Phone	(575) 748-3311		G pH												
Fax	(575) 746-5451		Fax	(575) 746-5451		H Conductivity												
e-Mail Address	Aaron.Strange@hollyfronier.com		e-Mail Address	Aaron.Strange@hollyfronier.com		I TDS												
No.	Sample Description	Date	Time	Matrix	Pres.	Bottles	A	B	C	D	E	F	G	H	I	Hold		
1	Injection Well Missed / Late TDS	7/19/12	14:46	Liquid	Yes	2									X			
2	Trip Blank																	
3	Temperature Blank																	
4																		
5																		
6																		
7																		
8																		
9																		
10																		
Sampler(s): Please Print & Sign			Shipment Method:		Required Turnaround Time:			Cooler Temp.			QC Package: (Check Box Below)							
Aaron Strange			FedEx		☒ STD 10 via Days ☐ 5 via Days ☐ 2 via Days ☐ 24 Hour			☐ over ☐ 2 via Days ☐ 24 Hour			Level I: Standard QC							
Relinquished by:			Received by:		Bottles:			Cooler Temp.			Level III: Std QC + Raw Data							
Date: 7-19-12			Date: 7-19-12		7:30 PM			Cooler Temp.			Level IV: SW846 CLP-Like							
Time: 10:15			Time: 10:15		7:30 PM			Cooler Temp.			YRPP Level IV							
Signed by (Laboratory):			Signed by (Laboratory):		Checked by (Laboratory):			Cooler Temp.			Other:							
Date:			Date:		Date:			Cooler Temp.			Other:							
Time:			Time:		Time:			Cooler Temp.			Other:							
Preservative Key:			Preservative Key:		Preservative Key:			Cooler Temp.			Other:							
1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035			Preservative Key:		Preservative Key:			Cooler Temp.			Other:							

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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1207951





RECEIVED OCD

2012 MAY -1 A 9:09

April 30, 2012

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

CERTIFIED MAIL/RETURN RECEIPT
7007 3020 0000 3028 7782

**RE: 2012 First Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the first quarter of 2012 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. An Annulus Pressure Test (APT) on the WDW-2 well was completed and certified by a third party Engineer on September 26, 2011. The Mechanical Integrity Tests (MIT) on all the wells was done on November 1, 2011. A quarterly Bradenhead for WDW-3 was last done on March 25, 2012, and passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

This report covers the period from January 1, 2012 to March 31, 2012. We have disposed a total of 58,855,380 barrels of fluid into the three wells as of March 31, 2012. The volume per well is:

- 31,520,320 barrels into WDW-1
- 18,309,388 barrels into WDW-2
- 9,025,671 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

JEL, RAC, MLS, AMS
Navajo: (ART: REF - 4 A 02 D)

2012 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													31,154,039
Jan-12	733	854	488	115	139	80	446	838	224	3,960	4,750	2,730	122,759	31,276,798
Feb-12	772	801	726	119	125	110	612	790	438	4,073	4,281	3,757	118,122	31,394,920
Mar-12	798	864	706	118	130	102	394	690	225	4,045	4,460	3,497	125,400	31,520,320
WDW-2	Previous Quarter													17,840,747
Jan-12	701	814	476	147	171	94	457	1,022	185	5,033	5,878	3,231	156,011	17,996,757
Feb-12	716	769	663	152	158	142	399	665	186	5,199	5,421	4,865	150,758	18,147,516
Mar-12	738	811	649	152	166	134	776	992	520	5,222	5,689	4,579	161,873	18,309,388
WDW-3	Previous Quarter													8,659,939
Jan-12	723	832	460	110	145	2	443	858	248	3,762	4,958	85	116,633	8,776,571
Feb-12	755	785	699	118	129	95	690	944	492	4,032	4,429	3,252	116,928	8,893,500
Mar-12	782	848	686	124	171	91	690	1,020	284	4,264	5,846	3,111	132,172	9,025,671
Total Injected fluids:														58,855,380

2012 FIRST QUARTER WEEKLY WAMS LEVEL TABLE

	1/3/12	1/9/12	1/16/12	1/24/12	1/30/12	2/6/12	2/13/12	2/20/12	2/28/12	3/5/12	3/12/12	3/19/12	3/26/12
WDW -1 ¹	160	160	160	160	160	160	160	160	160	160	160	160	160
WDW-2 ¹	150	150	150	150	150	150	150	150	150	150	150	150	150
WDW-3 ¹	145	145	145	145	145	145	145	145	145	145	145	145	145
Comments:													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



08-Mar-2012

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1202979

Dear Aaron,

ALS Environmental received 2 samples on 29-Feb-2012 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Yvan K. Ty

Chris Bryson
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Standliff Rd, Suite 210 Houston, Texas 77066-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

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RIGHT SOLUTIONS RIGHT PARTNER

ALS Environmental

Date: 08-Mar-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1202979

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1202979-01	Injection Well Effluent	Water		2/28/2012 09:40	2/29/2012 09:10	☐
1202979-02	Trip Blank - 110711-11	Water		2/28/2012	2/29/2012 09:10	☒

ALS Environmental

Date: 08-Mar-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1202979

Case Narrative

As the pH analyses were performed in the laboratory, the results are H-flagged as appropriate.

Sample was received outside of holding time for pH.

Batch 59229, Metals, Sample 1202950-04 : MS/MSD is for an unrelated sample.

Batch 59263, Semivolatile Organics, Insufficient sample to perform MS/MSD. LCS/LCSD provided as batch quality control.

Batch 59263, Semivolatile Organics : LCSD RPD was above the control limits for several analytes. The individual recoveries were in control.

Batch R124295, Volatile Organics, Sample 1202919-01 : MS/MSD is for an unrelated sample.

Batch R124295, Volatile Organics : CCV %D was above the control limits for Acetone. The associated sample results are Non Detect.

The analysis for Reactive Sulfide and Reactive Cyanide was subcontracted to ALS Laboratory Group, Inc. in Holland, MI.

ALS Environmental

Date: 26-Apr-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Injection Well Effluent
Collection Date: 2/28/2012 09:40 AM

Work Order: 1202979
Lab ID: 1202979-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470		Prep Date: 3/2/2012	Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	3/2/2012 02:14 PM
METALS			SW6020		Prep Date: 2/29/2012	Analyst: IGF
Aluminum	1.87		0.100	mg/L	10	3/2/2012 12:04 AM
Arsenic	0.141		0.00500	mg/L	1	3/1/2012 11:24 AM
Barium	0.0282		0.00500	mg/L	1	3/1/2012 11:24 AM
Boron	0.335		0.0500	mg/L	1	3/1/2012 11:24 AM
Cadmium	ND		0.00200	mg/L	1	3/1/2012 11:24 AM
Chromium	0.00598		0.00500	mg/L	1	3/1/2012 11:24 AM
Copper	0.0117		0.00500	mg/L	1	3/1/2012 11:24 AM
Lead	ND		0.00500	mg/L	1	3/1/2012 11:24 AM
Manganese	0.0555		0.00500	mg/L	1	3/1/2012 11:24 AM
Molybdenum	0.0987		0.00500	mg/L	1	3/1/2012 11:24 AM
Nickel	0.106		0.00500	mg/L	1	3/1/2012 11:24 AM
Selenium	0.312		0.00500	mg/L	1	3/1/2012 11:24 AM
Silver	ND		0.00500	mg/L	1	3/1/2012 11:24 AM
Zinc	0.0746		0.00500	mg/L	1	3/1/2012 11:24 AM
SEMIVOLATILES - SW8270D			SW8270		Prep Date: 3/2/2012	Analyst: JLJ
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2-Methylphenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2-Nitroaniline	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
2-Nitrophenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
3-Nitroaniline	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
4-Nitroaniline	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
4-Nitrophenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Acenaphthene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Acenaphthylene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Aniline	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Anthracene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Benzidine	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Hexachloroethane	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Apr-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1202979

Sample ID: Injection Well Effluent

Lab ID: 1202979-01

Collection Date: 2/28/2012 09:40 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isophorone	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Naphthalene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Nitrobenzene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Pentachlorophenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Phenanthrene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Phenol	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Pyrene	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Pyridine	ND		0.0050	mg/L	1	3/3/2012 06:22 PM
Surr: 2,4,6-Tribromophenol	80.7		42-124	%REC	1	3/3/2012 06:22 PM
Surr: 2-Fluorobiphenyl	71.4		48-120	%REC	1	3/3/2012 06:22 PM
Surr: 2-Fluorophenol	56.2		20-120	%REC	1	3/3/2012 06:22 PM
Surr: 4-Terphenyl-d14	84.5		51-135	%REC	1	3/3/2012 06:22 PM
Surr: Nitrobenzene-d5	69.8		41-120	%REC	1	3/3/2012 06:22 PM
Surr: Phenol-d6	60.0		20-120	%REC	1	3/3/2012 06:22 PM
VOLATILES			SW8260		Analyst: PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
2-Butanone	ND		0.010	mg/L	1	3/2/2012 01:16 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	3/2/2012 01:16 PM
2-Hexanone	ND		0.010	mg/L	1	3/2/2012 01:16 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	3/2/2012 01:16 PM
Acetone	0.12		0.010	mg/L	1	3/5/2012 08:40 PM
Benzene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Bromodichloromethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Bromoform	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Bromomethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Carbon disulfide	ND		0.010	mg/L	1	3/2/2012 01:16 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Chlorobenzene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Chloroethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Chloroform	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Chloromethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Apr-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1202979

Sample ID: Injection Well Effluent

Lab ID: 1202979-01

Collection Date: 2/28/2012 09:40 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibromochloromethane	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Ethylbenzene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
m,p-Xylene	ND		0.010	mg/L	1	3/2/2012 01:16 PM
Methylene chloride	ND		0.010	mg/L	1	3/2/2012 01:16 PM
Styrene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Tetrachloroethene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Toluene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Trichloroethene	ND		0.0050	mg/L	1	3/2/2012 01:16 PM
Vinyl acetate	ND		0.010	mg/L	1	3/2/2012 01:16 PM
Vinyl chloride	ND		0.0020	mg/L	1	3/2/2012 01:16 PM
Xylenes, Total	ND		0.015	mg/L	1	3/2/2012 01:16 PM
Surr: 1,2-Dichloroethane-d4	91.8		70-125	%REC	1	3/2/2012 01:16 PM
Surr: 1,2-Dichloroethane-d4	94.6		70-125	%REC	1	3/5/2012 08:40 PM
Surr: 4-Bromofluorobenzene	97.9		72-125	%REC	1	3/2/2012 01:16 PM
Surr: 4-Bromofluorobenzene	101		72-125	%REC	1	3/5/2012 08:40 PM
Surr: Dibromofluoromethane	95.8		71-125	%REC	1	3/2/2012 01:16 PM
Surr: Dibromofluoromethane	97.3		71-125	%REC	1	3/5/2012 08:40 PM
Surr: Toluene-d8	99.5		75-125	%REC	1	3/2/2012 01:16 PM
Surr: Toluene-d8	106		75-125	%REC	1	3/5/2012 08:40 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	3/2/2012 11:30 AM
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	3/2/2012 11:30 AM
ANIONS - EPA 300.0 (1993)			E300			Analyst: JKP
Chloride	519		50.0	mg/L	100	3/6/2012 06:51 AM
Sulfate	1,870		50.0	mg/L	100	3/6/2012 06:51 AM
Surr: Selenate (surr)	110		85-115	%REC	100	3/6/2012 06:51 AM
ALKALINITY			SM2320B			Analyst: DM
Alkalinity, Bicarbonate (As CaCO3)	466		5.00	mg/L	1	3/6/2012 04:36 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	3/6/2012 04:36 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	3/6/2012 04:36 PM
Alkalinity, Total (As CaCO3)	466		5.00	mg/L	1	3/6/2012 04:36 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: TDW
Specific Conductivity	5,990		1.00	µmhos/cm	1	2/29/2012 04:00 PM
IGNITIBILITY			SW1010			Analyst: KAH
Ignitability	> 212		50.0	°F	1	3/6/2012 05:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 26-Apr-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1202979

Sample ID: Injection Well Effluent

Lab ID: 1202979-01

Collection Date: 2/28/2012 09:40 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			SW9040			Analyst: TDW
pH	7.30	HHH	0.100	pH units	1	2/29/2012 03:00 PM
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: KAH
Total Dissolved Solids (Residue, Filterable)	3,890		10.0	mg/L	1	3/5/2012 07:30 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Mar-12

Client: Navajo Refining Company
Work Order: 1202979
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59229 Instrument ID ICPMS04 Method: SW6020

MBLK Sample ID: MBLKW2-022912-59229 Units: mg/L Analysis Date: 3/1/2012 05:17 AM

Client ID: Run ID: ICPMS04_120229A SeqNo: 2704057 Prep Date: 2/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	ND	0.050								

MBLK Sample ID: MBLKW2-022912-59229 Units: mg/L Analysis Date: 3/1/2012 03:20 PM

Client ID: Run ID: ICPMS04_120229A SeqNo: 2704747 Prep Date: 2/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	ND	0.0050								

LCS Sample ID: MLCSW2-022912-59229 Units: mg/L Analysis Date: 3/1/2012 05:24 AM

Client ID: Run ID: ICPMS04_120229A SeqNo: 2704058 Prep Date: 2/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.0488	0.0050	0.05	0	97.6	80-120	0			
Barium	0.05138	0.0050	0.05	0	103	80-120	0			
Boron	0.4962	0.050	0.5	0	99.2	80-120	0			
Cadmium	0.0483	0.0020	0.05	0	96.6	80-120	0			
Chromium	0.04778	0.0050	0.05	0	95.6	80-120	0			
Copper	0.04836	0.0050	0.05	0	96.7	80-120	0			
Lead	0.048	0.0050	0.05	0	96	80-120	0			
Manganese	0.04857	0.0050	0.05	0	97.1	80-120	0			
Molybdenum	0.04679	0.0050	0.05	0	93.6	80-120	0			
Selenium	0.04774	0.0050	0.05	0	95.5	80-120	0			
Silver	0.04807	0.0050	0.05	0	96.1	80-120	0			
Zinc	0.05356	0.0050	0.05	0	107	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59229 Instrument ID ICPMS04 Method: SW6020

LCS Sample ID: MLCSW2-022912-59229 Units: mg/L Analysis Date: 3/1/2012 06:13 PM

Client ID: Run ID: ICPMS04_120229A SeqNo: 2705146 Prep Date: 2/29/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1038	0.010	0.1	0	104	80-120	0			
Nickel	0.04988	0.0050	0.05	0	99.8	80-120	0			

MS Sample ID: 1202950-04DMS Units: mg/L Analysis Date: 3/2/2012 05:51 PM

Client ID: Run ID: ICPMS04_120302A SeqNo: 2706306 Prep Date: 2/29/2012 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09861	0.050	0.1	0.002997	95.6	80-120	0			
Arsenic	0.05556	0.025	0.05	0.001822	107	80-120	0			
Barium	0.1618	0.025	0.05	0.104	116	80-120	0			
Boron	3.21	0.25	0.5	2.517	138	80-120	0			SO
Cadmium	0.05037	0.010	0.05	0.000047	101	80-120	0			
Chromium	0.04882	0.025	0.05	0.000132	97.4	80-120	0			
Copper	0.04803	0.025	0.05	0.000783	94.5	80-120	0			
Lead	0.05087	0.025	0.05	0.000348	101	80-120	0			
Manganese	2.699	0.025	0.05	2.628	143	80-120	0			SO
Molybdenum	0.05442	0.025	0.05	0.005527	97.8	80-120	0			
Nickel	0.06232	0.025	0.05	0.017	90.6	80-120	0			
Selenium	0.0567	0.025	0.05	0.001873	110	80-120	0			
Silver	0.04727	0.025	0.05	-0.000916	96.4	80-120	0			
Zinc	0.0523	0.025	0.05	0.01637	71.9	80-120	0			S

MSD Sample ID: 1202950-04DMSD Units: mg/L Analysis Date: 3/2/2012 05:58 PM

Client ID: Run ID: ICPMS04_120302A SeqNo: 2706307 Prep Date: 2/29/2012 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09298	0.050	0.1	0.002997	90	80-120	0.09861	5.88	15	
Arsenic	0.05498	0.025	0.05	0.001822	106	80-120	0.05556	1.05	15	
Barium	0.153	0.025	0.05	0.104	97.9	80-120	0.1618	5.63	15	
Boron	3.068	0.25	0.5	2.517	110	80-120	3.21	4.5	15	O
Cadmium	0.04955	0.010	0.05	0.000047	99	80-120	0.05037	1.64	15	
Chromium	0.047	0.025	0.05	0.000132	93.7	80-120	0.04882	3.8	15	
Copper	0.04538	0.025	0.05	0.000783	89.2	80-120	0.04803	5.67	15	
Lead	0.0477	0.025	0.05	0.000348	94.7	80-120	0.05087	6.43	15	
Manganese	2.5	0.025	0.05	2.628	-255	80-120	2.699	7.66	15	SO
Molybdenum	0.05147	0.025	0.05	0.005527	91.9	80-120	0.05442	5.56	15	
Nickel	0.05891	0.025	0.05	0.017	83.8	80-120	0.06232	5.62	15	
Selenium	0.05922	0.025	0.05	0.001873	115	80-120	0.0567	4.34	15	
Silver	0.04563	0.025	0.05	-0.000916	93.1	80-120	0.04727	3.54	15	
Zinc	0.04801	0.025	0.05	0.01637	63.3	80-120	0.0523	8.55	15	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59229 Instrument ID ICPMS04 Method: SW6020

DUP Sample ID: 1202950-04DDUP Units: mg/L Analysis Date: 3/2/2012 05:38 PM

Client ID: Run ID: ICPMS04_120302A SeqNo: 2706299 Prep Date: 2/29/2012 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.050	0	0	0	0-0	0.002997	0	25	
Arsenic	ND	0.025	0	0	0	0-0	0.001822	0	25	
Barium	0.09946	0.025	0	0	0	0-0	0.104	4.51	25	
Boron	2.473	0.25	0	0	0	0-0	2.517	1.79	25	
Cadmium	ND	0.010	0	0	0	0-0	0.000047	0	25	
Chromium	ND	0.025	0	0	0	0-0	0.000132	0	25	
Copper	ND	0.025	0	0	0	0-0	0.000783	0	25	
Lead	ND	0.025	0	0	0	0-0	0.000348	0	25	
Manganese	2.536	0.025	0	0	0	0-0	2.628	3.54	25	
Molybdenum	ND	0.025	0	0	0	0-0	0.005527	0	25	
Nickel	0.01368	0.025	0	0	0	0-0	0.017	0	25	J
Selenium	ND	0.025	0	0	0	0-0	0.001873	0	25	
Silver	ND	0.025	0	0	0	0-0	-0.000916	0	25	
Zinc	ND	0.025	0	0	0	0-0	0.01637	0	25	

The following samples were analyzed in this batch:

1202979-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59276 Instrument ID Mercury Method: SW7470

MBLK	Sample ID: GBLKW1-030212-59276				Units: mg/L		Analysis Date: 3/2/2012 01:33 PM			
Client ID:	Run ID: MERCURY_120302A				SeqNo: 2706040		Prep Date: 3/2/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: GLCSW1-030212-59276				Units: mg/L		Analysis Date: 3/2/2012 01:39 PM			
Client ID:	Run ID: MERCURY_120302A				SeqNo: 2706041		Prep Date: 3/2/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00502	0.00020	0.005	0	100	85-115	0			

MS	Sample ID: 12021005-01BMS					Units: mg/L		Analysis Date: 3/2/2012 01:47 PM		
Client ID:	Run ID: MERCURY_120302A				SeqNo: 2706044		Prep Date: 3/2/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00486	0.00020	0.005	0.000152	94.2	85-115	0			

MSD	Sample ID: 12021005-01BMSD					Units: mg/L		Analysis Date: 3/2/2012 01:49 PM		
Client ID:	Run ID: MERCURY_120302A				SeqNo: 2706045		Prep Date: 3/2/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00488	0.00020	0.005	0.000152	94.6	85-115	0.00486	0.411	20	

DUP	Sample ID: 12021005-01BDUP					Units: mg/L		Analysis Date: 3/2/2012 01:45 PM		
Client ID:	Run ID: MERCURY_120302A				SeqNo: 2706043		Prep Date: 3/2/2012		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.000152	0.00020	0	0	0	0-0	0.000152	0	20	J

The following samples were analyzed in this batch:

1202979-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59263 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKW1-120302-59263 Units: µg/L Analysis Date: 3/2/2012 06:03 PM

Client ID: Run ID: SV-5_120302B SeqNo: 2706512 Prep Date: 3/2/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	87.1	5.0	100	0	87.1	42-124	0			
Surr: 2-Fluorobiphenyl	92.22	5.0	100	0	92.2	48-120	0			
Surr: 2-Fluorophenol	83.39	5.0	100	0	83.4	20-120	0			
Surr: 4-Terphenyl-d14	97.18	5.0	100	0	97.2	51-135	0			
Surr: Nitrobenzene-d5	99.51	5.0	100	0	99.5	41-120	0			
Surr: Phenol-d6	88.38	5.0	100	0	88.4	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59263 Instrument ID SV-5 Method: SW8270

LCS		Sample ID: SLCSW1-120302-59263				Units: µg/L		Analysis Date: 3/3/2012 03:21 PM		
Client ID:		Run ID: SV-5_120302B				SeqNo: 2706514		Prep Date: 3/2/2012		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	45.27	5.0	50	0	90.5	50-120	0			
2,4,5-Trichlorophenol	92.16	5.0	100	0	92.2	50-120	0			
2,4,6-Trichlorophenol	90.96	5.0	100	0	91	50-120	0			
2,4-Dinitrotoluene	38.29	5.0	50	0	76.6	50-120	0			
2-Methylnaphthalene	39.61	5.0	50	0	79.2	55-120	0			
2-Methylphenol	74.26	5.0	100	0	74.3	50-120	0			
2-Nitroaniline	52.63	5.0	50	0	105	55-120	0			
2-Nitrophenol	87.28	5.0	100	0	87.3	55-120	0			
3&4-Methylphenol	105.2	5.0	150	0	70.1	55-120	0			
3-Nitroaniline	27.71	5.0	50	0	55.4	40-120	0			
4-Nitroaniline	36.86	5.0	50	0	73.7	50-120	0			
4-Nitrophenol	84.36	5.0	100	0	84.4	45-120	0			
Acenaphthene	44.06	5.0	50	0	88.1	55-120	0			
Acenaphthylene	45.54	5.0	50	0	91.1	55-120	0			
Aniline	26.29	5.0	50	0	52.6	30-120	0			
Anthracene	40.62	5.0	50	0	81.2	55-120	0			
Benz(a)anthracene	43.63	5.0	50	0	87.3	55-120	0			
Benzidine	11.44	5.0	50	0	22.9	10-120	0			
Hexachlorobenzene	39.92	5.0	50	0	79.8	55-120	0			
Hexachloroethane	39.99	5.0	50	0	80	55-120	0			
Indeno(1,2,3-cd)pyrene	47.75	5.0	50	0	95.5	55-120	0			
Isophorone	42.35	5.0	50	0	84.7	55-120	0			
Naphthalene	43.74	5.0	50	0	87.5	55-120	0			
Nitrobenzene	42.17	5.0	50	0	84.3	55-120	0			
N-Nitrosodimethylamine	41.7	5.0	50	0	83.4	45-120	0			
N-Nitrosodi-n-propylamine	32.06	5.0	50	0	64.1	50-120	0			
N-Nitrosodiphenylamine	40.45	5.0	50	0	80.9	55-120	0			
Pentachlorophenol	87.63	5.0	100	0	87.6	55-120	0			
Phenanthrene	40.23	5.0	50	0	80.5	55-120	0			
Phenol	74.23	5.0	100	0	74.2	50-120	0			
Pyrene	46.04	5.0	50	0	92.1	55-120	0			
Pyridine	34.85	5.0	50	0	69.7	35-120	0			
Surr: 2,4,6-Tribromophenol	84.73	5.0	100	0	84.7	42-124	0			
Surr: 2-Fluorobiphenyl	99.43	5.0	100	0	99.4	48-120	0			
Surr: 2-Fluorophenol	85.9	5.0	100	0	85.9	20-120	0			
Surr: 4-Terphenyl-d14	103.1	5.0	100	0	103	51-135	0			
Surr: Nitrobenzene-d5	88.42	5.0	100	0	88.4	41-120	0			
Surr: Phenol-d6	74.58	5.0	100	0	74.6	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 59263 Instrument ID SV-5 Method: SW8270

LCSD Sample ID: SLCSW1-120302-59263 Units: µg/L Analysis Date: 3/2/2012 06:49 PM

Client ID: Run ID: SV-5_120302B SeqNo: 2706513 Prep Date: 3/2/2012 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.89	5.0	50	0	83.8	50-120	45.27	7.76	20	
2,4,5-Trichlorophenol	80.69	5.0	100	0	80.7	50-120	92.16	13.3	20	
2,4,6-Trichlorophenol	77.47	5.0	100	0	77.5	50-120	90.96	16	20	
2,4-Dinitrotoluene	42.66	5.0	50	0	85.3	50-120	38.29	10.8	20	
2-Methylnaphthalene	42.33	5.0	50	0	84.7	55-120	39.61	6.65	20	
2-Methylphenol	91.95	5.0	100	0	91.9	50-120	74.26	21.3	20	R
2-Nitroaniline	56.76	5.0	50	0	114	55-120	52.63	7.54	20	
2-Nitrophenol	84.86	5.0	100	0	84.9	55-120	87.28	2.81	20	
3&4-Methylphenol	138.1	5.0	150	0	92.1	55-120	105.2	27	20	R
3-Nitroaniline	44.32	5.0	50	0	88.6	40-120	27.71	46.1	20	R
4-Nitroaniline	37.54	5.0	50	0	75.1	50-120	36.86	1.83	20	
4-Nitrophenol	86.49	5.0	100	0	86.5	45-120	84.36	2.49	20	
Acenaphthene	42.96	5.0	50	0	85.9	55-120	44.06	2.52	20	
Acenaphthylene	44.33	5.0	50	0	88.7	55-120	45.54	2.69	20	
Aniline	30.73	5.0	50	0	61.5	30-120	26.29	15.5	20	
Anthracene	43.85	5.0	50	0	87.7	55-120	40.62	7.64	20	
Benz(a)anthracene	43.62	5.0	50	0	87.2	55-120	43.63	0.00412	20	
Benzidine	17.59	5.0	50	0	35.2	10-120	11.44	42.4	20	R
Hexachlorobenzene	40.72	5.0	50	0	81.4	55-120	39.92	1.98	20	
Hexachloroethane	43.3	5.0	50	0	86.6	55-120	39.99	7.95	20	
Indeno(1,2,3-cd)pyrene	39.89	5.0	50	0	79.8	55-120	47.75	17.9	20	
Isophorone	46.75	5.0	50	0	93.5	55-120	42.35	9.88	20	
Naphthalene	41.93	5.0	50	0	83.9	55-120	43.74	4.22	20	
Nitrobenzene	44.79	5.0	50	0	89.6	55-120	42.17	6.04	20	
N-Nitrosodimethylamine	41.58	5.0	50	0	83.2	45-120	41.7	0.296	20	
N-Nitrosodi-n-propylamine	42.78	5.0	50	0	85.6	50-120	32.06	28.6	20	R
N-Nitrosodiphenylamine	42.93	5.0	50	0	85.9	55-120	40.45	5.95	20	
Pentachlorophenol	82.5	5.0	100	0	82.5	55-120	87.63	6.04	20	
Phenanthrene	42.58	5.0	50	0	85.2	55-120	40.23	5.69	20	
Phenol	94.54	5.0	100	0	94.5	50-120	74.23	24.1	20	R
Pyrene	46.57	5.0	50	0	93.1	55-120	46.04	1.14	20	
Pyridine	31.79	5.0	50	0	63.6	35-120	34.85	9.19	20	
Surr: 2,4,6-Tribromophenol	75.93	5.0	100	0	75.9	42-124	84.73	11	20	
Surr: 2-Fluorobiphenyl	83.5	5.0	100	0	83.5	48-120	99.43	17.4	20	
Surr: 2-Fluorophenol	88.37	5.0	100	0	88.4	20-120	85.9	2.83	20	
Surr: 4-Terphenyl-d14	90.74	5.0	100	0	90.7	51-135	103.1	12.8	20	
Surr: Nitrobenzene-d5	87.53	5.0	100	0	87.5	41-120	88.42	1.01	20	
Surr: Phenol-d6	93.3	5.0	100	0	93.3	20-120	74.58	22.3	20	R

The following samples were analyzed in this batch: 1202979-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124295 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-030212-R124295 Units: µg/L Analysis Date: 3/2/2012 11:05 AM

Client ID: Run ID: VOA1_120302A SeqNo: 2706973 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	45.76	5.0	50	0	91.5	70-125	0			
Surr: 4-Bromofluorobenzene	45.65	5.0	50	0	91.3	72-125	0			
Surr: Dibromofluoromethane	49.47	5.0	50	0	98.9	71-125	0			
Surr: Toluene-d8	50.92	5.0	50	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124295 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-030212-R124295 Units: µg/L Analysis Date: 3/2/2012 11:31 AM

Client ID: Run ID: VOA1_120302A SeqNo: 2706974 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.34	5.0	50	0	96.7	80-120	0			
1,1,2,2-Tetrachloroethane	47.47	5.0	50	0	94.9	72-120	0			
1,1,2-Trichloroethane	50.06	5.0	50	0	100	80-120	0			
1,1-Dichloroethane	46.7	5.0	50	0	93.4	76-120	0			
1,1-Dichloroethene	48.45	5.0	50	0	96.9	73-124	0			
1,2-Dichloroethane	48.43	5.0	50	0	96.9	78-120	0			
2-Butanone	115.5	10	100	0	116	58-132	0			
2-Chloroethyl vinyl ether	100.3	10	100	0	100	74-120	0			
2-Hexanone	104.3	10	100	0	104	61-130	0			
4-Methyl-2-pentanone	104.3	10	100	0	104	65-127	0			
Benzene	49.34	5.0	50	0	98.7	73-121	0			
Bromodichloromethane	49.78	5.0	50	0	99.6	80-120	0			
Bromoform	51.85	5.0	50	0	104	79-120	0			
Bromomethane	46.68	5.0	50	0	93.4	66-137	0			
Carbon disulfide	91.46	10	100	0	91.5	68-141	0			
Carbon tetrachloride	49.44	5.0	50	0	98.9	75-124	0			
Chlorobenzene	48.66	5.0	50	0	97.3	80-120	0			
Chloroethane	48.59	5.0	50	0	97.2	76-121	0			
Chloroform	46.27	5.0	50	0	92.5	80-120	0			
Chloromethane	42.5	5.0	50	0	85	67-123	0			
cis-1,3-Dichloropropene	49.7	5.0	50	0	99.4	80-120	0			
Dibromochloromethane	50.25	5.0	50	0	100	80-120	0			
Ethylbenzene	50.31	5.0	50	0	101	80-120	0			
m,p-Xylene	106.4	10	100	0	106	78-121	0			
Methylene chloride	46.29	10	50	0	92.6	65-133	0			
Styrene	50.6	5.0	50	0	101	80-120	0			
Tetrachloroethene	53.03	5.0	50	0	106	79-120	0			
Toluene	51.14	5.0	50	0	102	80-120	0			
trans-1,3-Dichloropropene	47.71	5.0	50	0	95.4	80-120	0			
Trichloroethene	50.72	5.0	50	0	101	80-120	0			
Vinyl acetate	96.6	10	100	0	96.6	67-139	0			
Vinyl chloride	48.68	2.0	50	0	97.4	70-127	0			
Xylenes, Total	157.5	15	150	0	105	80-120	0			
Surr: 1,2-Dichloroethane-d4	46.36	5.0	50	0	92.7	70-125	0			
Surr: 4-Bromofluorobenzene	45.51	5.0	50	0	91	72-125	0			
Surr: Dibromofluoromethane	48.29	5.0	50	0	96.6	71-125	0			
Surr: Toluene-d8	50.53	5.0	50	0	101	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124295 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1202919-01AMS Units: µg/L Analysis Date: 3/2/2012 05:40 PM

Client ID: Run ID: VOA1_120302A SeqNo: 2706987 Prep Date: DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	245.2	25	250	0	98.1	80-120	0			
1,1,2,2-Tetrachloroethane	235.7	25	250	0	94.3	72-120	0			
1,1,2-Trichloroethane	252.6	25	250	0	101	80-120	0			
1,1-Dichloroethane	247.9	25	250	0	99.2	76-120	0			
1,1-Dichloroethene	247.7	25	250	0	99.1	73-124	0			
1,2-Dichloroethane	229.1	25	250	0	91.7	78-120	0			
2-Butanone	491.1	50	500	0	98.2	58-132	0			
2-Chloroethyl vinyl ether	13.89	50	500	0	2.78	74-120	0			JS
2-Hexanone	503.1	50	500	0	101	61-130	0			
4-Methyl-2-pentanone	546.8	50	500	0	109	65-127	0			
Benzene	231.6	25	250	0	92.6	73-121	0			
Bromodichloromethane	245.5	25	250	0	98.2	80-120	0			
Bromoform	256	25	250	0	102	79-120	0			
Bromomethane	233.1	25	250	0	93.2	66-137	0			
Carbon disulfide	469.2	50	500	0	93.8	68-141	0			
Carbon tetrachloride	232.8	25	250	0	93.1	75-124	0			
Chlorobenzene	235.7	25	250	0	94.3	80-120	0			
Chloroethane	244.7	25	250	0	97.9	76-121	0			
Chloroform	235.3	25	250	0	94.1	80-120	0			
Chloromethane	236.2	25	250	0	94.5	67-123	0			
cis-1,3-Dichloropropene	250.5	25	250	0	100	80-120	0			
Dibromochloromethane	244	25	250	0	97.6	80-120	0			
Ethylbenzene	270.4	25	250	0	108	80-120	0			
m,p-Xylene	509.1	50	500	0	102	78-121	0			
Methylene chloride	239.2	50	250	0	95.7	65-133	0			
Styrene	251.4	25	250	0	101	80-120	0			
Tetrachloroethene	257.9	25	250	0	103	79-120	0			
Toluene	249.8	25	250	0	99.9	80-120	0			
trans-1,3-Dichloropropene	249.9	25	250	0	100	80-120	0			
Trichloroethene	266	25	250	19.06	98.8	80-120	0			
Vinyl acetate	504.2	50	500	0	101	67-139	0			
Vinyl chloride	311.6	10	250	63.38	99.3	70-127	0			
Xylenes, Total	765.9	75	750	0	102	80-120	0			
Surr: 1,2-Dichloroethane-d4	236.9	25	250	0	94.8	70-125	0			
Surr: 4-Bromofluorobenzene	243.9	25	250	0	97.6	72-125	0			
Surr: Dibromofluoromethane	254.3	25	250	0	102	71-125	0			
Surr: Toluene-d8	245	25	250	0	98	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124295 Instrument ID VOA1 Method: SW8260

MSD Sample ID: 1202919-01AMSD Units: µg/L Analysis Date: 3/2/2012 06:06 PM

Client ID: Run ID: VOA1_120302A SeqNo: 2706988 Prep Date: DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	209	25	250	0	83.6	80-120	245.2	15.9	20	
1,1,2,2-Tetrachloroethane	238.7	25	250	0	95.5	72-120	235.7	1.3	20	
1,1,2-Trichloroethane	234.6	25	250	0	93.8	80-120	252.6	7.41	20	
1,1-Dichloroethane	242.7	25	250	0	97.1	76-120	247.9	2.12	20	
1,1-Dichloroethene	242.5	25	250	0	97	73-124	247.7	2.13	20	
1,2-Dichloroethane	217.3	25	250	0	86.9	78-120	229.1	5.31	20	
2-Butanone	500.3	50	500	0	100	58-132	491.1	1.86	20	
2-Chloroethyl vinyl ether	ND	50	500	0	0	74-120	13.89	0	20	S
2-Hexanone	493.5	50	500	0	98.7	61-130	503.1	1.93	20	
4-Methyl-2-pentanone	553	50	500	0	111	65-127	546.8	1.14	20	
Benzene	223.9	25	250	0	89.6	73-121	231.6	3.37	20	
Bromodichloromethane	227	25	250	0	90.8	80-120	245.5	7.83	20	
Bromoform	244.1	25	250	0	97.6	79-120	256	4.74	20	
Bromomethane	243.7	25	250	0	97.5	66-137	233.1	4.47	20	
Carbon disulfide	437	50	500	0	87.4	68-141	469.2	7.11	20	
Carbon tetrachloride	207	25	250	0	82.8	75-124	232.8	11.8	20	
Chlorobenzene	223.4	25	250	0	89.4	80-120	235.7	5.35	20	
Chloroethane	230.6	25	250	0	92.2	76-121	244.7	5.96	20	
Chloroform	218.6	25	250	0	87.4	80-120	235.3	7.39	20	
Chloromethane	212.5	25	250	0	85	67-123	236.2	10.6	20	
cis-1,3-Dichloropropene	227	25	250	0	90.8	80-120	250.5	9.84	20	
Dibromochloromethane	241.5	25	250	0	96.6	80-120	244	1.03	20	
Ethylbenzene	229.4	25	250	0	91.7	80-120	270.4	16.4	20	
m,p-Xylene	471.2	50	500	0	94.2	78-121	509.1	7.74	20	
Methylene chloride	228.2	50	250	0	91.3	65-133	239.2	4.71	20	
Styrene	221.8	25	250	0	88.7	80-120	251.4	12.5	20	
Tetrachloroethene	227.9	25	250	0	91.2	79-120	257.9	12.4	20	
Toluene	235.5	25	250	0	94.2	80-120	249.8	5.9	20	
trans-1,3-Dichloropropene	215.2	25	250	0	86.1	80-120	249.9	14.9	20	
Trichloroethene	255.9	25	250	19.06	94.7	80-120	266	3.85	20	
Vinyl acetate	489.3	50	500	0	97.9	67-139	504.2	3	20	
Vinyl chloride	291.3	10	250	63.38	91.2	70-127	311.6	6.72	20	
Xylenes, Total	705.9	75	750	0	94.1	80-120	765.9	8.15	20	
Surr: 1,2-Dichloroethane-d4	229	25	250	0	91.6	70-125	236.9	3.42	20	
Surr: 4-Bromofluorobenzene	233.3	25	250	0	93.3	72-125	243.9	4.47	20	
Surr: Dibromofluoromethane	237.5	25	250	0	95	71-125	254.3	6.83	20	
Surr: Toluene-d8	246	25	250	0	98.4	75-125	245	0.431	20	

The following samples were analyzed in this batch:

1202979-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124374 Instrument ID VOA6 Method: SW8260

MBLK	Sample ID: VBLKW-030512-R124374					Units: µg/L	Analysis Date: 3/5/2012 01:12 PM			
Client ID:	Run ID: VOA6_120305A				SeqNo: 2708657	Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	ND	10								
Surr: 1,2-Dichloroethane-d4	46.97	5.0	50	0	93.9	70-125		0		
Surr: 4-Bromofluorobenzene	49.1	5.0	50	0	98.2	72-125		0		
Surr: Dibromofluoromethane	47.94	5.0	50	0	95.9	71-125		0		
Surr: Toluene-d8	51.92	5.0	50	0	104	75-125		0		

LCS	Sample ID: VLCSW-030512-R124374					Units: µg/L		Analysis Date: 3/5/2012 01:38 PM		
Client ID:	Run ID: VOA6_120305A				SeqNo: 2708660		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	89.15	10	100	0	89.2	59-137	0			
Surr: 1,2-Dichloroethane-d4	45.74	5.0	50	0	91.5	70-125	0			
Surr: 4-Bromofluorobenzene	51.35	5.0	50	0	103	72-125	0			
Surr: Dibromofluoromethane	48.18	5.0	50	0	96.4	71-125	0			
Surr: Toluene-d8	50.13	5.0	50	0	100	75-125	0			

MS	Sample ID: 1203095-01AMS					Units: µg/L		Analysis Date: 3/5/2012 03:24 PM		
Client ID:	Run ID: VOA6_120305A				SeqNo: 2708667		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	65.81	10	100	0	65.8	59-137	0			
Surr: 1,2-Dichloroethane-d4	45.57	5.0	50	0	91.1	70-125	0			
Surr: 4-Bromofluorobenzene	51.48	5.0	50	0	103	72-125	0			
Surr: Dibromofluoromethane	48.3	5.0	50	0	96.6	71-125	0			
Surr: Toluene-d8	50.11	5.0	50	0	100	75-125	0			

MSD	Sample ID: 1203095-01AMSD				Units: µg/L		Analysis Date: 3/5/2012 03:50 PM			
Client ID:	Run ID: VOA6_120305A				SeqNo: 2708669		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acetone	62.66	10	100	0	62.7	59-137	65.81	4.9	20	
Surr: 1,2-Dichloroethane-d4	44.77	5.0	50	0	89.5	70-125	45.57	1.78	20	
Surr: 4-Bromofluorobenzene	51.89	5.0	50	0	104	72-125	51.48	0.796	20	
Surr: Dibromofluoromethane	47.44	5.0	50	0	94.9	71-125	48.3	1.81	20	
Surr: Toluene-d8	50.58	5.0	50	0	101	75-125	50.11	0.945	20	

The following samples were analyzed in this batch: 1202979-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1202979
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R124101** Instrument ID **WetChem** Method: **SW9040**

LCS Sample ID: **WLCSW1-120229-R124101** Units: **pH units** Analysis Date: **2/29/2012 03:00 PM**

Client ID: Run ID: **WETCHEM_120229I** SeqNo: **2703606** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.10	6	0	100	90-110	0			

DUP Sample ID: **1202991-04A dup** Units: **pH units** Analysis Date: **2/29/2012 03:00 PM**

Client ID: Run ID: **WETCHEM_120229I** SeqNo: **2703776** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.29	0.10	0	0	0	0-0	6.28	0.159	20	H

The following samples were analyzed in this batch:

1202979-01D

Client: Navajo Refining Company
Work Order: 1202979
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R124103** Instrument ID **WetChem** Method: **M2510 B**

MBLK Sample ID: **WBLKW1-120229-R124103** Units: **µmhos/cm** Analysis Date: **2/29/2012 04:00 PM**

Client ID: Run ID: **WETCHEM_120229J** SeqNo: **2703614** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **WLCSW1-120229-R124103** Units: **µmhos/cm** Analysis Date: **2/29/2012 04:00 PM**

Client ID: Run ID: **WETCHEM_120229J** SeqNo: **2703615** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1420	1.0	1413		0	100	80-120	0		

DUP Sample ID: **1202979-01DDUP** Units: **µmhos/cm** Analysis Date: **2/29/2012 04:00 PM**

Client ID: **Injection Well Effluent** Run ID: **WETCHEM_120229J** SeqNo: **2703645** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	6030	1.0	0		0	0	5990	0.666	20	

The following samples were analyzed in this batch:

1202979-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124408 Instrument ID Balance1 Method: M2540C

MBLK Sample ID: WBLK-030512-R124408 Units: mg/L Analysis Date: 3/5/2012 07:30 PM

Client ID: Run ID: BALANCE1_120305E SeqNo: 2709353 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: WLCS-030512-R124408 Units: mg/L Analysis Date: 3/5/2012 07:30 PM

Client ID: Run ID: BALANCE1_120305E SeqNo: 2709354 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	984	10	1000	0	98.4	85-115	0			

DUP Sample ID: 12021002-09DDUP Units: mg/L Analysis Date: 3/5/2012 07:30 PM

Client ID: Run ID: BALANCE1_120305E SeqNo: 2709332 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4040	10	0	0	0	0-0	4020	0.496	20	

DUP Sample ID: 1203052-04DDUP Units: mg/L Analysis Date: 3/5/2012 07:30 PM

Client ID: Run ID: BALANCE1_120305E SeqNo: 2709378 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1692	10	0	0	0	0-0	1720	1.64	20	

The following samples were analyzed in this batch: 1202979-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124409 Instrument ID ICS3K2 Method: E300

MBLK Sample ID: WBLKW1-030512-R124409 Units: mg/L Analysis Date: 3/5/2012 06:53 PM

Client ID: Run ID: ICS3K2_120305A SeqNo: 2709381 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.4	0.50								J
Sulfate	0.301	0.50								J
Surr: Selenate (surr)	5.473	0.10	5	0	109	85-115	0			

LCS Sample ID: WLC SW1-030512-R124409 Units: mg/L Analysis Date: 3/5/2012 07:15 PM

Client ID: Run ID: ICS3K2_120305A SeqNo: 2709355 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.32	0.50	20	0	91.6	90-110	0			
Sulfate	18.76	0.50	20	0	93.8	90-110	0			
Surr: Selenate (surr)	5.392	0.10	5	0	108	85-115	0			

LCSD Sample ID: WLCSDW1-030512-R124409 Units: mg/L Analysis Date: 3/5/2012 07:37 PM

Client ID: Run ID: ICS3K2_120305A SeqNo: 2709356 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.37	0.50	20	0	91.9	90-110	18.32	0.311	20	
Sulfate	18.76	0.50	20	0	93.8	90-110	18.76	0.016	20	
Surr: Selenate (surr)	5.368	0.10	5	0	107	85-115	5.392	0.446	20	

MS Sample ID: 1202769-01EMS Units: mg/L Analysis Date: 3/6/2012 02:52 AM

Client ID: Run ID: ICS3K2_120305A SeqNo: 2709371 Prep Date: DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	235.4	5.0	100	135.3	100	80-120	0			
Sulfate	117.7	5.0	100	22.67	95	80-120	0			
Surr: Selenate (surr)	54.24	1.0	50	0	108	85-115	0			

MSD Sample ID: 1202769-01EMSD Units: mg/L Analysis Date: 3/6/2012 03:14 AM

Client ID: Run ID: ICS3K2_120305A SeqNo: 2709373 Prep Date: DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	232.1	5.0	100	135.3	96.8	80-120	235.4	1.4	20	
Sulfate	115.5	5.0	100	22.67	92.8	80-120	117.7	1.87	20	
Surr: Selenate (surr)	53.19	1.0	50	0	106	85-115	54.24	1.95	20	

The following samples were analyzed in this batch:

1202979-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1202979
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R124418** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCS-030612-R124418** Units: °F Analysis Date: **3/6/2012 05:00 PM**

Client ID: Run ID: **WETCHEM_120306G** SeqNo: **2709537** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	84	50	83	0	101	80-120	0			

LCSD Sample ID: **WLCSD-030612-R124418** Units: °F Analysis Date: **3/6/2012 05:00 PM**

Client ID: Run ID: **WETCHEM_120306G** SeqNo: **2709547** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	86	50	83	0	104	80-120	84	2.35	25	

DUP Sample ID: **1202958-01ADUP** Units: °F Analysis Date: **3/6/2012 05:00 PM**

Client ID: Run ID: **WETCHEM_120306G** SeqNo: **2709548** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	78	50	0	0	0	0-0	78	0	25	

The following samples were analyzed in this batch:

1202979-01D

Client: Navajo Refining Company
 Work Order: 1202979
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R124421 Instrument ID WetChem Method: SM2320B

MBLK	Sample ID: WBLKW1-030612-R124421				Units: mg/L		Analysis Date: 3/6/2012 04:36 PM			
Client ID:	Run ID: WETCHEM_120306H				SeqNo: 2709574		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS	Sample ID: WLCSW1-030612-R124421				Units: mg/L		Analysis Date: 3/6/2012 04:36 PM			
Client ID:	Run ID: WETCHEM_120306H				SeqNo: 2709575		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1056	5.0	1000	0	106	80-120	0			

DUP	Sample ID: 1202769-01EDUP					Units: mg/L		Analysis Date: 3/6/2012 04:36 PM		
Client ID:	Run ID: WETCHEM_120306H				SeqNo: 2709587		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	191	5.0	0	0	0	0-0	190.4	0.315	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	191	5.0	0	0	0	0-0	190.4	0.315	20	

The following samples were analyzed in this batch: 1202979-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date: 08-Mar-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1202979

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **29-Feb-12 09:10**

Work Order: **1202979**

Received by: **RNG**

Checklist completed by *Parash M. Cigna*
eSignature

29-Feb-12
Date

Reviewed by: *Mary K. Krambler*
eSignature

29-Feb-12
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>2.2</u> <u>002</u>		
Cooler(s)/Kit(s):	<u>4246</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u>-</u>		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



ALS Laboratory Group
10450 Stancliff Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Chain of Custody Form

Page 1 of 1

1202979

NAVAJO REFINING: Navajo Refining Company

Project: Injection Well Quarterly



ALS Project Manager: Chris Bryson

Customer Information		Project Information	
Purchase Order		Project Name	Injection Well Quarterly
Work Order		Project Number	
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company
Send Report To	Aaron Strange	Invoice Attn	Aaron Strange
Address	P. O. Box 159	Address	501 East Main
City/State/Zip	Artesia, New Mexico 88211-0159	City/State/Zip	Artesia, New Mexico 88210
Phone	(575) 748-3311	Phone	(575) 748-3311
Fax	(575) 746-5451	Fax	(575) 746-5451
e-Mail Address	A.Strange@hollyfrontier.com	e-Mail Address	A.Strange@hollyfrontier.com

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Injection Well Effluent	2/28/11	0940	Liquid	Yes	9	X	X	X	X	X	X	X	X	X		
2	Trip Blank																
3	Temperature Blank																
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s): Please Print & Sign Aaron Strange		Shipment Method: Federal Express		Required Turnaround Time: ☒ STD 10 Wk Days ☐ 5 Wk Days ☐ 2 Wk Days ☐ 24 Hour		Results Due Date:		
Relinquished by: <i>Aaron Strange</i>	Date: 2-28-12	Time: 16:15	Received by: <i>[Signature]</i>		Notes:			
Relinquished by:	Date:	Time:	Received by (Laboratory): <i>[Signature]</i>		Cooler Temp:		QC Package: (Check Box Below)	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):				☐ Level II: Standard QC	TRRP-Checklist
							☐ Level III: Std QC + Raw Data	TRRP Level IV
							☐ Level IV: SW846 CLP-Like	
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035							Other:	

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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**ALS Environmental**

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

D
N
C

CUSTODY SEAL

ate: 2-28-12 Time: 16:15

ame: Aaron Ettinger

ompany: Navajo Refining Co

Seal Broken By:

Date:

2/29/12

Client: ALS Environmental
Project: 1202979
Work Order: 1203018

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1203018-01	1202979-01F	Water		2/28/2012 09:40	3/1/2012 10:30	☐

Client: ALS Environmental
Project: 1202979
WorkOrder: 1203018

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: 06-Mar-12

Client: ALS Environmental
Project: 1202979
Sample ID: 1202979-01F
Collection Date: 2/28/2012 09:40 AM

Work Order: 1203018
Lab ID: 1203018-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: NZ
Cyanide, Reactive	ND		40.0	mg/Kg	1	3/2/2012 11:30 AM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: NZ
Sulfide, Reactive	ND		40.0	mg/Kg	1	3/2/2012 11:30 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 06-Mar-12

Client: ALS Environmental

Work Order: 1203018

Project: 1202979

QC BATCH REPORT

Batch ID: R101907

Instrument ID WETCHEM

Method: SW7.3.4.2

MBLK:	Sample ID: MB-R101907-R101907				Units: mg/Kg		Analysis Date: 3/2/2012 11:30 AM			
Client ID:	Run ID: WETCHEM_120302F				SeqNo: 1913904		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND		40							

The following samples were analyzed in this batch:

1203018-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 1203018
 Project: 1202979

QC BATCH REPORT

Batch ID: R101909 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK	Sample ID: WBLKW1-120301-R101909				Units: mg/Kg		Analysis Date: 3/2/2012 11:30 AM			
Client ID:	Run ID: WETCHEM_120302G				SeqNo: 1913931		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive ND 40

LCS	Sample ID: WLCSW1-120301-R101909				Units: mg/Kg		Analysis Date: 3/2/2012 11:30 AM			
Client ID:	Run ID: WETCHEM_120302G				SeqNo: 1913946		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive 249.6 40 250 0 99.8 75-125 0

LCSD	Sample ID: WLCSDW1-120301-R101909				Units: mg/Kg		Analysis Date: 3/2/2012 11:30 AM			
Client ID:	Run ID: WETCHEM_120302G				SeqNo: 1913958		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive 249.6 40 250 0 99.8 75-125 249.6 0 35

MS	Sample ID: 1202727-01A MS				Units: mg/Kg		Analysis Date: 3/2/2012 11:30 AM			
Client ID:	Run ID: WETCHEM_120302G				SeqNo: 1913948		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive 249.6 40 250 0 99.8 50-150 0

MSD	Sample ID: 1202727-01A MSD				Units: mg/Kg		Analysis Date: 3/2/2012 11:30 AM			
Client ID:	Run ID: WETCHEM_120302G				SeqNo: 1913949		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Cyanide, Reactive 249.6 40 250 0 99.8 50-150 249.6 0 35

The following samples were analyzed in this batch: 1203018-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1203018

**Subcontractor:**

ALS Laboratory Group
3352 128th Ave.

Holland, MI 49424

TEL: (616) 399-6070

FAX: (616) 399-6185

Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 29-Feb-12

COC ID: 11546

Due Date: 06-Mar-12

Salesperson Jeffrey L Croston

Customer Information		Project Information		Parameter/Method Request for Analysis										
Purchase Order		Project Name	1202979	A	Reactive Cyanide (SW-846)									
Work Order		Project Number		B	Reactive Sulfide (SW-846)									
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C										
Send Report To	Patricia L. Lynch	Inv Attn	Accounts Payable	D										
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E										
				F										
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G										
Phone	(281) 530-5656	Phone	(281) 530-5656	H										
Fax	(281) 530-5887	Fax	(281) 530-5887	I										
eMail Address	pat.lynn@alsglobal.com	eMail CC		J										
Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J	
1202979-01F (Injection Well Effluent)	Water	28/Feb/2012 9:40	(1) 1LPNEAT	X	X									

Comments:

Please analyze for reactive cyanide & reactive sulfide. cc Mary.knowles & Yvan.ty@alsglobal.com

WV

Relinquished by: <i>[Signature]</i>	Date/Time: <i>Feb 29/12</i>	Received by: <i>Jason Baron</i>	Date/Time: <i>3/1/12 1030</i>	Cooler IDs: <i>4.0°C</i>	Report/QC Level: <i>Std</i>
Relinquished by:	Date/Time:	Received by:	Date/Time:		

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 01-Mar-12 10:30

Work Order: 1203018

Received by: JB

Checklist completed by Jessica L. Luan
eSignature

01-Mar-12
Date

Reviewed by: Bill Carey
eSignature

01-Mar-12
Date

Matrices: water

Carrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

4.2 C

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☒

N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Seal Broken By:	Date:
CUSTODY SEAL	Time:
ALS Environmental 10450 Stancliff Rd, Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	Company:

ALS Environmental 10450 Stancliff Rd, Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL	Date:
ALS Environmental 10450 Stancliff Rd, Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL	Name:
ALS Environmental 10450 Stancliff Rd, Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL	Company:
ALS Environmental 10450 Stancliff Rd, Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL	Seal Broken By:
ALS Environmental 10450 Stancliff Rd, Suite 210 Houston, Texas 77099 Tel. +1 281 530 5656 Fax. +1 281 530 5887	CUSTODY SEAL	Date:

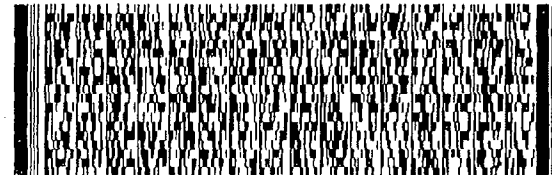
ORIGIN ID: SGRA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 29FEB12
ACTWGT: 15.5 LB
CAD: 300130/CAFE2511

BILL SENDER

TO JEFF GLASER
ALS ENVIRONMENTAL
3352 128TH AVE.

HOLLAND MI 49424
(281) 530-6058
REF: (SUBCONTRACT) PMG



FedEx
Express



111121160000725

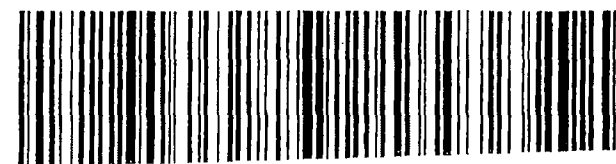
TRK# 4340 2168 6113
0201

THU - 01 MAR A4
PRIORITY OVERNIGHT

NK GRRRA

49424
MI-US GRR

12 155146-404 2172 0201



50001/ALHS/100C



RECEIVED OCD
2012 JAN 26 P 1:00

January 25, 2012

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2011 Fourth Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the fourth quarter of 2011 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for this well. The graduated tank level at WDW-1 dropped between 10/17/2011 and 11/3/2011. A fifty-five gallon drum of antifreeze was added to WDW-1 on 11/3/2011, however it has not dropped any more and there have not been any signs of instrument tubing leaks. An Annulus Pressure Tests (APT) on the WDW-2 well was completed and certified by a third party Engineer on September 26, 2011. The Mechanical Integrity Tests (MIT) on all the wells was done on November 1, 2011. A quarterly Bradenhead for WDW-3 was last done on December 15, 2011, and the test passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

This report covers the period from October 1, 2011 to December 31, 2011. We have disposed a total of 57,654,725 barrels of fluid into the three wells as of December 31, 2011. The volume per well is:

- 31,154,039 barrels into WDW-1
- 17,840,747 barrels into WDW-2
- 8,659,939 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

A handwritten signature in black ink, reading "Michael G. McKee". The signature is fluid and cursive, with the first and last names being more prominent than the middle initial.

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

JEL, RAC, AMS
Navajo: (ART: REF - 4 A 02 D)

Navajo Refining Company, L.L.C.

2011 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1														
Oct-11	725	799	444	130	147	80	401	775	158	4,469	5,028	2,757	138,531	30,708,155
Nov-11	762	831	454	136	149	82	563	889	268	4,657	5,099	2,822	139,708	30,846,686
Dec-11	784	858	642	158	330	107	493	699	256	5,408	11,298	3,652	167,645	30,986,394
WDW-2														
Oct-11	678	758	569	161	173	100	673	954	295	5,512	5,932	3,423	170,861	17,338,756
Nov-11	701	773	475	160	174	99	575	971	176	5,492	5,979	3,378	164,760	17,509,617
Dec-11	711	832	575	157	172	105	446	715	197	5,367	5,882	3,597	166,369	17,674,377
WDW-3														
Oct-11	705	776	416	120	143	0	574	978	233	4,106	4,900	0	127,279	8,260,775
Nov-11	732	815	425	135	256	0	578	883	232	4,626	8,768	0	138,788	8,388,054
Dec-11	775	847	619	125	145	65	432	707	229	4,293	4,969	2,240	133,097	8,526,842
													Total Injected fluids:	
													57,654,725	

2011 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/3/11	10/12/11	10/17/11	10/24/11	11/2/11	11/7/11	11/14/11	11/22/11	11/28/11	12/5/11	12/13/11	12/19/11	12/27/11
WDW -1'	150	150	150	145	125	160	160	160	160	160	160	160	160
WDW-2'	150	150	150	150	150	150	150	150	150	150	150	150	150
WDW-3'	150	150	150	150	150	150	145	145	145	145	145	145	145
Comments: Added 55 gallon drum of antifreeze to WDW-1 on 11/3/2011.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



19-Jan-2012

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1111583

Dear Aaron,

ALS Environmental received 2 samples on 17-Nov-2011 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 30.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Hector Coronado

Patricia L. Lynch
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1111583

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1111583-01	Wastewater Effluent	Water		11/16/2011 09:55	11/17/2011 09:20	☐
1111583-02	Trip Blank - 081911-19	Water		11/16/2011	11/17/2011 09:20	☐

ALS Environmental

Date: 20-Jan-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1111583

Case Narrative

As the pH analyses were performed in the laboratory, the results are H-flagged as appropriate.

Batch 57057, Metals, Sample 1111390-08 : MS/MSD is for an unrelated sample.

Batch 57057, Metals, Sample 1111390-08 : Duplicate RPD is for an unrelated sample.

Batch R119531, Volatile Organics, Sample 1111486-07 : MS/MSD is for an unrelated sample.

Batch R119835, Anions, Sample 1010159-05 : MS/MSD is for an unrelated sample.

ALS Environmental

Date: 19-Jan-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Wastewater Effluent

Collection Date: 11/16/2011 09:55 AM

Work Order: 1111583

Lab ID: 1111583-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
MERCURY			SW7470				Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	11/21/2011	11/21/2011 04:27 PM
METALS			SW6020				Analyst: ALR
Aluminum	0.752		0.0100	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Arsenic	0.0365		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Barium	0.0182		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Boron	0.243		0.0500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Cadmium	ND		0.00200	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Chromium	ND		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Copper	ND		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Lead	ND		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Manganese	0.0213		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Molybdenum	0.0443		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Nickel	ND		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Selenium	0.990		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Silver	ND		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
Zinc	0.0120		0.00500	mg/L	1	11/18/2011	11/22/2011 12:18 PM
SEMIVOLATILES - SW8270D			SW8270				Analyst: JLJ
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
2-Methylnaphthalene	0.040		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
2-Methylphenol	0.29		0.050	mg/L	10	11/22/2011	11/28/2011 02:41 PM
2-Nitroaniline	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
2-Nitrophenol	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
3&4-Methylphenol	0.52		0.050	mg/L	10	11/22/2011	11/28/2011 02:41 PM
3-Nitroaniline	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
4-Nitroaniline	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
4-Nitrophenol	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Acenaphthene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Acenaphthylene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Aniline	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Anthracene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Benzidine	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Hexachloroethane	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Jan-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Wastewater Effluent
Collection Date: 11/16/2011 09:55 AM

Work Order: 1111583
Lab ID: 1111583-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Isophorone	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Naphthalene	0.038		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Nitrobenzene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Pentachlorophenol	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Phenanthrene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Phenol	0.99		0.050	mg/L	10	11/22/2011	11/28/2011 02:41 PM
Pyrene	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Pyridine	ND		0.0050	mg/L	1	11/22/2011	11/26/2011 05:52 PM
Surr: 2,4,6-Tribromophenol	67.3		42-124	%REC	1	11/22/2011	11/26/2011 05:52 PM
Surr: 2,4,6-Tribromophenol	71.1		42-124	%REC	10	11/22/2011	11/28/2011 02:41 PM
Surr: 2-Fluorobiphenyl	81.2		48-120	%REC	10	11/22/2011	11/28/2011 02:41 PM
Surr: 2-Fluorobiphenyl	61.3		48-120	%REC	1	11/22/2011	11/26/2011 05:52 PM
Surr: 2-Fluorophenol	64.9		20-120	%REC	10	11/22/2011	11/28/2011 02:41 PM
Surr: 2-Fluorophenol	60.3		20-120	%REC	1	11/22/2011	11/26/2011 05:52 PM
Surr: 4-Terphenyl-d14	62.6		51-135	%REC	1	11/22/2011	11/26/2011 05:52 PM
Surr: 4-Terphenyl-d14	84.7		51-135	%REC	10	11/22/2011	11/28/2011 02:41 PM
Surr: Nitrobenzene-d5	78.1		41-120	%REC	10	11/22/2011	11/28/2011 02:41 PM
Surr: Nitrobenzene-d5	69.3		41-120	%REC	1	11/22/2011	11/26/2011 05:52 PM
Surr: Phenol-d6	64.0		20-120	%REC	1	11/22/2011	11/26/2011 05:52 PM
Surr: Phenol-d6	73.8		20-120	%REC	10	11/22/2011	11/28/2011 02:41 PM
VOLATILES			SW8260				Analyst: PC
1,1,1-Trichloroethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
2-Butanone	0.010		0.010	mg/L	1		11/18/2011 04:11 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1		11/18/2011 04:11 PM
2-Hexanone	ND		0.010	mg/L	1		11/18/2011 04:11 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1		11/18/2011 04:11 PM
Acetone	0.20		0.010	mg/L	1		11/18/2011 04:11 PM
Benzene	0.20		0.0050	mg/L	1		11/18/2011 04:11 PM
Bromodichloromethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Bromoform	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Bromomethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Carbon disulfide	ND		0.010	mg/L	1		11/18/2011 04:11 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Jan-12

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Wastewater Effluent
Collection Date: 11/16/2011 09:55 AM

Work Order: 1111583
Lab ID: 1111583-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Carbon tetrachloride	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Chlorobenzene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Chloroethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Chloroform	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Chloromethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Dibromochloromethane	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Ethylbenzene	0.19		0.025	mg/L	5		11/20/2011 02:55 PM
m,p-Xylene	0.36		0.050	mg/L	5		11/20/2011 02:55 PM
Methylene chloride	ND		0.010	mg/L	1		11/18/2011 04:11 PM
Styrene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Tetrachloroethene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Toluene	0.51		0.025	mg/L	5		11/20/2011 02:55 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Trichloroethene	ND		0.0050	mg/L	1		11/18/2011 04:11 PM
Vinyl acetate	ND		0.010	mg/L	1		11/18/2011 04:11 PM
Vinyl chloride	ND		0.0020	mg/L	1		11/18/2011 04:11 PM
Xylenes, Total	0.56		0.075	mg/L	5		11/20/2011 02:55 PM
Surr: 1,2-Dichloroethane-d4	98.9		70-125	%REC	1		11/18/2011 04:11 PM
Surr: 1,2-Dichloroethane-d4	105		70-125	%REC	5		11/20/2011 02:55 PM
Surr: 4-Bromofluorobenzene	99.2		72-125	%REC	1		11/18/2011 04:11 PM
Surr: 4-Bromofluorobenzene	104		72-125	%REC	5		11/20/2011 02:55 PM
Surr: Dibromofluoromethane	95.1		71-125	%REC	1		11/18/2011 04:11 PM
Surr: Dibromofluoromethane	96.3		71-125	%REC	5		11/20/2011 02:55 PM
Surr: Toluene-d8	104		75-125	%REC	1		11/18/2011 04:11 PM
Surr: Toluene-d8	96.6		75-125	%REC	5		11/20/2011 02:55 PM
REACTIVE CYANIDE			SW-846				Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1		11/28/2011 11:00 AM
REACTIVE SULFIDE			SW-846				Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1		11/28/2011 11:00 AM
ANIONS - EPA 300.0 (1993)			E300				Analyst: JKP
Chloride	332		5.00	mg/L	10		11/26/2011 07:07 PM
Sulfate	2,350		500	mg/L	1000		11/26/2011 07:21 PM
Surr: Selenate (surr)	101		85-115	%REC	10		11/26/2011 07:07 PM
Surr: Selenate (surr)	103		85-115	%REC	1000		11/26/2011 07:21 PM
ALKALINITY			SM2320B				Analyst: DM
Alkalinity, Bicarbonate (As CaCO3)	217		5.00	mg/L	1		11/23/2011 07:55 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1		11/23/2011 07:55 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1		11/23/2011 07:55 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Jan-12

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Wastewater Effluent

Collection Date: 11/16/2011 09:55 AM

Work Order: 1111583

Lab ID: 1111583-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Prep	Date Analyzed
Alkalinity, Total (As CaCO ₃)	217			5.00 mg/L	1		11/23/2011 07:55 AM
SPECIFIC CONDUCTIVITY			M2510 B				Analyst: TDW
Specific Conductivity	5,430			1.00 µmhos/cm	1		11/17/2011 11:00 AM
IGNITIBILITY			SW1010				Analyst: KAH
Ignitability	> 212			50.0 °F	1		11/22/2011 02:00 PM
PH			SW9040				Analyst: TDW
pH	7.52	H		0.100 pH units	1		11/17/2011 05:00 PM
TOTAL DISSOLVED SOLIDS			M2540C				Analyst: TDW
Total Dissolved Solids (Residue, Filterable)	4,840			10.0 mg/L	1		11/22/2011 01:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 19-Jan-12

Client: Navajo Refining Company
Work Order: 1111583
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **57057** Instrument ID **ICP7500** Method: **SW6020**

MBLK Sample ID: **MBLKW2-111811-57057** Units: mg/L Analysis Date: **11/22/2011 10:34 AM**

Client ID: Run ID: **ICP7500_111121A** SeqNo: **2605832** Prep Date: **11/18/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Boron	ND	0.050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	ND	0.0050								

LCS Sample ID: **MLCSW2-111811-57057** Units: mg/L Analysis Date: **11/22/2011 10:41 AM**

Client ID: Run ID: **ICP7500_111121A** SeqNo: **2605833** Prep Date: **11/18/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.08542	0.010	0.1	0	85.4	80-120	0			
Arsenic	0.04772	0.0050	0.05	0	95.4	80-120	0			
Barium	0.04664	0.0050	0.05	0	93.3	80-120	0			
Boron	0.4456	0.050	0.5	0	89.1	80-120	0			
Cadmium	0.04654	0.0020	0.05	0	93.1	80-120	0			
Chromium	0.04816	0.0050	0.05	0	96.3	80-120	0			
Copper	0.04947	0.0050	0.05	0	98.9	80-120	0			
Lead	0.04699	0.0050	0.05	0	94	80-120	0			
Manganese	0.04675	0.0050	0.05	0	93.5	80-120	0			
Molybdenum	0.04685	0.0050	0.05	0	93.7	80-120	0			
Nickel	0.04932	0.0050	0.05	0	98.6	80-120	0			
Selenium	0.04761	0.0050	0.05	0	95.2	80-120	0			
Silver	0.04781	0.0050	0.05	0	95.6	80-120	0			
Zinc	0.0496	0.0050	0.05	0	99.2	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 1 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 57057 Instrument ID ICP7500 Method: SW6020

MS Sample ID: 1111390-08AMS Units: mg/L Analysis Date: 11/22/2011 11:05 AM

Client ID: Run ID: ICP7500_111121A SeqNo: 2605837 Prep Date: 11/18/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.244	0.010	0.1	0.9386	305	80-120	0			SO
Arsenic	0.04959	0.0050	0.05	0.0003986	98.4	80-120	0			
Barium	0.1512	0.0050	0.05	0.09717	108	80-120	0			
Boron	0.5634	0.050	0.5	0.0937	93.9	80-120	0			
Cadmium	0.0498	0.0020	0.05	-0.00005398	99.7	80-120	0			
Chromium	0.05153	0.0050	0.05	0.002447	98.2	80-120	0			
Copper	0.0508	0.0050	0.05	0.0001189	101	80-120	0			
Lead	0.05001	0.0050	0.05	0.0005021	99	80-120	0			
Manganese	0.07247	0.0050	0.05	0.02521	94.5	80-120	0			
Molybdenum	0.05705	0.0050	0.05	0.008842	96.4	80-120	0			
Nickel	0.05106	0.0050	0.05	0.001692	98.7	80-120	0			
Selenium	0.0478	0.0050	0.05	-0.0002051	96	80-120	0			
Silver	0.04711	0.0050	0.05	-0.00001074	94.2	80-120	0			
Zinc	0.07134	0.0050	0.05	0.0102	122	80-120	0			S

MSD Sample ID: 1111390-08AMS Units: mg/L Analysis Date: 11/22/2011 11:11 AM

Client ID: Run ID: ICP7500_111121A SeqNo: 2605838 Prep Date: 11/18/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.257	0.010	0.1	0.9386	318	80-120	1.244	1.04	15	SO
Arsenic	0.04691	0.0050	0.05	0.0003986	93	80-120	0.04959	5.55	15	
Barium	0.1373	0.0050	0.05	0.09717	80.3	80-120	0.1512	9.64	15	
Boron	0.531	0.050	0.5	0.0937	87.5	80-120	0.5634	5.92	15	
Cadmium	0.04426	0.0020	0.05	-0.00005398	88.6	80-120	0.0498	11.8	15	
Chromium	0.04706	0.0050	0.05	0.002447	89.2	80-120	0.05153	9.07	15	
Copper	0.04582	0.0050	0.05	0.0001189	91.4	80-120	0.0508	10.3	15	
Lead	0.04571	0.0050	0.05	0.0005021	90.4	80-120	0.05001	8.98	15	
Manganese	0.06794	0.0050	0.05	0.02521	85.5	80-120	0.07247	6.45	15	
Molybdenum	0.05391	0.0050	0.05	0.008842	90.1	80-120	0.05705	5.66	15	
Nickel	0.04777	0.0050	0.05	0.001692	92.2	80-120	0.05106	6.66	15	
Selenium	0.04411	0.0050	0.05	-0.0002051	88.6	80-120	0.0478	8.03	15	
Silver	0.04425	0.0050	0.05	-0.00001074	88.5	80-120	0.04711	6.26	15	
Zinc	0.08208	0.0050	0.05	0.0102	144	80-120	0.07134	14	15	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 2 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 57057 Instrument ID ICP7500 Method: SW6020

DUP Sample ID: 1111390-08ADUP Units: mg/L Analysis Date: 11/22/2011 10:53 AM

Client ID: Run ID: ICP7500_111121A SeqNo: 2605835 Prep Date: 11/18/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.8653	0.010	0	0	0	0-0	0.9386	8.13	25	
Arsenic	ND	0.0050	0	0	0	0-0	0.0003986	0	25	
Barium	0.09977	0.0050	0	0	0	0-0	0.09717	2.64	25	
Boron	0.09386	0.050	0	0	0	0-0	0.0937	0.171	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.00005398	0	25	
Chromium	0.001914	0.0050	0	0	0	0-0	0.002447	0	25	J
Copper	ND	0.0050	0	0	0	0-0	0.0001189	0	25	
Lead	ND	0.0050	0	0	0	0-0	0.0005021	0	25	
Manganese	0.02533	0.0050	0	0	0	0-0	0.02521	0.475	25	
Molybdenum	0.008869	0.0050	0	0	0	0-0	0.008842	0.305	25	
Nickel	0.001596	0.0050	0	0	0	0-0	0.001692	0	25	J
Selenium	ND	0.0050	0	0	0	0-0	-0.0002051	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.00001074	0	25	
Zinc	0.007601	0.0050	0	0	0	0-0	0.0102	29.2	25	R

The following samples were analyzed in this batch:

1111583-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 3 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 57092 Instrument ID Mercury Method: SW7470

MBLK Sample ID: GBLKW1-112111-57092 Units: mg/L Analysis Date: 11/21/2011 03:41 PM

Client ID: Run ID: MERCURY_111121A SeqNo: 2604989 Prep Date: 11/21/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW1-112111-57092 Units: mg/L Analysis Date: 11/21/2011 03:43 PM

Client ID: Run ID: MERCURY_111121A SeqNo: 2604990 Prep Date: 11/21/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0051	0.00020	0.005	0	102	85-115	0			

MS Sample ID: 1111650-06CMS Units: mg/L Analysis Date: 11/21/2011 03:52 PM

Client ID: Run ID: MERCURY_111121A SeqNo: 2604993 Prep Date: 11/21/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00495	0.00020	0.005	0.000003	98.9	85-115	0			

MSD Sample ID: 1111650-06CMSD Units: mg/L Analysis Date: 11/21/2011 03:54 PM

Client ID: Run ID: MERCURY_111121A SeqNo: 2604994 Prep Date: 11/21/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00494	0.00020	0.005	0.000003	98.7	85-115	0.00495	0.202	20	

DUP Sample ID: 1111650-06CDUP Units: mg/L Analysis Date: 11/21/2011 03:50 PM

Client ID: Run ID: MERCURY_111121A SeqNo: 2604992 Prep Date: 11/21/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000003	0	20	

The following samples were analyzed in this batch: 1111583-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 57144 Instrument ID SV-3 Method: SW8270

MBLK Sample ID: SBLKW2-111122-57144 Units: µg/L Analysis Date: 11/26/2011 12:20 PM

Client ID: Run ID: SV-3_111126A SeqNo: 2610980 Prep Date: 11/22/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	63.24	5.0	100	0	63.2	42-124	0			
Surr: 2-Fluorobiphenyl	69.15	5.0	100	0	69.1	48-120	0			
Surr: 2-Fluorophenol	63.19	5.0	100	0	63.2	20-120	0			
Surr: 4-Terphenyl-d14	74.18	5.0	100	0	74.2	51-135	0			
Surr: Nitrobenzene-d5	79.25	5.0	100	0	79.2	41-120	0			
Surr: Phenol-d6	64.16	5.0	100	0	64.2	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 5 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 57144 Instrument ID SV-3 Method: SW8270

LCS Sample ID: SLCSW2-111122-57144 Units: µg/L Analysis Date: 11/26/2011 12:44 PM

Client ID: Run ID: SV-3_111126A SeqNo: 2610981 Prep Date: 11/22/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.7	5.0	50	0	87.4	50-120	0			
2,4,5-Trichlorophenol	76.5	5.0	100	0	76.5	50-120	0			
2,4,6-Trichlorophenol	73.36	5.0	100	0	73.4	50-120	0			
2,4-Dinitrotoluene	44.89	5.0	50	0	89.8	50-120	0			
2-Methylnaphthalene	44.2	5.0	50	0	88.4	55-120	0			
2-Methylphenol	81.1	5.0	100	0	81.1	50-120	0			
2-Nitroaniline	48.86	5.0	50	0	97.7	55-120	0			
2-Nitrophenol	81.31	5.0	100	0	81.3	55-120	0			
3&4-Methylphenol	118.5	5.0	150	0	79	55-120	0			
3-Nitroaniline	35.31	5.0	50	0	70.6	40-120	0			
4-Nitroaniline	40.52	5.0	50	0	81	50-120	0			
4-Nitrophenol	107.2	5.0	100	0	107	45-120	0			
Acenaphthene	47.07	5.0	50	0	94.1	55-120	0			
Acenaphthylene	44.62	5.0	50	0	89.2	55-120	0			
Aniline	19.65	5.0	50	0	39.3	30-120	0			
Anthracene	49.81	5.0	50	0	99.6	55-120	0			
Benz(a)anthracene	45.96	5.0	50	0	91.9	55-120	0			
Benzidine	15.78	5.0	50	0	31.6	10-120	0			
Hexachlorobenzene	43.44	5.0	50	0	86.9	55-120	0			
Hexachloroethane	47.28	5.0	50	0	94.6	55-120	0			
Indeno(1,2,3-cd)pyrene	47.86	5.0	50	0	95.7	55-120	0			
Isophorone	46.51	5.0	50	0	93	55-120	0			
Naphthalene	45.36	5.0	50	0	90.7	55-120	0			
Nitrobenzene	48.59	5.0	50	0	97.2	55-120	0			
N-Nitrosodimethylamine	41.92	5.0	50	0	83.8	45-120	0			
N-Nitrosodi-n-propylamine	38.49	5.0	50	0	77	50-120	0			
N-Nitrosodiphenylamine	50.64	5.0	50	0	101	55-120	0			
Pentachlorophenol	75.27	5.0	100	0	75.3	55-120	0			
Phenanthrene	47.17	5.0	50	0	94.3	55-120	0			
Phenol	79.61	5.0	100	0	79.6	50-120	0			
Pyrene	48.99	5.0	50	0	98	55-120	0			
Pyridine	33.5	5.0	50	0	67	35-120	0			
Surr: 2,4,6-Tribromophenol	65.97	5.0	100	0	66	42-124	0			
Surr: 2-Fluorobiphenyl	73.06	5.0	100	0	73.1	48-120	0			
Surr: 2-Fluorophenol	80.4	5.0	100	0	80.4	20-120	0			
Surr: 4-Terphenyl-d14	69.78	5.0	100	0	69.8	51-135	0			
Surr: Nitrobenzene-d5	84.41	5.0	100	0	84.4	41-120	0			
Surr: Phenol-d6	75.11	5.0	100	0	75.1	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 6 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 57144 Instrument ID SV-3 Method: SW8270

LCSD Sample ID: SLCSDW2-111122-57144 Units: µg/L Analysis Date: 11/26/2011 01:55 PM

Client ID: Run ID: SV-3_111126A SeqNo: 2610982 Prep Date: 11/22/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	44.14	5.0	50	0	88.3	50-120	43.7	1.01	20	
2,4,5-Trichlorophenol	81.01	5.0	100	0	81	50-120	76.5	5.73	20	
2,4,6-Trichlorophenol	73.32	5.0	100	0	73.3	50-120	73.36	0.0553	20	
2,4-Dinitrotoluene	41.89	5.0	50	0	83.8	50-120	44.89	6.92	20	
2-Methylnaphthalene	43.62	5.0	50	0	87.2	55-120	44.2	1.33	20	
2-Methylphenol	80.35	5.0	100	0	80.4	50-120	81.1	0.932	20	
2-Nitroaniline	48	5.0	50	0	96	55-120	48.86	1.79	20	
2-Nitrophenol	80.26	5.0	100	0	80.3	55-120	81.31	1.29	20	
3&4-Methylphenol	115.5	5.0	150	0	77	55-120	118.5	2.57	20	
3-Nitroaniline	31.72	5.0	50	0	63.4	40-120	35.31	10.7	20	
4-Nitroaniline	39.87	5.0	50	0	79.7	50-120	40.52	1.63	20	
4-Nitrophenol	91.52	5.0	100	0	91.5	45-120	107.2	15.8	20	
Acenaphthene	46	5.0	50	0	92	55-120	47.07	2.28	20	
Acenaphthylene	43.81	5.0	50	0	87.6	55-120	44.62	1.84	20	
Aniline	20.19	5.0	50	0	40.4	30-120	19.65	2.7	20	
Anthracene	49.76	5.0	50	0	99.5	55-120	49.81	0.0999	20	
Benz(a)anthracene	44.47	5.0	50	0	88.9	55-120	45.96	3.31	20	
Benzidine	18.44	5.0	50	0	36.9	10-120	15.78	15.6	20	
Hexachlorobenzene	43.97	5.0	50	0	87.9	55-120	43.44	1.19	20	
Hexachloroethane	48.09	5.0	50	0	96.2	55-120	47.28	1.7	20	
Indeno(1,2,3-cd)pyrene	50.61	5.0	50	0	101	55-120	47.86	5.59	20	
Isophorone	45.94	5.0	50	0	91.9	55-120	46.51	1.23	20	
Naphthalene	45.79	5.0	50	0	91.6	55-120	45.36	0.941	20	
Nitrobenzene	48.04	5.0	50	0	96.1	55-120	48.59	1.13	20	
N-Nitrosodimethylamine	41.76	5.0	50	0	83.5	45-120	41.92	0.379	20	
N-Nitrosodi-n-propylamine	39.98	5.0	50	0	80	50-120	38.49	3.8	20	
N-Nitrosodiphenylamine	51.99	5.0	50	0	104	55-120	50.64	2.62	20	
Pentachlorophenol	75.11	5.0	100	0	75.1	55-120	75.27	0.209	20	
Phenanthrene	47.52	5.0	50	0	95	55-120	47.17	0.75	20	
Phenol	79.27	5.0	100	0	79.3	50-120	79.61	0.433	20	
Pyrene	44.21	5.0	50	0	88.4	55-120	48.99	10.3	20	
Pyridine	32.9	5.0	50	0	65.8	35-120	33.5	1.81	20	
Surr: 2,4,6-Tribromophenol	63.56	5.0	100	0	63.6	42-124	65.97	3.72	20	
Surr: 2-Fluorobiphenyl	76.86	5.0	100	0	76.9	48-120	73.06	5.07	20	
Surr: 2-Fluorophenol	81.88	5.0	100	0	81.9	20-120	80.4	1.81	20	
Surr: 4-Terphenyl-d14	67.27	5.0	100	0	67.3	51-135	69.78	3.66	20	
Surr: Nitrobenzene-d5	83.57	5.0	100	0	83.6	41-120	84.41	0.997	20	
Surr: Phenol-d6	74.67	5.0	100	0	74.7	20-120	75.11	0.58	20	

The following samples were analyzed in this batch:

1111583-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 7 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119531 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-111811-R119531 Units: µg/L Analysis Date: 11/18/2011 11:30 AM

Client ID: Run ID: VOA1_111118A SeqNo: 2603465 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Surr: 1,2-Dichloroethane-d4	52.89	5.0	50	0	106	70-125	0			
Surr: 4-Bromofluorobenzene	47.57	5.0	50	0	95.1	72-125	0			
Surr: Dibromofluoromethane	49.37	5.0	50	0	98.7	71-125	0			
Surr: Toluene-d8	50.55	5.0	50	0	101	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 8 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119531 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-111811-R119531 Units: µg/L Analysis Date: 11/18/2011 10:39 AM

Client ID: Run ID: VOA1_111118A SeqNo: 2603464 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.08	5.0	50	0	96.2	80-120	0			
1,1,2,2-Tetrachloroethane	47.11	5.0	50	0	94.2	72-120	0			
1,1,2-Trichloroethane	48.34	5.0	50	0	96.7	80-120	0			
1,1-Dichloroethane	52.07	5.0	50	0	104	76-120	0			
1,1-Dichloroethene	51.37	5.0	50	0	103	73-124	0			
1,2-Dichloroethane	49.44	5.0	50	0	98.9	78-120	0			
2-Butanone	94.48	10	100	0	94.5	58-132	0			
2-Chloroethyl vinyl ether	95.22	10	100	0	95.2	74-120	0			
2-Hexanone	90.38	10	100	0	90.4	61-130	0			
4-Methyl-2-pentanone	102.4	10	100	0	102	65-127	0			
Acetone	80.79	10	100	0	80.8	59-137	0			
Benzene	48.71	5.0	50	0	97.4	73-121	0			
Bromodichloromethane	49.34	5.0	50	0	98.7	80-120	0			
Bromoform	46.9	5.0	50	0	93.8	79-120	0			
Bromomethane	51.42	5.0	50	0	103	66-137	0			
Carbon disulfide	99.99	10	100	0	100	68-141	0			
Carbon tetrachloride	48.22	5.0	50	0	96.4	75-124	0			
Chlorobenzene	48.41	5.0	50	0	96.8	80-120	0			
Chloroethane	53.54	5.0	50	0	107	76-121	0			
Chloroform	51.08	5.0	50	0	102	80-120	0			
Chloromethane	45.6	5.0	50	0	91.2	67-123	0			
cis-1,3-Dichloropropene	52.66	5.0	50	0	105	80-120	0			
Dibromochloromethane	53.64	5.0	50	0	107	80-120	0			
Methylene chloride	44.96	10	50	0	89.9	65-133	0			
Styrene	50.95	5.0	50	0	102	80-120	0			
Tetrachloroethene	48.08	5.0	50	0	96.2	79-120	0			
trans-1,3-Dichloropropene	46.09	5.0	50	0	92.2	80-120	0			
Trichloroethene	49.24	5.0	50	0	98.5	80-120	0			
Vinyl acetate	97.51	10	100	0	97.5	67-139	0			
Vinyl chloride	47.95	2.0	50	0	95.9	70-127	0			
Surr: 1,2-Dichloroethane-d4	48.56	5.0	50	0	97.1	70-125	0			
Surr: 4-Bromofluorobenzene	49.45	5.0	50	0	98.9	72-125	0			
Surr: Dibromofluoromethane	49.06	5.0	50	0	98.1	71-125	0			
Surr: Toluene-d8	51.1	5.0	50	0	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 9 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119531 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1111486-07AMS Units: µg/L Analysis Date: 11/18/2011 02:03 PM

Client ID: Run ID: VOA1_111118A SeqNo: 2603470 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.49	5.0	50	0	91	80-120	0			
1,1,2,2-Tetrachloroethane	47.57	5.0	50	0	95.1	72-120	0			
1,1,2-Trichloroethane	51.12	5.0	50	0	102	80-120	0			
1,1-Dichloroethane	50.47	5.0	50	0	101	76-120	0			
1,1-Dichloroethene	43.64	5.0	50	0	87.3	73-124	0			
1,2-Dichloroethane	50.25	5.0	50	0	100	78-120	0			
2-Butanone	92.2	10	100	0	92.2	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	96.22	10	100	0	96.2	61-130	0			
4-Methyl-2-pentanone	110.5	10	100	0	110	65-127	0			
Acetone	70.04	10	100	0	70	59-137	0			
Benzene	49	5.0	50	0	98	73-121	0			
Bromodichloromethane	51.57	5.0	50	0	103	80-120	0			
Bromoform	47.36	5.0	50	0	94.7	79-120	0			
Bromomethane	38.91	5.0	50	0	77.8	66-137	0			
Carbon disulfide	90.98	10	100	0	91	68-141	0			
Carbon tetrachloride	43.95	5.0	50	0	87.9	75-124	0			
Chlorobenzene	46.83	5.0	50	0	93.7	80-120	0			
Chloroethane	45.49	5.0	50	0	91	76-121	0			
Chloroform	51.98	5.0	50	0	104	80-120	0			
Chloromethane	42.62	5.0	50	0	85.2	67-123	0			
cis-1,3-Dichloropropene	51.24	5.0	50	0	102	80-120	0			
Dibromochloromethane	52.88	5.0	50	0	106	80-120	0			
Methylene chloride	48.91	10	50	0	97.8	65-133	0			
Styrene	51.07	5.0	50	0	102	80-120	0			
Tetrachloroethene	45.21	5.0	50	0	90.4	79-120	0			
trans-1,3-Dichloropropene	45.32	5.0	50	0	90.6	80-120	0			
Trichloroethene	49.06	5.0	50	0	98.1	80-120	0			
Vinyl acetate	99.24	10	100	0	99.2	67-139	0			
Vinyl chloride	44.28	2.0	50	0	88.6	70-127	0			
Surr: 1,2-Dichloroethane-d4	51.74	5.0	50	0	103	70-125	0			
Surr: 4-Bromofluorobenzene	50.48	5.0	50	0	101	72-125	0			
Surr: Dibromofluoromethane	51.01	5.0	50	0	102	71-125	0			
Surr: Toluene-d8	48.63	5.0	50	0	97.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

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Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119531 Instrument ID VOA1 Method: SW8260

MSD Sample ID: 1111486-07AMSD Units: µg/L Analysis Date: 11/18/2011 02:29 PM

Client ID: Run ID: VOA1_111118A SeqNo: 2603471 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.74	5.0	50	0	97.5	80-120	45.49	6.88	20	
1,1,2,2-Tetrachloroethane	48.94	5.0	50	0	97.9	72-120	47.57	2.83	20	
1,1,2-Trichloroethane	51.1	5.0	50	0	102	80-120	51.12	0.0563	20	
1,1-Dichloroethane	53.13	5.0	50	0	106	76-120	50.47	5.12	20	
1,1-Dichloroethene	48.9	5.0	50	0	97.8	73-124	43.64	11.4	20	
1,2-Dichloroethane	50.75	5.0	50	0	102	78-120	50.25	1	20	
2-Butanone	89	10	100	0	89	58-132	92.2	3.53	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	95.51	10	100	0	95.5	61-130	96.22	0.74	20	
4-Methyl-2-pentanone	110.3	10	100	0	110	65-127	110.5	0.208	20	
Acetone	69.56	10	100	0	69.6	59-137	70.04	0.686	20	
Benzene	48.98	5.0	50	0	98	73-121	49	0.0449	20	
Bromodichloromethane	51.44	5.0	50	0	103	80-120	51.57	0.257	20	
Bromoform	47.7	5.0	50	0	95.4	79-120	47.36	0.719	20	
Bromomethane	47.39	5.0	50	0	94.8	66-137	38.91	19.7	20	
Carbon disulfide	98.16	10	100	0	98.2	68-141	90.98	7.59	20	
Carbon tetrachloride	47.55	5.0	50	0	95.1	75-124	43.95	7.87	20	
Chlorobenzene	50.29	5.0	50	0	101	80-120	46.83	7.14	20	
Chloroethane	50.05	5.0	50	0	100	76-121	45.49	9.54	20	
Chloroform	50.43	5.0	50	0	101	80-120	51.98	3.03	20	
Chloromethane	43.85	5.0	50	0	87.7	67-123	42.62	2.86	20	
cis-1,3-Dichloropropene	52.56	5.0	50	0	105	80-120	51.24	2.54	20	
Dibromochloromethane	53.58	5.0	50	0	107	80-120	52.88	1.31	20	
Methylene chloride	48.7	10	50	0	97.4	65-133	48.91	0.434	20	
Styrene	51.58	5.0	50	0	103	80-120	51.07	0.997	20	
Tetrachloroethene	48.19	5.0	50	0	96.4	79-120	45.21	6.38	20	
trans-1,3-Dichloropropene	48.66	5.0	50	0	97.3	80-120	45.32	7.1	20	
Trichloroethene	47.91	5.0	50	0	95.8	80-120	49.06	2.37	20	
Vinyl acetate	104.3	10	100	0	104	67-139	99.24	4.99	20	
Vinyl chloride	46.25	2.0	50	0	92.5	70-127	44.28	4.35	20	
Surr: 1,2-Dichloroethane-d4	51.88	5.0	50	0	104	70-125	51.74	0.281	20	
Surr: 4-Bromofluorobenzene	50.71	5.0	50	0	101	72-125	50.48	0.461	20	
Surr: Dibromofluoromethane	51.28	5.0	50	0	103	71-125	51.01	0.514	20	
Surr: Toluene-d8	50.04	5.0	50	0	100	75-125	48.63	2.85	20	

The following samples were analyzed in this batch:

1111583-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 11 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119544 Instrument ID VOA6 Method: SW8260

MBLK Sample ID: VBLKW-112011-R119544 Units: µg/L Analysis Date: 11/20/2011 12:42 PM

Client ID: Run ID: VOA6_111120A SeqNo: 2603885 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
o-Xylene	ND	5.0								
Toluene	ND	5.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	54.48	5.0	50	0	109	70-125	0			
Surr: 4-Bromofluorobenzene	52.03	5.0	50	0	104	72-125	0			
Surr: Dibromofluoromethane	49.01	5.0	50	0	98	71-125	0			
Surr: Toluene-d8	49.03	5.0	50	0	98.1	75-125	0			

LCS Sample ID: VLCSW-112011-R119544 Units: µg/L Analysis Date: 11/20/2011 11:50 AM

Client ID: Run ID: VOA6_111120A SeqNo: 2603884 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	46.04	5.0	50	0	92.1	80-120	0			
m,p-Xylene	91.66	10	100	0	91.7	78-121	0			
o-Xylene	45.82	5.0	50	0	91.6	80-120	0			
Toluene	46.25	5.0	50	0	92.5	80-120	0			
Xylenes, Total	137.5	15	150	0	91.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	50.48	5.0	50	0	101	70-125	0			
Surr: 4-Bromofluorobenzene	51.71	5.0	50	0	103	72-125	0			
Surr: Dibromofluoromethane	47.84	5.0	50	0	95.7	71-125	0			
Surr: Toluene-d8	48.55	5.0	50	0	97.1	75-125	0			

MS Sample ID: 1111481-01ZMS Units: µg/L Analysis Date: 11/20/2011 02:02 PM

Client ID: Run ID: VOA6_111120A SeqNo: 2603888 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	44.88	5.0	50	0	89.8	80-120	0			
m,p-Xylene	90.2	10	100	0	90.2	78-121	0			
o-Xylene	45.02	5.0	50	0	90	80-120	0			
Toluene	45.08	5.0	50	0	90.2	80-120	0			
Xylenes, Total	135.2	15	150	0	90.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	51.1	5.0	50	0	102	70-125	0			
Surr: 4-Bromofluorobenzene	51.96	5.0	50	0	104	72-125	0			
Surr: Dibromofluoromethane	47.94	5.0	50	0	95.9	71-125	0			
Surr: Toluene-d8	48.69	5.0	50	0	97.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 12 of 19

Client: Navajo Refining Company
Work Order: 1111583
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119544 Instrument ID VOA6 Method: SW8260

MSD Sample ID: 1111481-01ZMSD Units: µg/L Analysis Date: 11/20/2011 02:28 PM

Client ID: Run ID: VOA6_111120A SeqNo: 2603889 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ethylbenzene	44.03	5.0	50	0	88.1	80-120	44.88	1.91	20	
m,p-Xylene	87.66	10	100	0	87.7	78-121	90.2	2.85	20	
o-Xylene	44.45	5.0	50	0	88.9	80-120	45.02	1.28	20	
Toluene	45	5.0	50	0	90	80-120	45.08	0.171	20	
Xylenes, Total	132.1	15	150	0	88.1	80-120	135.2	2.32	20	
Surr: 1,2-Dichloroethane-d4	51.4	5.0	50	0	103	70-125	51.1	0.585	20	
Surr: 4-Bromofluorobenzene	51.23	5.0	50	0	102	72-125	51.96	1.4	20	
Surr: Dibromofluoromethane	48.14	5.0	50	0	96.3	71-125	47.94	0.414	20	
Surr: Toluene-d8	48.74	5.0	50	0	97.5	75-125	48.69	0.102	20	

The following samples were analyzed in this batch:

1111583-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 13 of 19

Client: Navajo Refining Company
Work Order: 1111583
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R119462** Instrument ID **WetChem** Method: **M2510 B**

MBLK Sample ID: **WBLKW1-111711-R119462** Units: **µmhos/cm** Analysis Date: **11/17/2011 11:00 AM**

Client ID: Run ID: **WETCHEM_111117F** SeqNo: **2601279** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **WLCSW1-111711-R119462** Units: **µmhos/cm** Analysis Date: **11/17/2011 11:00 AM**

Client ID: Run ID: **WETCHEM_111117F** SeqNo: **2601280** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1450	1.0	1413	0	103	80-120	0			

DUP Sample ID: **1111560-01BDUP** Units: **µmhos/cm** Analysis Date: **11/17/2011 11:00 AM**

Client ID: Run ID: **WETCHEM_111117F** SeqNo: **2601306** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	624	1.0	0	0	0		616	1.29	20	

The following samples were analyzed in this batch:

1111583-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1111583
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R119505** Instrument ID **WetChem** Method: **SW9040**

LCS Sample ID: **WLCSW1-111711-R119505** Units: **pH units** Analysis Date: **11/17/2011 05:00 PM**

Client ID: Run ID: **WETCHEM_1111171** SeqNo: **2602234** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.04	0.10	6	0	101	90-110	0			

DUP Sample ID: **1111611-01ADUPZ** Units: **pH units** Analysis Date: **11/17/2011 05:00 PM**

Client ID: Run ID: **WETCHEM_1111171** SeqNo: **2602239** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.36	0.10	0	0	0	0-0	8.43	0.834	20	H

The following samples were analyzed in this batch:

1111583-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 15 of 19

Client: Navajo Refining Company
Work Order: 1111583
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R119643** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCS-112211-R119643** Units: °F Analysis Date: **11/22/2011 02:00 PM**

Client ID: Run ID: **WETCHEM_111122G** SeqNo: **2606058** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	86	50	83	0	104	80-120	0			

LCSD Sample ID: **WLCSD-112211-R119643** Units: °F Analysis Date: **11/22/2011 02:00 PM**

Client ID: Run ID: **WETCHEM_111122G** SeqNo: **2606066** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	85	50	83	0	102	80-120	86	1.17	25	

DUP Sample ID: **1111664-01DDUP** Units: °F Analysis Date: **11/22/2011 02:00 PM**

Client ID: Run ID: **WETCHEM_111122G** SeqNo: **2606067** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	123	50	0	0	0	0-0	124	0.81	25	

The following samples were analyzed in this batch:

1111583-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 16 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119716 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-112311-R119716 Units: mg/L Analysis Date: 11/23/2011 07:55 AM

Client ID: Run ID: WETCHEM_111123A SeqNo: 2606956 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-112311-R119716 Units: mg/L Analysis Date: 11/23/2011 07:55 AM

Client ID: Run ID: WETCHEM_111123A SeqNo: 2606957 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	1046	5.0	1000	0	105	80-120	0			

DUP Sample ID: 1111583-01CDUP Units: mg/L Analysis Date: 11/23/2011 07:55 AM

Client ID: Wastewater Effluent Run ID: WETCHEM_111123A SeqNo: 2606981 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	223.8	5.0	0	0	0	0-0	217.2	3	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	223.8	5.0	0	0	0	0-0	217.2	3	20	

The following samples were analyzed in this batch:

1111583-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 17 of 19

Client: Navajo Refining Company
Work Order: 1111583
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R119738** Instrument ID: **Balance1** Method: **M2540C**

MBLK Sample ID: **BLANK-R119738** Units: **mg/L** Analysis Date: **11/22/2011 01:00 PM**

Client ID: Run ID: **BALANCE1_111122C** SeqNo: **2607823** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: **LCS-R119738** Units: **mg/L** Analysis Date: **11/22/2011 01:00 PM**

Client ID: Run ID: **BALANCE1_111122C** SeqNo: **2607824** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1016	10	1000		0	102	85-115	0		

DUP Sample ID: **1111630-12ADUP** Units: **mg/L** Analysis Date: **11/22/2011 01:00 PM**

Client ID: Run ID: **BALANCE1_111122C** SeqNo: **2607806** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1396	10	0		0	0	0-0	1312	6.2	20

DUP Sample ID: **1111679-01BDUP** Units: **mg/L** Analysis Date: **11/22/2011 01:00 PM**

Client ID: Run ID: **BALANCE1_111122C** SeqNo: **2607821** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	1230	10	0		0	0	0-0	1212	1.47	20

The following samples were analyzed in this batch:

1111583-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 18 of 19

Client: Navajo Refining Company
 Work Order: 1111583
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R119835 Instrument ID ICS2100 Method: E300

MBLK Sample ID: WBLKS1-112611-R119835 Units: mg/L Analysis Date: 11/26/2011 04:12 PM

Client ID: Run ID: ICS2100_111126A SeqNo: 2610644 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	4.527	0.10	5	0	90.5	85-115	0			

LCS Sample ID: WLCSS1-112611-R119835 Units: mg/L Analysis Date: 11/26/2011 04:27 PM

Client ID: Run ID: ICS2100_111126A SeqNo: 2610645 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.79	0.50	20	0	104	90-110	0			
Sulfate	21.22	0.50	20	0	106	90-110	0			
Surr: Selenate (surr)	4.853	0.10	5	0	97.1	85-115	0			

LCSD Sample ID: WLCSDS1-112611-R119835 Units: mg/L Analysis Date: 11/26/2011 04:41 PM

Client ID: Run ID: ICS2100_111126A SeqNo: 2610647 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.68	0.50	20	0	103	90-110	20.79	0.535	20	
Sulfate	21.28	0.50	20	0	106	90-110	21.22	0.268	20	
Surr: Selenate (surr)	4.672	0.10	5	0	93.4	85-115	4.853	3.8	20	

MS Sample ID: 1111407-01EMS Units: mg/L Analysis Date: 11/26/2011 05:11 PM

Client ID: Run ID: ICS2100_111126A SeqNo: 2610649 Prep Date: DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	394.3	5.0	100	255	139	80-120	0			S
Sulfate	104.4	5.0	100	2.266	102	80-120	0			
Surr: Selenate (surr)	48.02	1.0	50	0	96	85-115	0			

MSD Sample ID: 1111407-01EMSD Units: mg/L Analysis Date: 11/26/2011 05:25 PM

Client ID: Run ID: ICS2100_111126A SeqNo: 2610650 Prep Date: DF: 10

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	395.4	5.0	100	255	140	80-120	394.3	0.273	20	S
Sulfate	104.5	5.0	100	2.266	102	80-120	104.4	0.0651	20	
Surr: Selenate (surr)	49.57	1.0	50	0	99.1	85-115	48.02	3.19	20	

The following samples were analyzed in this batch:

1111583-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC Page: 19 of 19

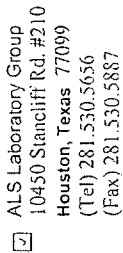
Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1111583

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



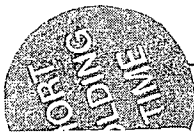
ALS Laboratory Group
10450 Stancil Rd. #210
Houston, Texas 77099
(Tel) 281.530.5656
(Fax) 281.530.5887

Page 1 of 1

3051

NAVAJO REFINING: Navajo Refining Company

Project: Injection Well Quarterly

[illegible]

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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**ALS Environmental**

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Date:
Name:
Comp:

CUSTODY SEAL

Date: 11-16-11 Time: 1620
Name: Jim Rhodes for A. Strange
Company: UNAYATO REFINING Co.

Seal Broken By:

RVG
Date: 11/17/11

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 17-Nov-11 09:20

Work Order: 1111583

Received by: RNG

Checklist completed by *Parash M. Ciga*
eSignature

17-Nov-11
Date

Reviewed by: *Mary L. Knowles*
eSignature

18-Nov-11
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.5</u>		<u>002</u>
Cooler(s)/Kit(s):	<u>3897</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u></u>		
Login Notes:	<u></u>		

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, November 02, 2011 9:16 AM
To: 'Moore, Darrell'; 'Lackey, Johnny'
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD
Subject: UICI-008 Quarterly Monitoring Reports & Comments on Environmental Sampling Data Quality Objectives (DQOs)

Darrell:

Good morning. I just want to bring to your attention some Chain-of-Custody and Data Quality Objectives (DQO) Concerns based on the quarterly monitoring reports.

Navajo Refining Company has been doing a good job of reporting and just wanted to provide some comments to assist the refinery with addressing the above concerns. Navajo has used Hall Environmental (Albuquerque) and for this quarterly sampling event ALS Environmental. The OCD notices that laboratory samples were contracted out to another ALS Lab for this sampling event.

The OCD concerns are related to the sample receipt checklists (DQOs) from each lab receiving environmental lab samples for analyses. The first lab to receive the samples indicated that custody seals on sample bottles were not intact while the second receiving lab indicates the same; however, it also indicates that the shipping container/cooler lacked custody seals, which means the sample could be tampered with. When shipping environmental samples to laboratories, Navajo Refining Company needs to make sure the Chain-of-Custody and Data Quality Objectives are met to ensure the QA/QC of environmental laboratory data results. I've been noticing this, but have not commented until now.

Please take immediate measures to meet the UIC Program standards. Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/>

"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>

HOLLYFRONTIER
THE HOLLYFRONTIER COMPANIES

October 28, 2011

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2011 Third Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

RECEIVED OOD
2011 OCT 31 PM 2:05

Dear Mr. Chavez,

Enclosed, please find the sampling results for the third quarter of 2011 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 2009 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for this well. The graduated tank level at WDW-1 suddenly dropped between 6/28/2011 and 7/5/2011, however it has not had any other sudden drops and there have not been any signs of instrument tubing leaks. The Annulus Pressure Tests (APT) and Mechanical Integrity Tests (MIT) are scheduled to be done on November 1, 2011. A quarterly Bradenhead for WDW-3 was last done on October 6, 2011, and the test passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

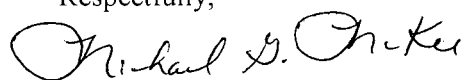
You will also notice that the minimum annular pressure for the Chukka Well (WDW-2) shows a low reading in July. The low reading was from July 1st to July 7th 2011. Navajo investigated but found no cause for the low reading. We believe that the annulus may have been blocked in and inadvertently left closed for this timeframe. Since then, the annular pressure in WDW-2 has returned to normal operating pressures.

This report covers the period from July 1, 2011 to September 30, 2011. We have disposed a total of 56,307,685 barrels of fluid into the three wells as of September 30, 2011. The volume per well is:

- 30,708,155 barrels into WDW-1
- 17,338,756 barrels into WDW-2
- 8,260,775 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

A handwritten signature in black ink, reading "Michael G. McKee". The signature is fluid and cursive, with the first name "Michael" and last name "McKee" clearly legible.

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)

2011 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1										Previous Quarter				30,275,471
Jul-11	695	733	648	139	147	131	385	505	213	4,752	5,030	4,506	147,317	30,422,788
Aug-11	725	778	679	138	146	130	419	499	265	4,735	5,021	4,462	146,789	30,569,577
Sep-11	735	790	465	135	146	84	347	544	132	4,619	5,022	2,892	138,577	30,708,155
WDW-2										Previous Quarter				16,823,737
Jul-11	628	673	522	162	170	148	380	680	1	5,538	5,828	5,078	171,668	16,995,406
Aug-11	664	753	602	165	176	154	577	764	295	5,643	6,047	5,295	174,920	17,170,326
Sep-11	683	743	540	164	176	100	532	903	124	5,614	6,028	3,424	168,430	17,338,756
WDW-3										Previous Quarter				7,838,697
Jul-11	671	699	618	127	141	111	729	870	670	4,366	4,828	3,807	135,344	7,974,041
Aug-11	709	773	657	134	153	114	660	792	416	4,605	5,249	3,892	142,744	8,116,785
Sep-11	735	828	658	140	164	110	486	677	247	4,800	5,621	3,775	143,989	8,260,775
Total Injected fluids:														56,307,685

2011 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/5/11	7/12/11	7/18/11	7/25/11	8/1/11	8/8/11	8/15/11	8/29/11	9/6/11	9/12/11	9/19/11	6/26/11
WDW -1'	155	155	155	155	155	155	155	155	150	150	150	150
WDW-2'	150	150	150	150	150	150	150	150	150	150	150	150
WDW-3'	150	150	150	150	150	150	150	150	150	150	150	150
Comments:												

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



06-Sep-2011

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1108743**

Dear Aaron,

ALS Environmental received 2 samples on 24-Aug-2011 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Makenzie L. Henderson

Chris Bryson
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338 | PHONE (281) 530-5656 | FAX (281) 530-5887

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Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Navajo Refining Company
 Project: Injection Well Quarterly
 Work Order: 1108743

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1108743-01	Injection Well Effluent	Liquid		8/23/2011 09:10	8/24/2011 09:20	☐
1108743-02	Trip Blank	Water		8/23/2011	8/24/2011 09:20	☒

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1108743

Case Narrative

PH, Sample Injection Well Effluent : Analytical results are flagged with an H qualifier for pH.

Batch 54977, Metals, Sample 1108727-01 : MS/MSD is for an unrelated sample.

Batch 54917, Semivolatile Organics : LCSD RPD was above the control limits for 3&4-Methylphenol, Benzidine, and Pyridine. The individual recoveries were in control.

Batch R115435, Volatile Organics, Sample 1108733-07 : MS/MSD is for an unrelated sample.

Batch R115163, pH, Sample Injection Well Effluent : Duplicate result is flagged with an H qualifier for pH.

The analysis for Reactive Cyanide and Reactive Sulfide was subcontracted to ALS Laboratory Group in Holland, MI.

ALS Environmental

Date: 06-Sep-11

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Injection Well Effluent
Collection Date: 8/23/2011 9:10:00 AM

Work Order: 1108743
Lab ID: 1108743-01
Matrix: LIQUID

Analyses	Result	Reg Limit	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470				
Mercury	ND	0		0.000200 mg/L		1	8/26/2011 13:54
				Prep: SW7470 8/26/11			Analyst: JCJ
METALS			SW6020				
Aluminum	0.625	0		0.0100 mg/L		1	8/26/2011 19:05
Arsenic	0.0207	0		0.00500 mg/L		1	8/26/2011 19:05
Barium	0.0796	0		0.00500 mg/L		1	8/26/2011 19:05
Boron	0.276	0		0.0500 mg/L		1	8/30/2011 14:01
Cadmium	ND	0		0.00200 mg/L		1	8/26/2011 19:05
Chromium	ND	0		0.00500 mg/L		1	8/26/2011 19:05
Copper	0.00709	0		0.00500 mg/L		1	8/26/2011 19:05
Lead	ND	0		0.00500 mg/L		1	8/26/2011 19:05
Manganese	0.0559	0		0.00500 mg/L		1	8/26/2011 19:05
Molybdenum	0.145	0		0.00500 mg/L		1	8/26/2011 19:05
Nickel	0.00767	0		0.00500 mg/L		1	8/26/2011 19:05
Selenium	0.465	0		0.00500 mg/L		1	8/26/2011 19:05
Silver	ND	0		0.00500 mg/L		1	8/26/2011 19:05
Zinc	0.0983	0		0.00500 mg/L		1	8/26/2011 19:05
SEMIVOLATILES - SW8270D			SW8270				
1,2,4-Trichlorobenzene	ND	0		0.050 mg/L		10	8/25/2011 22:54
2,4,5-Trichlorophenol	ND	0.4		0.050 mg/L		10	8/25/2011 22:54
2,4,6-Trichlorophenol	ND	0.002		0.050 mg/L		10	8/25/2011 22:54
2,4-Dinitrotoluene	ND	0.00013		0.050 mg/L		10	8/25/2011 22:54
2-Methylnaphthalene	ND	0		0.050 mg/L		10	8/25/2011 22:54
2-Methylphenol	ND	0.2		0.050 mg/L		10	8/25/2011 22:54
2-Nitroaniline	ND	0		0.050 mg/L		10	8/25/2011 22:54
2-Nitrophenol	ND	0		0.050 mg/L		10	8/25/2011 22:54
3&4-Methylphenol	ND	0.2		0.050 mg/L		10	8/25/2011 22:54
3-Nitroaniline	ND	0		0.050 mg/L		10	8/25/2011 22:54
4-Nitroaniline	ND	0		0.050 mg/L		10	8/25/2011 22:54
4-Nitrophenol	ND	0		0.050 mg/L		10	8/25/2011 22:54
Acenaphthene	ND	0		0.050 mg/L		10	8/25/2011 22:54
Acenaphthylene	ND	0		0.050 mg/L		10	8/25/2011 22:54
Aniline	ND	0		0.050 mg/L		10	8/25/2011 22:54
Anthracene	ND	0		0.050 mg/L		10	8/25/2011 22:54
Benz(a)anthracene	ND	0		0.050 mg/L		10	8/25/2011 22:54
Benzidine	ND	0		0.050 mg/L		10	8/25/2011 22:54
Hexachlorobenzene	ND	0.00013		0.050 mg/L		10	8/25/2011 22:54
Hexachloroethane	ND	0		0.050 mg/L		10	8/25/2011 22:54
Indeno(1,2,3-cd)pyrene	ND	0		0.050 mg/L		10	8/25/2011 22:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Sep-11

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Injection Well Effluent
Collection Date: 8/23/2011 9:10:00 AM

Work Order: 1108743
Lab ID: 1108743-01
Matrix: LIQUID

Analyses	Result	Reg Limit	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isophorone	ND	0		0.050	mg/L	10	8/25/2011 22:54
Naphthalene	ND	0		0.050	mg/L	10	8/25/2011 22:54
Nitrobenzene	ND	0.002		0.050	mg/L	10	8/25/2011 22:54
N-Nitrosodimethylamine	ND	0		0.050	mg/L	10	8/25/2011 22:54
N-Nitrosodi-n-propylamine	ND	0		0.050	mg/L	10	8/25/2011 22:54
N-Nitrosodiphenylamine	ND	0		0.050	mg/L	10	8/25/2011 22:54
Pentachlorophenol	ND	0.1		0.050	mg/L	10	8/25/2011 22:54
Phenanthrene	ND	0		0.050	mg/L	10	8/25/2011 22:54
Phenol	ND	0		0.050	mg/L	10	8/25/2011 22:54
Pyrene	ND	0		0.050	mg/L	10	8/25/2011 22:54
Pyridine	ND	0.005		0.050	mg/L	10	8/25/2011 22:54
Surr: 2,4,6-Tribromophenol	78.3	0		42-124	%REC	10	8/25/2011 22:54
Surr: 2-Fluorobiphenyl	75.3	0		48-120	%REC	10	8/25/2011 22:54
Surr: 2-Fluorophenol	55.3	0		20-120	%REC	10	8/25/2011 22:54
Surr: 4-Terphenyl-d14	73.1	0		51-135	%REC	10	8/25/2011 22:54
Surr: Nitrobenzene-d5	70.5	0		41-120	%REC	10	8/25/2011 22:54
Surr: Phenol-d6	61.6	0		20-120	%REC	10	8/25/2011 22:54
VOLATILES		SW8260		Prep:		Analyst: PC	
1,1,1-Trichloroethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
1,1,2,2-Tetrachloroethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
1,1,2-Trichloroethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
1,1-Dichloroethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
1,1-Dichloroethene	ND	0.0007		0.0050	mg/L	1	8/31/2011 16:22
1,2-Dichloroethane	ND	0.0005		0.0050	mg/L	1	8/31/2011 16:22
2-Butanone	ND	0		0.010	mg/L	1	8/31/2011 16:22
2-Chloroethyl vinyl ether	ND	0		0.010	mg/L	1	8/31/2011 16:22
2-Hexanone	ND	0		0.010	mg/L	1	8/31/2011 16:22
4-Methyl-2-pentanone	ND	0		0.010	mg/L	1	8/31/2011 16:22
Acetone	ND	0		0.010	mg/L	1	8/31/2011 16:22
Benzene	ND	0.0005		0.0050	mg/L	1	8/31/2011 16:22
Bromodichloromethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Bromoform	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Bromomethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Carbon disulfide	ND	0		0.010	mg/L	1	8/31/2011 16:22
Carbon tetrachloride	ND	0.0005		0.0050	mg/L	1	8/31/2011 16:22
Chlorobenzene	ND	0.1		0.0050	mg/L	1	8/31/2011 16:22
Chloroethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Chloroform	ND	0.006		0.0050	mg/L	1	8/31/2011 16:22
Chloromethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
cis-1,3-Dichloropropene	ND	0		0.0050	mg/L	1	8/31/2011 16:22

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Sep-11

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Injection Well Effluent
Collection Date: 8/23/2011 9:10:00 AM

Work Order: 1108743
Lab ID: 1108743-01
Matrix: LIQUID

Analyses	Result	Reg Limit	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibromochloromethane	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Ethylbenzene	ND	0		0.0050	mg/L	1	8/31/2011 16:22
m,p-Xylene	ND	0		0.010	mg/L	1	8/31/2011 16:22
Methylene chloride	ND	0		0.010	mg/L	1	8/31/2011 16:22
Styrene	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Tetrachloroethene	ND	0.0007		0.0050	mg/L	1	8/31/2011 16:22
Toluene	ND	0		0.0050	mg/L	1	8/31/2011 16:22
trans-1,3-Dichloropropene	ND	0		0.0050	mg/L	1	8/31/2011 16:22
Trichloroethene	ND	0.0005		0.0050	mg/L	1	8/31/2011 16:22
Vinyl acetate	ND	0		0.010	mg/L	1	8/31/2011 16:22
Vinyl chloride	ND	0.0002		0.0020	mg/L	1	8/31/2011 16:22
Xylenes, Total	ND	0		0.015	mg/L	1	8/31/2011 16:22
Surr: 1,2-Dichloroethane-d4	99.5	0		70-125	%REC	1	8/31/2011 16:22
Surr: 4-Bromofluorobenzene	98.0	0		72-125	%REC	1	8/31/2011 16:22
Surr: Dibromofluoromethane	99.3	0		71-125	%REC	1	8/31/2011 16:22
Surr: Toluene-d8	95.0	0		75-125	%REC	1	8/31/2011 16:22
REACTIVE CYANIDE		SW-846		Prep:			Analyst: HN
Reactive Cyanide	ND	0		40.0	mg/Kg	1	9/1/2011 12:00
REACTIVE SULFIDE		SW-846		Prep:			Analyst: HN
Reactive Sulfide	ND	0		40.0	mg/Kg	1	9/1/2011 12:00
ANIONS - EPA 300.0 (1993)		E300		Prep:			Analyst: JBA
Chloride	404	0		5.00	mg/L	10	8/30/2011 13:08
Sulfate	2,290	0		50.0	mg/L	100	8/30/2011 15:18
Surr: Selenate (surr)	113	0		85-115	%REC	10	8/30/2011 13:08
Surr: Selenate (surr)	113	0		85-115	%REC	100	8/30/2011 15:18
ALKALINITY		SM2320B		Prep:			Analyst: DM
Alkalinity, Bicarbonate (As CaCO3)	302	0		5.00	mg/L	1	8/29/2011 11:35
Alkalinity, Carbonate (As CaCO3)	ND	0		5.00	mg/L	1	8/29/2011 11:35
Alkalinity, Hydroxide (As CaCO3)	ND	0		5.00	mg/L	1	8/29/2011 11:35
Alkalinity, Total (As CaCO3)	302	0		5.00	mg/L	1	8/29/2011 11:35
SPECIFIC CONDUCTIVITY		M2510 B		Prep:			Analyst: TDW
Specific Conductivity	7,380	0		1.00	µmhos/cm	1	8/26/2011 14:00
IGNITIBILITY		SW1010		Prep:			Analyst: KAH
Ignitability	> 212	0		50.0	°F	1	8/30/2011 16:00
PH		SW9040		Prep:			Analyst: TDW
pH	8.11	0 H		0.100	pH units	1	8/24/2011 14:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 06-Sep-11

CLIENT: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Injection Well Effluent
Collection Date: 8/23/2011 9:10:00 AM

Work Order: 1108743
Lab ID: 1108743-01
Matrix: LIQUID

Analyses	Result	Reg Limit	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS Total Dissolved Solids (Residue, Filterable)	4,320		M2540C 0		Prep: 10.0 mg/L	1	Analyst: JBA 8/30/2011 08:00

Note: See Qualifiers Page for a list of qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **54972** Instrument ID **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-082611-54972** Units: **mg/L** Analysis Date: **8/26/2011 01:25 PM**

Client ID: Run ID: **MERCURY_110826A** SeqNo: **2507300** Prep Date: **8/26/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-082611-54972** Units: **mg/L** Analysis Date: **8/26/2011 01:27 PM**

Client ID: Run ID: **MERCURY_110826A** SeqNo: **2507301** Prep Date: **8/26/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0048	0.00020	0.005	0	96	85-115	0			

MS Sample ID: **1108786-01DMS** Units: **mg/L** Analysis Date: **8/26/2011 01:36 PM**

Client ID: Run ID: **MERCURY_110826A** SeqNo: **2507304** Prep Date: **8/26/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.00020	0.005	0.000008	96.4	85-115	0			

MSD Sample ID: **1108786-01DMSD** Units: **mg/L** Analysis Date: **8/26/2011 01:38 PM**

Client ID: Run ID: **MERCURY_110826A** SeqNo: **2507305** Prep Date: **8/26/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00483	0.00020	0.005	0.000008	96.4	85-115	0.00483	0	20	

DUP Sample ID: **1108786-01DDUP** Units: **mg/L** Analysis Date: **8/26/2011 01:34 PM**

Client ID: Run ID: **MERCURY_110826A** SeqNo: **2507303** Prep Date: **8/26/2011** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0.000008	0	20	

The following samples were analyzed in this batch:

1108743-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 54977 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW2-082611-54977 Units: mg/L Analysis Date: 8/26/2011 03:30 PM

Client ID: Run ID: ICPMS03_110826A SeqNo: 2507441 Prep Date: 8/26/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004147	0.010								J
Arsenic	ND	0.0050								
Barium	0.0009094	0.0050								J
Boron	ND	0.050								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	0.001994	0.0050								J
Selenium	0.001283	0.0050								J
Silver	ND	0.0050								
Zinc	ND	0.0050								

LCS Sample ID: MLCSW2-082611-54977 Units: mg/L Analysis Date: 8/26/2011 03:36 PM

Client ID: Run ID: ICPMS03_110826A SeqNo: 2507442 Prep Date: 8/26/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.04712	0.0050	0.05	0	94.2	80-120	0			
Barium	0.04682	0.0050	0.05	0	93.6	80-120	0			
Boron	0.4576	0.050	0.5	0	91.5	80-120	0			
Cadmium	0.04684	0.0020	0.05	0	93.7	80-120	0			
Chromium	0.04563	0.0050	0.05	0	91.3	80-120	0			
Copper	0.04509	0.0050	0.05	0	90.2	80-120	0			
Lead	0.04609	0.0050	0.05	0	92.2	80-120	0			
Manganese	0.04654	0.0050	0.05	0	93.1	80-120	0			
Molybdenum	0.04699	0.0050	0.05	0	94	80-120	0			
Nickel	0.04664	0.0050	0.05	0	93.3	80-120	0			
Selenium	0.04814	0.0050	0.05	0	96.3	80-120	0			
Silver	0.04666	0.0050	0.05	0	93.3	80-120	0			
Zinc	0.04991	0.0050	0.05	0	99.8	80-120	0			

LCS Sample ID: MLCSW2-082611-54977 Units: mg/L Analysis Date: 8/29/2011 02:50 PM

Client ID: Run ID: ICPMS03_110829A SeqNo: 2508554 Prep Date: 8/26/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1175	0.010	0.1	0	118	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 54977 Instrument ID ICPMS03 Method: SW6020

MS		Sample ID: 1108727-01CMS				Units: mg/L		Analysis Date: 8/26/2011 04:22 PM		
Client ID:		Run ID: ICPMS03_110826A				SeqNo: 2507645		Prep Date: 8/26/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05876	0.0050	0.05	0.009833	97.9	80-120	0			
Barium	0.1335	0.0050	0.05	0.09031	86.4	80-120	0			
Boron	0.6128	0.050	0.5	0.1211	98.3	80-120	0			
Cadmium	0.04577	0.0020	0.05	0.00007921	91.4	80-120	0			
Chromium	0.04331	0.0050	0.05	0.0001978	86.2	80-120	0			
Copper	0.04711	0.0050	0.05	0.005449	83.3	80-120	0			
Lead	0.04507	0.0050	0.05	0.0006013	88.9	80-120	0			
Manganese	1.393	0.0050	0.05	1.378	30	80-120	0			SO
Molybdenum	0.04858	0.0050	0.05	0.005414	86.3	80-120	0			
Nickel	0.04488	0.0050	0.05	0.002782	84.2	80-120	0			
Selenium	0.04823	0.0050	0.05	0.001377	93.7	80-120	0			
Silver	0.04221	0.0050	0.05	-0.00008971	84.6	80-120	0			
Zinc	0.06132	0.0050	0.05	0.008454	106	80-120	0			

MS		Sample ID: 1108727-01CMS				Units: mg/L		Analysis Date: 8/29/2011 03:13 PM		
Client ID:		Run ID: ICPMS03_110829A				SeqNo: 2508561		Prep Date: 8/26/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1348	0.010	0.1	0.02636	108	80-120	0			

MSD		Sample ID: 1108727-01CMSD				Units: mg/L		Analysis Date: 8/26/2011 04:28 PM		
Client ID:		Run ID: ICPMS03_110826A				SeqNo: 2507646		Prep Date: 8/26/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.05957	0.0050	0.05	0.009833	99.5	80-120	0.05876	1.37	15	
Barium	0.1364	0.0050	0.05	0.09031	92.2	80-120	0.1335	2.15	15	
Boron	0.6309	0.050	0.5	0.1211	102	80-120	0.6128	2.91	15	
Cadmium	0.04648	0.0020	0.05	0.00007921	92.8	80-120	0.04577	1.54	15	
Chromium	0.04247	0.0050	0.05	0.0001978	84.5	80-120	0.04331	1.96	15	
Copper	0.04633	0.0050	0.05	0.005449	81.8	80-120	0.04711	1.67	15	
Lead	0.04511	0.0050	0.05	0.0006013	89	80-120	0.04507	0.0887	15	
Manganese	1.406	0.0050	0.05	1.378	56	80-120	1.393	0.929	15	SO
Molybdenum	0.04953	0.0050	0.05	0.005414	88.2	80-120	0.04858	1.94	15	
Nickel	0.04487	0.0050	0.05	0.002782	84.2	80-120	0.04488	0.0223	15	
Selenium	0.0496	0.0050	0.05	0.001377	96.4	80-120	0.04823	2.8	15	
Silver	0.04211	0.0050	0.05	-0.00008971	84.4	80-120	0.04221	0.237	15	
Zinc	0.05756	0.0050	0.05	0.008454	98.2	80-120	0.06132	6.33	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 54977 Instrument ID ICPMS03 Method: SW6020

MSD	Sample ID: 1108727-01CMSD			Units: mg/L			Analysis Date: 8/29/2011 03:19 PM			
Client ID:	Run ID: ICPMS03_110829A			SeqNo: 2508562			Prep Date: 8/26/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.133	0.010	0.1	0.02636	107	80-120	0.1348	1.34	15	

DUP	Sample ID: 1108727-01CDUP			Units: mg/L			Analysis Date: 8/26/2011 04:10 PM			
Client ID:	Run ID: ICPMS03_110826A			SeqNo: 2507639			Prep Date: 8/26/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.009563	0.0050	0	0	0	0-0	0.009833	2.78	25	
Barium	0.08918	0.0050	0	0	0	0-0	0.09031	1.26	25	
Boron	0.1225	0.050	0	0	0	0-0	0.1211	1.15	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.00007921	0	25	
Chromium	ND	0.0050	0	0	0	0-0	0.0001978	0	25	
Copper	0.005595	0.0050	0	0	0	0-0	0.005449	2.64	25	
Lead	ND	0.0050	0	0	0	0-0	0.0006013	0	25	
Manganese	1.379	0.0050	0	0	0	0-0	1.378	0.0725	25	
Molybdenum	0.004876	0.0050	0	0	0	0-0	0.005414	0	25	J
Nickel	0.002957	0.0050	0	0	0	0-0	0.002782	0	25	J
Selenium	0.001136	0.0050	0	0	0	0-0	0.001377	0	25	J
Silver	ND	0.0050	0	0	0	0-0	-0.00008971	0	25	
Zinc	0.01054	0.0050	0	0	0	0-0	0.008454	22	25	

DUP	Sample ID: 1108727-01CDUP			Units: mg/L			Analysis Date: 8/29/2011 03:02 PM			
Client ID:	Run ID: ICPMS03_110829A			SeqNo: 2508557			Prep Date: 8/26/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.02433	0.010	0	0	0	0-0	0.02636	8.01	25	

The following samples were analyzed in this batch:

1108743-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 54917 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKW1-110824-54917 Units: µg/L Analysis Date: 8/25/2011 08:13 PM

Client ID: Run ID: SV-5_110825A SeqNo: 2507391 Prep Date: 8/24/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	81.41	5.0	100	0	81.4	42-124	0			
Surr: 2-Fluorobiphenyl	86.14	5.0	100	0	86.1	48-120	0			
Surr: 2-Fluorophenol	75.63	5.0	100	0	75.6	20-120	0			
Surr: 4-Terphenyl-d14	80.92	5.0	100	0	80.9	51-135	0			
Surr: Nitrobenzene-d5	86.09	5.0	100	0	86.1	41-120	0			
Surr: Phenol-d6	66.83	5.0	100	0	66.8	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 54917 Instrument ID SV-5 Method: SW8270

LCS		Sample ID: SLCSW1-110824-54917				Units: µg/L		Analysis Date: 8/26/2011 11:23 AM		
Client ID:		Run ID: SV-5_110825A				SeqNo: 2507393		Prep Date: 8/24/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	44.43	5.0	50	0	88.9	50-120	0			
2,4,5-Trichlorophenol	103.1	5.0	100	0	103	50-120	0			
2,4,6-Trichlorophenol	95.38	5.0	100	0	95.4	50-120	0			
2,4-Dinitrotoluene	47.64	5.0	50	0	95.3	50-120	0			
2-Methylnaphthalene	47.6	5.0	50	0	95.2	55-120	0			
2-Methylphenol	96.63	5.0	100	0	96.6	50-120	0			
2-Nitroaniline	47.77	5.0	50	0	95.5	55-120	0			
2-Nitrophenol	88.99	5.0	100	0	89	55-120	0			
3&4-Methylphenol	147.8	5.0	150	0	98.5	55-120	0			
3-Nitroaniline	29.09	5.0	50	0	58.2	40-120	0			
4-Nitroaniline	41.65	5.0	50	0	83.3	50-120	0			
4-Nitrophenol	94.78	5.0	100	0	94.8	45-120	0			
Acenaphthene	47.46	5.0	50	0	94.9	55-120	0			
Acenaphthylene	46.79	5.0	50	0	93.6	55-120	0			
Aniline	28.98	5.0	50	0	58	30-120	0			
Anthracene	48.55	5.0	50	0	97.1	55-120	0			
Benz(a)anthracene	48.27	5.0	50	0	96.5	55-120	0			
Benzidine	10.72	5.0	50	0	21.4	10-120	0			
Hexachlorobenzene	49.57	5.0	50	0	99.1	55-120	0			
Hexachloroethane	43.51	5.0	50	0	87	55-120	0			
Indeno(1,2,3-cd)pyrene	48.15	5.0	50	0	96.3	55-120	0			
Isophorone	47.42	5.0	50	0	94.8	55-120	0			
Naphthalene	47.18	5.0	50	0	94.4	55-120	0			
Nitrobenzene	45.6	5.0	50	0	91.2	55-120	0			
N-Nitrosodimethylamine	41.32	5.0	50	0	82.6	45-120	0			
N-Nitrosodi-n-propylamine	50.59	5.0	50	0	101	50-120	0			
N-Nitrosodiphenylamine	46.67	5.0	50	0	93.3	55-120	0			
Pentachlorophenol	98.83	5.0	100	0	98.8	55-120	0			
Phenanthrene	47.55	5.0	50	0	95.1	55-120	0			
Phenol	100.6	5.0	100	0	101	50-120	0			
Pyrene	50.35	5.0	50	0	101	55-120	0			
Pyridine	31.8	5.0	50	0	63.6	35-120	0			
Surr: 2,4,6-Tribromophenol	93.17	5.0	100	0	93.2	42-124	0			
Surr: 2-Fluorobiphenyl	85.96	5.0	100	0	86	48-120	0			
Surr: 2-Fluorophenol	84.74	5.0	100	0	84.7	20-120	0			
Surr: 4-Terphenyl-d14	79.69	5.0	100	0	79.7	51-135	0			
Surr: Nitrobenzene-d5	80.18	5.0	100	0	80.2	41-120	0			
Surr: Phenol-d6	87.86	5.0	100	0	87.9	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 54917 Instrument ID SV-5 Method: SW8270

LCSD				Sample ID: SLCSDW1-110824-54917			Units: µg/L		Analysis Date: 8/25/2011 05:08 PM		
Client ID:		Run ID: SV-5_110825A			SeqNo: 2507390		Prep Date: 8/24/2011		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,2,4-Trichlorobenzene	47.65	5.0	50	0	95.3	50-120	44.43	7	20		
2,4,5-Trichlorophenol	101.2	5.0	100	0	101	50-120	103.1	1.85	20		
2,4,6-Trichlorophenol	94.98	5.0	100	0	95	50-120	95.38	0.415	20		
2,4-Dinitrotoluene	49.49	5.0	50	0	99	50-120	47.64	3.8	20		
2-Methylnaphthalene	45.87	5.0	50	0	91.7	55-120	47.6	3.7	20		
2-Methylphenol	80.73	5.0	100	0	80.7	50-120	96.63	17.9	20		
2-Nitroaniline	49.54	5.0	50	0	99.1	55-120	47.77	3.64	20		
2-Nitrophenol	89.09	5.0	100	0	89.1	55-120	88.99	0.116	20		
3&4-Methylphenol	116.3	5.0	150	0	77.5	55-120	147.8	23.9	20	R	
3-Nitroaniline	34.99	5.0	50	0	70	40-120	29.09	18.4	20		
4-Nitroaniline	41.35	5.0	50	0	82.7	50-120	41.65	0.718	20		
4-Nitrophenol	90.42	5.0	100	0	90.4	45-120	94.78	4.71	20		
Acenaphthene	49.38	5.0	50	0	98.8	55-120	47.46	3.96	20		
Acenaphthylene	49.06	5.0	50	0	98.1	55-120	46.79	4.74	20		
Aniline	30.1	5.0	50	0	60.2	30-120	28.98	3.79	20		
Anthracene	49.62	5.0	50	0	99.2	55-120	48.55	2.18	20		
Benz(a)anthracene	48.91	5.0	50	0	97.8	55-120	48.27	1.33	20		
Benzidine	6.897	5.0	50	0	13.8	10-120	10.72	43.4	20	R	
Hexachlorobenzene	50.03	5.0	50	0	100	55-120	49.57	0.931	20		
Hexachloroethane	44.94	5.0	50	0	89.9	55-120	43.51	3.23	20		
Indeno(1,2,3-cd)pyrene	46.95	5.0	50	0	93.9	55-120	48.15	2.53	20		
Isophorone	47.07	5.0	50	0	94.1	55-120	47.42	0.742	20		
Naphthalene	48.95	5.0	50	0	97.9	55-120	47.18	3.69	20		
Nitrobenzene	49.55	5.0	50	0	99.1	55-120	45.6	8.29	20		
N-Nitrosodimethylamine	47.19	5.0	50	0	94.4	45-120	41.32	13.3	20		
N-Nitrosodi-n-propylamine	42.37	5.0	50	0	84.7	50-120	50.59	17.7	20		
N-Nitrosodiphenylamine	49.64	5.0	50	0	99.3	55-120	46.67	6.16	20		
Pentachlorophenol	99.84	5.0	100	0	99.8	55-120	98.83	1.02	20		
Phenanthrene	50.21	5.0	50	0	100	55-120	47.55	5.44	20		
Phenol	88.36	5.0	100	0	88.4	50-120	100.6	12.9	20		
Pyrene	49.35	5.0	50	0	98.7	55-120	50.35	2	20		
Pyridine	41.38	5.0	50	0	82.8	35-120	31.8	26.2	20	R	
Surr: 2,4,6-Tribromophenol	91.11	5.0	100	0	91.1	42-124	93.17	2.23	20		
Surr: 2-Fluorobiphenyl	91.19	5.0	100	0	91.2	48-120	85.96	5.9	20		
Surr: 2-Fluorophenol	83.72	5.0	100	0	83.7	20-120	84.74	1.21	20		
Surr: 4-Terphenyl-d14	79.96	5.0	100	0	80	51-135	79.69	0.335	20		
Surr: Nitrobenzene-d5	88.06	5.0	100	0	88.1	41-120	80.18	9.37	20		
Surr: Phenol-d6	76.78	5.0	100	0	76.8	20-120	87.86	13.5	20		

The following samples were analyzed in this batch:

1108743-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R115435 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-083111-R115435 Units: µg/L Analysis Date: 8/31/2011 11:55 AM

Client ID: Run ID: VOA1_110831A SeqNo: 2511258 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.66	5.0	50	0	99.3	70-125	0			
Surr: 4-Bromofluorobenzene	51.53	5.0	50	0	103	72-125	0			
Surr: Dibromofluoromethane	49.76	5.0	50	0	99.5	71-125	0			
Surr: Toluene-d8	48.97	5.0	50	0	97.9	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R115435 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-083111-R115435 Units: µg/L Analysis Date: 8/31/2011 11:02 AM

Client ID: Run ID: VOA1_110831A SeqNo: 2511257 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.29	5.0	50	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	50.77	5.0	50	0	102	72-120	0			
1,1,2-Trichloroethane	47.32	5.0	50	0	94.6	80-120	0			
1,1-Dichloroethane	51.27	5.0	50	0	103	76-120	0			
1,1-Dichloroethene	49.48	5.0	50	0	99	73-124	0			
1,2-Dichloroethane	49.42	5.0	50	0	98.8	78-120	0			
2-Butanone	99.25	10	100	0	99.3	58-132	0			
2-Chloroethyl vinyl ether	101.8	10	100	0	102	74-120	0			
2-Hexanone	98.83	10	100	0	98.8	61-130	0			
4-Methyl-2-pentanone	97.05	10	100	0	97.1	65-127	0			
Acetone	100.5	10	100	0	100	59-137	0			
Benzene	49.07	5.0	50	0	98.1	73-121	0			
Bromodichloromethane	50.6	5.0	50	0	101	80-120	0			
Bromoform	50.03	5.0	50	0	100	79-120	0			
Bromomethane	48.42	5.0	50	0	96.8	66-137	0			
Carbon disulfide	100.6	10	100	0	101	68-141	0			
Carbon tetrachloride	51.76	5.0	50	0	104	75-124	0			
Chlorobenzene	45.9	5.0	50	0	91.8	80-120	0			
Chloroethane	49.36	5.0	50	0	98.7	76-121	0			
Chloroform	49.13	5.0	50	0	98.3	80-120	0			
Chloromethane	46.69	5.0	50	0	93.4	67-123	0			
cis-1,3-Dichloropropene	47.26	5.0	50	0	94.5	80-120	0			
Dibromochloromethane	49.16	5.0	50	0	98.3	80-120	0			
Ethylbenzene	48.96	5.0	50	0	97.9	80-120	0			
m,p-Xylene	100.2	10	100	0	100	78-121	0			
Methylene chloride	48.86	10	50	0	97.7	65-133	0			
Styrene	49.79	5.0	50	0	99.6	80-120	0			
Tetrachloroethene	48.61	5.0	50	0	97.2	79-120	0			
Toluene	42.94	5.0	50	0	85.9	80-120	0			
trans-1,3-Dichloropropene	50.83	5.0	50	0	102	80-120	0			
Trichloroethene	51.23	5.0	50	0	102	80-120	0			
Vinyl acetate	99.99	10	100	0	100	67-139	0			
Vinyl chloride	51.01	2.0	50	0	102	70-127	0			
Xylenes, Total	149.9	15	150	0	99.9	80-120	0			
Surr: 1,2-Dichloroethane-d4	49.58	5.0	50	0	99.2	70-125	0			
Surr: 4-Bromofluorobenzene	46.4	5.0	50	0	92.8	72-125	0			
Surr: Dibromofluoromethane	47.97	5.0	50	0	95.9	71-125	0			
Surr: Toluene-d8	46.03	5.0	50	0	92.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R115435 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1108733-07ZMS Units: µg/L Analysis Date: 8/31/2011 01:41 PM

Client ID: Run ID: VOA1_110831A SeqNo: 2511356 Prep Date: DF: 250

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	10350	1,200	12500	0	82.8	80-120	0			
1,1,2,2-Tetrachloroethane	11540	1,200	12500	0	92.3	72-120	0			
1,1,2-Trichloroethane	11530	1,200	12500	0	92.2	80-120	0			
1,1-Dichloroethane	11850	1,200	12500	0	94.8	76-120	0			
1,1-Dichloroethene	10740	1,200	12500	129.3	84.9	73-124	0			
1,2-Dichloroethane	11230	1,200	12500	0	89.8	78-120	0			
2-Butanone	23340	2,500	25000	0	93.4	58-132	0			
2-Chloroethyl vinyl ether	22640	2,500	25000	0	90.6	74-120	0			
2-Hexanone	22960	2,500	25000	0	91.8	61-130	0			
4-Methyl-2-pentanone	24610	2,500	25000	0	98.4	65-127	0			
Acetone	20670	2,500	25000	0	82.7	59-137	0			
Benzene	10760	1,200	12500	0	86.1	73-121	0			
Bromodichloromethane	12320	1,200	12500	0	98.6	80-120	0			
Bromoform	11740	1,200	12500	0	93.9	79-120	0			
Bromomethane	10690	1,200	12500	0	85.5	66-137	0			
Carbon disulfide	21650	2,500	25000	0	86.6	68-141	0			
Carbon tetrachloride	9519	1,200	12500	0	76.2	75-124	0			
Chlorobenzene	11330	1,200	12500	0	90.6	80-120	0			
Chloroethane	10940	1,200	12500	0	87.5	76-121	0			
Chloroform	11500	1,200	12500	0	92	80-120	0			
Chloromethane	11120	1,200	12500	0	88.9	67-123	0			
cis-1,3-Dichloropropene	11670	1,200	12500	0	93.4	80-120	0			
Dibromochloromethane	11790	1,200	12500	0	94.3	80-120	0			
Ethylbenzene	10260	1,200	12500	0	82.1	80-120	0			
m,p-Xylene	20570	2,500	25000	0	82.3	78-121	0			
Methylene chloride	12060	2,500	12500	148.4	95.3	65-133	0			
Styrene	11800	1,200	12500	0	94.4	80-120	0			
Tetrachloroethene	9166	1,200	12500	0	73.3	79-120	0			S
Toluene	10770	1,200	12500	0	86.1	80-120	0			
trans-1,3-Dichloropropene	13010	1,200	12500	0	104	80-120	0			
Trichloroethene	12350	1,200	12500	2002	82.8	80-120	0			
Vinyl acetate	23950	2,500	25000	0	95.8	67-139	0			
Vinyl chloride	11670	500	12500	1420	82	70-127	0			
Xylenes, Total	31960	3,800	37500	0	85.2	80-120	0			
Surr: 1,2-Dichloroethane-d4	12640	1,200	12500	0	101	70-125	0			
Surr: 4-Bromofluorobenzene	12160	1,200	12500	0	97.3	72-125	0			
Surr: Dibromofluoromethane	12860	1,200	12500	0	103	71-125	0			
Surr: Toluene-d8	11680	1,200	12500	0	93.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R115435 Instrument ID VOA1 Method: SW8260

MSD	Sample ID: 1108733-07ZMSD				Units: µg/L			Analysis Date: 8/31/2011 02:08 PM		
Client ID:	Run ID: VOA1_110831A				SeqNo: 2511357		Prep Date:		DF: 250	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	10030	1,200	12500	0	80.2	80-120	10350	3.13	20	
1,1,2,2-Tetrachloroethane	11960	1,200	12500	0	95.7	72-120	11540	3.6	20	
1,1,2-Trichloroethane	12060	1,200	12500	0	96.4	80-120	11530	4.48	20	
1,1-Dichloroethane	11630	1,200	12500	0	93.1	76-120	11850	1.85	20	
1,1-Dichloroethene	10730	1,200	12500	129.3	84.8	73-124	10740	0.125	20	
1,2-Dichloroethane	12510	1,200	12500	0	100	78-120	11230	10.8	20	
2-Butanone	24010	2,500	25000	0	96.1	58-132	23340	2.84	20	
2-Chloroethyl vinyl ether	22350	2,500	25000	0	89.4	74-120	22640	1.3	20	
2-Hexanone	23170	2,500	25000	0	92.7	61-130	22960	0.89	20	
4-Methyl-2-pentanone	24240	2,500	25000	0	97	65-127	24610	1.51	20	
Acetone	20860	2,500	25000	0	83.4	59-137	20670	0.909	20	
Benzene	11760	1,200	12500	0	94.1	73-121	10760	8.94	20	
Bromodichloromethane	12820	1,200	12500	0	103	80-120	12320	3.96	20	
Bromoform	12670	1,200	12500	0	101	79-120	11740	7.59	20	
Bromomethane	11950	1,200	12500	0	95.6	66-137	10690	11.1	20	
Carbon disulfide	20600	2,500	25000	0	82.4	68-141	21650	4.97	20	
Carbon tetrachloride	9831	1,200	12500	0	78.6	75-124	9519	3.22	20	
Chlorobenzene	11170	1,200	12500	0	89.3	80-120	11330	1.43	20	
Chloroethane	11590	1,200	12500	0	92.7	76-121	10940	5.73	20	
Chloroform	11770	1,200	12500	0	94.2	80-120	11500	2.37	20	
Chloromethane	11680	1,200	12500	0	93.4	67-123	11120	4.91	20	
cis-1,3-Dichloropropene	13270	1,200	12500	0	106	80-120	11670	12.8	20	
Dibromochloromethane	12380	1,200	12500	0	99.1	80-120	11790	4.92	20	
Ethylbenzene	10850	1,200	12500	0	86.8	80-120	10260	5.57	20	
m,p-Xylene	21540	2,500	25000	0	86.2	78-121	20570	4.62	20	
Methylene chloride	11780	2,500	12500	148.4	93.1	65-133	12060	2.32	20	
Styrene	12190	1,200	12500	0	97.5	80-120	11800	3.23	20	
Tetrachloroethene	9624	1,200	12500	0	77	79-120	9166	4.88	20	S
Toluene	10860	1,200	12500	0	86.9	80-120	10770	0.907	20	
trans-1,3-Dichloropropene	12940	1,200	12500	0	103	80-120	13010	0.574	20	
Trichloroethene	13590	1,200	12500	2002	92.7	80-120	12350	9.54	20	
Vinyl acetate	24650	2,500	25000	0	98.6	67-139	23950	2.87	20	
Vinyl chloride	11990	500	12500	1420	84.6	70-127	11670	2.67	20	
Xylenes, Total	33470	3,800	37500	0	89.2	80-120	31960	4.62	20	
Surr: 1,2-Dichloroethane-d4	12170	1,200	12500	0	97.3	70-125	12640	3.8	20	
Surr: 4-Bromofluorobenzene	12660	1,200	12500	0	101	72-125	12160	4.05	20	
Surr: Dibromofluoromethane	12040	1,200	12500	0	96.3	71-125	12860	6.59	20	
Surr: Toluene-d8	12010	1,200	12500	0	96.1	75-125	11680	2.85	20	

The following samples were analyzed in this batch: 1108743-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108743
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R115163** Instrument ID **WetChem** Method: **SW9040**

LCS Sample ID: **WLCSW1-082411-R115163** Units: **pH units** Analysis Date: **8/24/2011 02:00 PM**

Client ID: Run ID: **WETCHEM_110824P** SeqNo: **2505871** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.02	0.10	6	0	100	90-110	0			

DUP Sample ID: **1108743-01DDUP** Units: **pH units** Analysis Date: **8/24/2011 02:00 PM**

Client ID: **Injection Well Effluent** Run ID: **WETCHEM_110824P** SeqNo: **2505873** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	8.15	0.10	0	0	0	0-0	8.11	0.492	20	H

The following samples were analyzed in this batch:

1108743-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108743
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R115248 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW1-082611-R115248 Units: $\mu\text{mhos/cm}$ Analysis Date: 8/26/2011 02:00 PM

Client ID: Run ID: WETCHEM_110826B SeqNo: 2507383 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: WLCSW1-082611-R115248 Units: $\mu\text{mhos/cm}$ Analysis Date: 8/26/2011 02:00 PM

Client ID: Run ID: WETCHEM_110826B SeqNo: 2507384 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1460	1.0	1413	0	103	80-120	0			

DUP Sample ID: 1108743-01DDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 8/26/2011 02:00 PM

Client ID: Injection Well Effluent Run ID: WETCHEM_110826B SeqNo: 2507387 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	7410	1.0	0	0	0		7380	0.406	20	

The following samples were analyzed in this batch: 1108743-01D

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R115296** Instrument ID **WetChem** Method: **SM2320B**

MBLK Sample ID: **WBLKW1-082911-R115296** Units: **mg/L** Analysis Date: **8/29/2011 11:35 AM**

Client ID: Run ID: **WETCHEM_110829B** SeqNo: **2508254** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-082911-R115296** Units: **mg/L** Analysis Date: **8/29/2011 11:35 AM**

Client ID: Run ID: **WETCHEM_110829B** SeqNo: **2508255** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	982.6	5.0	1000		0	98.3	80-120	0		

DUP Sample ID: **1108713-02BDUP** Units: **mg/L** Analysis Date: **8/29/2011 11:35 AM**

Client ID: Run ID: **WETCHEM_110829B** SeqNo: **2508277** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	61.86	5.0	0	0	0	0-0	61.29	0.926	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	61.86	5.0	0	0	0	0-0	61.29	0.926	20	

The following samples were analyzed in this batch:

1108743-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108743
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R115381** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCS-083011-R115381** Units: **°F** Analysis Date: **8/30/2011 04:00 PM**

Client ID: Run ID: **WETCHEM_110830F** SeqNo: **2509821** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	0			

LCSD Sample ID: **WLCSD-083011-R115381** Units: **°F** Analysis Date: **8/30/2011 04:00 PM**

Client ID: Run ID: **WETCHEM_110830F** SeqNo: **2509826** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	83	0	25	

DUP Sample ID: **1108774-03DDUP** Units: **°F** Analysis Date: **8/30/2011 04:00 PM**

Client ID: Run ID: **WETCHEM_110830F** SeqNo: **2509827** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch:

1108743-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R115391** Instrument ID **ICS3000** Method: **E300**

MBLK	Sample ID: WBLKW1-083011-R115391				Units: mg/L		Analysis Date: 8/30/2011 04:22 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510041		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.229	0.10	5	0	105	85-115	0			

LCS	Sample ID: WLCSW-083011-R115391				Units: mg/L		Analysis Date: 8/30/2011 04:43 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510042		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.68	0.50	20	0	103	90-110	0			
Sulfate	18.54	0.50	20	0	92.7	90-110	0			
Surr: Selenate (surr)	5.359	0.10	5	0	107	85-115	0			

LCSD	Sample ID: WLCSDW-083011-R115391				Units: mg/L		Analysis Date: 8/30/2011 05:29 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510321		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.72	0.50	20	0	104	90-110	20.68	0.179	20	
Sulfate	18.17	0.50	20	0	90.9	90-110	18.54	2.03	20	
Surr: Selenate (surr)	5.359	0.10	5	0	107	85-115	5.359	0	20	

MS	Sample ID: 1108713-01BMS				Units: mg/L		Analysis Date: 8/30/2011 07:28 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510322		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	11.79	0.50	10	1.702	101	80-120	0			
Sulfate	18.1	0.50	10	8.776	93.3	80-120	0			
Surr: Selenate (surr)	5.721	0.10	5	0	114	85-115	0			

MS	Sample ID: 1108948-01AMS				Units: mg/L		Analysis Date: 8/30/2011 09:27 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510327		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.5	0.50	10	8.106	104	80-120	0			
Sulfate	29.75	0.50	10	19.81	99.5	80-120	0			
Surr: Selenate (surr)	5.659	0.10	5	0	113	85-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1108743
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R115391** Instrument ID **ICS3000** Method: **E300**

MSD	Sample ID: 1108713-01BMSD				Units: mg/L		Analysis Date: 8/30/2011 07:49 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510323		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	12.07	0.50	10	1.702	104	80-120	11.79	2.36	20	
Sulfate	18.63	0.50	10	8.776	98.5	80-120	18.1	2.85	20	
<i>Surr: Selenate (surr)</i>	<i>5.568</i>	<i>0.10</i>	<i>5</i>	<i>0</i>	<i>111</i>	<i>85-115</i>	<i>5.721</i>	<i>2.71</i>	<i>20</i>	

MSD	Sample ID: 1108948-01AMSD				Units: mg/L		Analysis Date: 8/30/2011 09:48 PM			
Client ID:	Run ID: ICS3000_110830A				SeqNo: 2510328		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.38	0.50	10	8.106	103	80-120	18.5	0.634	20	
Sulfate	29.64	0.50	10	19.81	98.4	80-120	29.75	0.367	20	
<i>Surr: Selenate (surr)</i>	<i>5.619</i>	<i>0.10</i>	<i>5</i>	<i>0</i>	<i>112</i>	<i>85-115</i>	<i>5.659</i>	<i>0.709</i>	<i>20</i>	

The following samples were analyzed in this batch:

1108743-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1108743
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R115420** Instrument ID **Balance1** Method: **M2540C**

MBLK	Sample ID: BLANK-R115420				Units: mg/L		Analysis Date: 8/30/2011 08:00 AM			
Client ID:	Run ID: BALANCE1_110830B				SeqNo: 2511071		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS	Sample ID: LCS-R115420					Units: mg/L		Analysis Date: 8/30/2011 08:00 AM		
Client ID:	Run ID: BALANCE1_110830B					SeqNo: 2511072		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1050	10	1000	0	105	85-115	0			

DUP	Sample ID: 1108743-01CDUP					Units: mg/L		Analysis Date: 8/30/2011 08:00 AM		
Client ID: Injection Well Effluent			Run ID: BALANCE1_110830B			SeqNo: 2511070		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	4180	10	0	0	0	0-0	4320	3.29	20	

The following samples were analyzed in this batch:

1108743-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1108743

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

[illegible]

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 24-Aug-11 09:20

Work Order: 1108743

Received by: PMG

Checklist completed by Raymond N Gamba
eSignature

24-Aug-11
Date

Reviewed by: Chris Bryson
eSignature

24-Aug-11
Date

Matrices: Liquid

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.4c</u>	<u>002</u>	
Cooler(s)/Kit(s):	<u>3486</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	<u>-</u>		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

ALS Environmental

10450 Stancliff Rd., Suite 210

Houston, Texas 77099

Tel. +1 281 530 5656

Fax. +1 281 530 5887

CUSTODY SEAL

Date: 8/23/11

Time: 1620

Name:

Company:

Blue Phospha for Aaron Stange
NAVAJO REFINING CO.

Seal Broker

Date:

ORIGIN ID: ROWA

NAVAJO ARTESIA
501 E MAINARTESIA, NM 882109440
UNITED STATES USSHIP DATE: 23AUG11
ACTWGT: 60.0 LB M
CAD: 634483/CAFE2472

BILL RECIPIENT

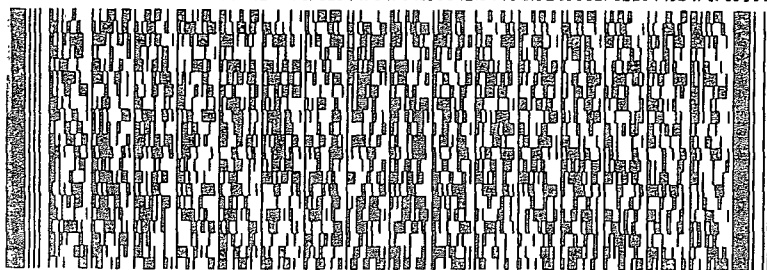
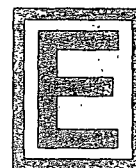
TO CHRIS BRYSON
ALS LABORATORY GROUP
10450 STANCLIFF RD., SUITE 210

HOUSTON TX 77099

(281) 530-5656
INV:
PO:

REF:

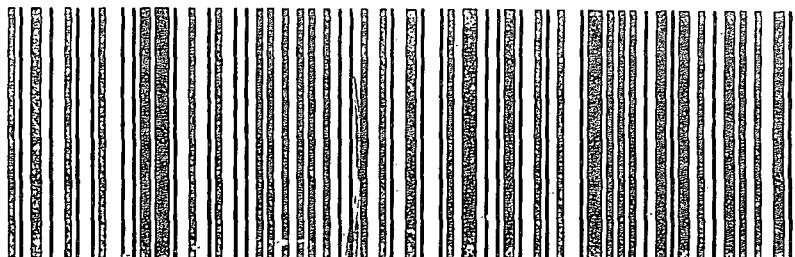
DEPT:

FedEx
ExpressTRK#
0201

4967 8855 7291

WED - 24 AUG A2
PRIORITY OVERNIGHT

AB SGRA

77099
TX-US
IAH

505C1/EEE7/DA47

Client: ALS Environmental
Project: 1108743
Work Order: 1108786

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1108786-01	1108743-01F	Liquid		8/23/2011 09:10	8/25/2011 10:00	☐

Client: ALS Environmental
Project: 1108743
WorkOrder: 1108786

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: 06-Sep-11

Client: ALS Environmental

Project: 1108743

Work Order: 1108786

Sample ID: 1108743-01F

Lab ID: 1108786-01

Collection Date: 8/23/2011 09:10 AM

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	ND		40.0	mg/Kg	1	9/1/2011 12:00 PM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	ND		40.0	mg/Kg	1	9/1/2011 12:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 06-Sep-11

Client: ALS Environmental
Work Order: 1108786
Project: 1108743

QC BATCH REPORT

Batch ID: **R94168** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **WBLKW1-090111-R94168** Units: **mg/Kg** Analysis Date: **9/1/2011 12:00 PM**

Client ID: Run ID: **WETCHEM_110901E** SeqNo: **1723562** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1108786-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 1108786
 Project: 1108743

QC BATCH REPORT

Batch ID: R94169 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK	Sample ID: WBLKW1-090111-R94169				Units: mg/Kg		Analysis Date: 9/1/2011 12:00 PM			
Client ID:	Run ID: WETCHEM_110901F				SeqNo: 1723570		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS	Sample ID: WLCSW1-090111-R94169				Units: mg/Kg		Analysis Date: 9/1/2011 12:00 PM			
Client ID:	Run ID: WETCHEM_110901F				SeqNo: 1723571		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	0			

LCSD	Sample ID: WLCSDW1-090111-R94169				Units: mg/Kg		Analysis Date: 9/1/2011 12:00 PM			
Client ID:	Run ID: WETCHEM_110901F				SeqNo: 1723579		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	234.9	0	35	

MS	Sample ID: 1108786-01A MS				Units: mg/Kg		Analysis Date: 9/1/2011 12:00 PM			
Client ID: 1108743-01F	Run ID: WETCHEM_110901F				SeqNo: 1723575		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	0			

MSD	Sample ID: 1108786-01A MSD				Units: mg/Kg		Analysis Date: 9/1/2011 12:00 PM			
Client ID: 1108743-01F	Run ID: WETCHEM_110901F				SeqNo: 1723576		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	234.9	0	35	

The following samples were analyzed in this batch:

1108786-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

1108786



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185

Acct #

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 24-Aug-11
COC ID: 10871
Due Date: 06-Sep-11

Customer Information		Salesperson		Project Information		Parameter/Method Request for Analysis																							
Purchase Order	10-2121547	Project Name	1108743			A		Reactive Cyanide (SW-846)																					
Work Order		Project Number				B		Reactive Sulfide (SW-846)																					
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.			C																							
Send Report To	Chris Bryson	Inv Attn	Accounts Payable			D																							
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210			E																							
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338			F																							
Phone	(281) 530-5656	Phone	(281) 530-5656			G																							
Fax	(281) 530-5887	Fax	(281) 530-5887			H																							
eMail Address	chris.bryson@alsglobal.com	eMail CC	mary.knowles@alsglobal.com			I																							
Sample ID		Matrix	Collection Date	24hr	Bottle	J																							
1108743-01F (Injection Well Effluent)		Liquid	23/Aug/2011 9:10		(1)-1LPNEAT	A		X		B		X		C		D		E		F		G		H		I		J	

Comments:

Please analyze for Reactive Cyanide and Reactive Sulfide. Report is due on 9/6/11. Send report to Chris Bryson, chris.bryson@alsglobal.com, and CC: results to Glenda Ramos, glenda.ramos@alsglobal.com and Mary Knowles, mary.knowles@alsglobal.com

myc

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
<i>[Signature]</i>	8/24/11	<i>[Signature]</i>	8/25/11 1000		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

2.6c

ORIGIN ID: SGRA (281) 530-565-0
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 24AUG11
ACT WT: 19.2 LB
C 300130/CAFE2507

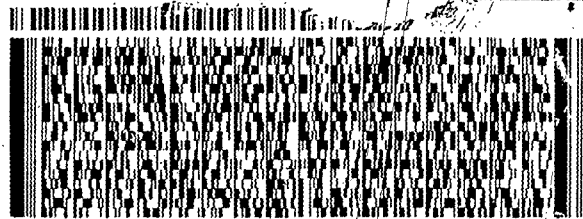
BILL SENDER

TO LES ARNOLD
ALS ENVIRONMENTAL
3352 128TH

HOLLAND MI

(281) 630-6666

REF: SUB-CONTRACT



FedEx
Express



50001/FF7/1000

105/630135

TRK# 4340 2166 2609
0201

THU - 25 AIRNIGHT
PRIORITY OVER 49424

US GRR

NI GRRA

REF: 11-314D-428 NHT V3 12-03



MI-

NY 158148-434 NAIT V3 12-09

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 25-Aug-11 10:00

Work Order: 1108786

Received by: DS

Checklist completed by <u>Diane Shaw</u>	25-Aug-11	Reviewed by: <u>Bill Carey</u>	26-Aug-11
eSignature	Date	eSignature	Date

Matrices: Liquid

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>2.6 c</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			
Login Notes:			

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, October 06, 2011 7:14 AM
To: Chavez, Carl J, EMNRD
Subject: Navajo Refining Company (UICI-008) WDWs 1, 2 & 3 MIT Meeting Determination on October 5, 2011

This note to the file documents the final determination by Ms. Jami Bailey (OCD Director) regarding the significant variation in annulus pressure systems at UIC Class I (NH) Injection Wells (WDWs 1, 2 & 3) under dynamic flow injection conditions. Quarterly monitoring and the annulus report document the variation in tubing and annulus pressures and volumes under the discharge permit and form the basis for the meeting.

After hearing the technical information presented at the meeting, the OCD Director determined the following:

- 1) No additional charts of the tubing versus annulus pressure are needed.
- 2) The injection wells have passed annual MITs and appear to be in good condition.
- 3) There appears to be a surface effluent flow-line issue(s) due to the C-141 releases that have been occurring upgradient from the Chukka Well (WDW-2) and other wells that needs to be addressed to correct this problem.

Consequently, the variation in annulus well pressure under dynamic flow conditions appears to physically affect the pressure in the well annulus system. This is considered to be normal based on the current mechanical design and construction of the injection system. The external tank fluid level monitoring couple with annual annulus pressure and bradenhead MITs will continue to be relied upon for mechanical integrity determination under the OCD's UIC Program.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/>

"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:
<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)

Chavez, Carl J, EMNRD

Subject: Holly-Frontier (Navajo Refining Co.) OCD UIC Class I (NH) Injection Wells (UICI-008) & Significant Variation in Annulus Pressures Noticed from Monitoring
Location: Telephone Conference Call
Start: Wed 10/5/2011 10:30 AM
End: Wed 10/5/2011 12:00 PM
Recurrence: (none)
Meeting Status: Meeting organizer
Organizer: Chavez, Carl J, EMNRD
Required Attendees: Bailey, Jami, EMNRD; Sanchez, Daniel J., EMNRD; Ezeanyim, Richard, EMNRD; Jones, William V., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Griswold, Jim, EMNRD; Lackey, Johnny; Moore, Darrell; Gonzales, Elidio L, EMNRD; Brown, Maxey G, EMNRD
Categories: Red Category

Request: Request for Holly-Frontier Representatives to send Carl Chavez any presentation in Acrobat Reader (pdf format) for the conference call for Carl to attach to this meeting notice and also Carl will place presentation files into OCD's Telephone Conference Call Folder at L:\ENVIRONM\WORD\COMMON\OCD Training\TELEPHONE CONFERENCE CALLS\Navajo Refining UIC Wells Meeting 10-5-2011 for OCD Staff to access during the telephone conference call and/or to attach the file directly to this meeting notice for all meeting participants to access. Also, please send any agenda items that any of you may wish to add to the agenda by COB next Tuesday. Thank you.

Meeting Call-In Information:

Dial-in Number: 1-712-580-8025 (Midwest)
Participant Access Code: 4509670
Organizer Access Code: * 693464 (you must include the leading star key)

Tentative Meeting Agenda:

Purpose: To discuss monitored variation in injection well annulus pressures during injection for 3 UIC Class I (NH) Injection Wells in Eddy County.

- * Introductions
- * Well Locations
- * Fiberglass Effluent Line from Refinery to Injection Wells
- * Monitored Annulus Pressure Data
- * Miscellaneous
- * Path Forward



UICI-8 FOT
9-22-2011.pdf



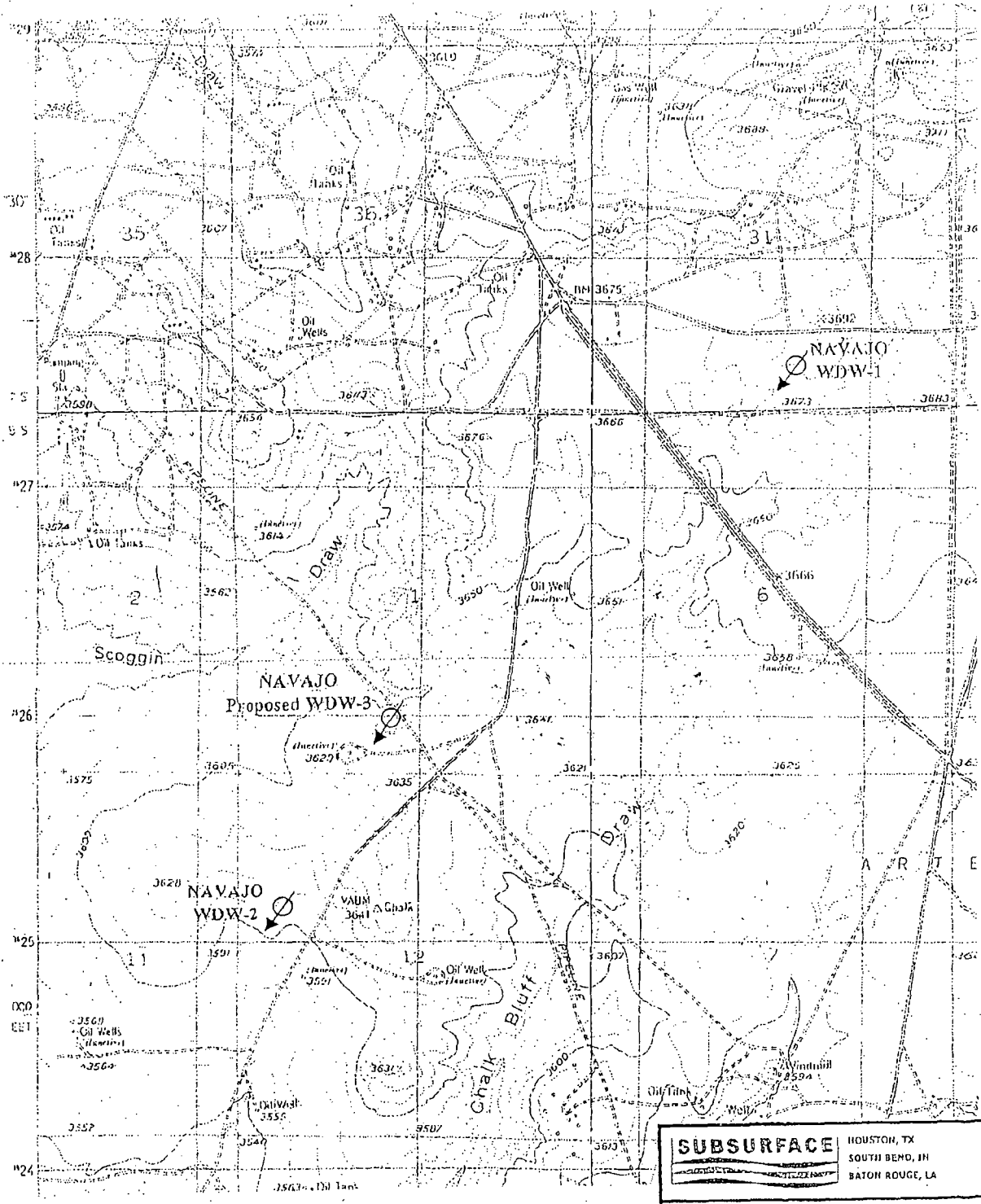
Well Info
9-23-2011.pdf



Effluent Line.pdf



Well Inspection
Photos.pdf



USGS Topographic Map
Red Lake Quadrangle, Eddy County, NM

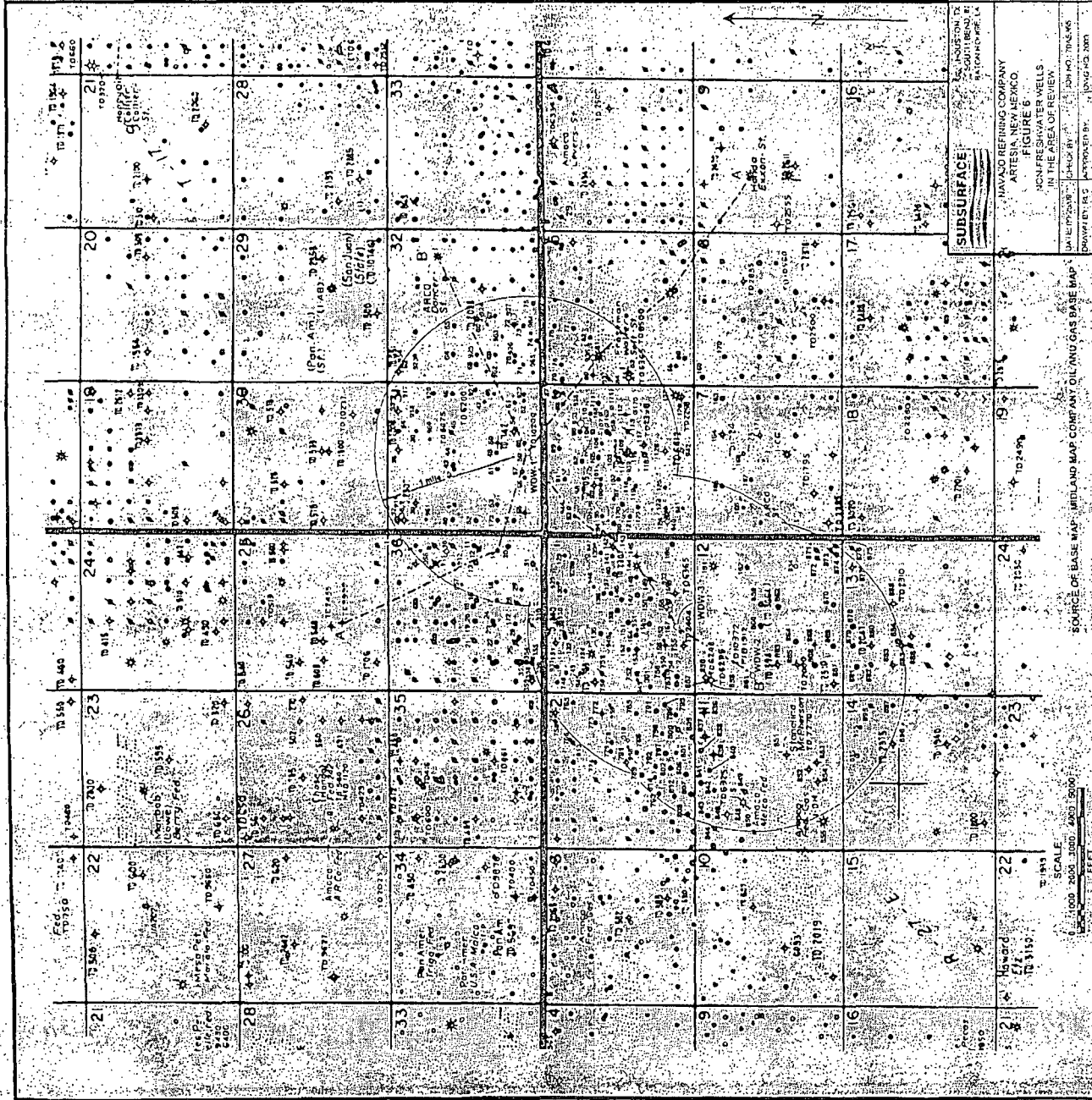
Section corners marked with +

SUBSURFACE		HOUSTON, TX
		SOUTH BEND, IN
		BATON ROUGE, LA
EXHIBIT A		
NAVAJO REFINING COMPANY		
PROPOSED WDW-3		
790' FSL, 2250' FWL 1-185-27E		
DATE: 7/28/03	APPROVED BY: HLN	JOB NO: 6005497
DRAWN BY:	CHECKED BY:	SCALE: 1"=2000'

UIC - 1 - 8

EPA FALL-OFF
TEST PLAN MAPS
(WDW-3)
DATE:

2008 - Present



Well Data Table 1

	Mewbourne Well No. 1	Chukka Well No. 2	Gaines Well No. 3
Tubing	4.5", 11.6 lb/ft, N-80, SMLS, R3, LT&C 7879'	3.5", 9.2 lb/ft, J-55, NUE 10RD 7528'	4.5", 11.6 lb/ft, J-55, LT&C, 8RD 7575'
Packer	7"x 3.5", EVI Oil Tools (Arrow), X-1, ID 3", 7879'	5.5"x 2.875" Weatherford (Arrow), X-1, ID 2.4375", 7528'	7"x 2.875" Kenco Tools (Arrow), X-1, ID 2.4375", 7575'
Perforations	Upper 7924 - 42 7974 - 8030 8050 - 56 8066 - 80 8118 - 27 8132 - 40 8160 - 64 8170 - 88 Lower 8220 - 54 8260 - 70 8280 - 8302 8360 - 66 8370 - 78 8400 - 10 8419 - 23 8430 - 46 8460 - 64 8470 - 76	Upper 7570 - 7620 7676 - 7736 Lower 7826 - 34 7858 - 80 7886 - 7904 7916 - 36 7944 - 64 7990 - 8042 8096 - 8116 8191 - 8201 8304 - 19 8395 - 99	Upper 7660 - 8450 Lower 8540 - 8620
Protection Casing	7", 29 lb/ft, N-80, LT&C, 9094 - 7031	5.5", 17 lb/ft, L-80, LT&C	7", 29 lb/ft, N-80, LT&C
Cement Top Protection Casing	Surface	Surface	900'
PBTD / TD	9004' / 10,200'	8770' / 10,372'	9022' / 10,119'
Formation	Wolfcamp / Cisco / Canyon	Wolfcamp / Cisco / Canyon	Wolfcamp / Cisco / Canyon
Inj. Interval	7450' - 9016'	7270' - 8894'	7303' - 8894'
OCD UIC Permit Number	UIC-CLI-008-1	UIC-CLI-008-2	UIC-CLI-008-3
API Number	30-015-27592	30-015-20894	30-015-26575

BELOW GROUND DETAILS

All depths are referenced to the Kelly bushing elevation of 12.5' above ground level. Ground level elevation is 3,678' above mean sea level.

1. Surface Casing: 13 3/4", 48 lb/ft, J-55, ST&C set at 390' in a 17 1/2" hole. Cemented with 150 sx Class C with 3 % calcium chloride, 375 sx Class C Lite w/3 % calcium chloride and 1/2 lb/sx floccle. Circulated 86 sx to surface.
2. Intermediate Casing: 9 3/4", 36 lb/ft, J-55, ST&C set at 2,555' in a 12 1/4" hole. Cemented w/800 sx of Class C Lite w/ 1/2 lb/sx floccle and 2 lb/sx Gilsomite and 12 % salt. Followed by 200 sx of Class C w/2 % calcium chloride. Circulated 133 sx to surface.
3. Base of the USDW at 493'.
4. Injection Tubing: 4 1/2", 11.6 lb/ft, N-80, SMLS, R3, LT&C set at 7,879'.
5. DV Tool: at 5,498'.

6. Annulus Fluid: 8.7 lb/gal brine water mixed w/UniChem Techni-Hib 370 corrosion inhibitor.

7. Protection Casing: 7", 29 lb/ft, N-80, LT&C: 9094' to 7031'. 7", 29 lb/ft, P-110, LT&C: 7031' to 5845'. 7", 26 lb/ft, P-110, LT&C: 5845' to surface. Casing cemented in two stages as follows:

First Stage - 600 sx modified Class H w/0.4 % CFR-3, 5 lb/sx Gilsomite, 0.5 % Halad-344, and 1 lb/sx salt mixed at 13.0 ppg. Opened DV tool at 5498' and circulated 142 sx to surface.

Second Stage - Lead Slurry: 220 sx Interfill "C" (35:65:6) mixed at 11.7 ppg. Tail Slurry: 550 sx modified Class H w/0.4 % CFR-3, 5 lb/sx, Gilsomite, 0.5 % Halad-344, 0.1 % HR-7, and 1 lb/sx mixed at 13.0 ppg. Circulated 75 sx to surface. Top out w/20 sx permium plus 3 % calcium chloride.

8. Packer: 7" x 3.5" EVI Oil Tools (Arrow), Model X-1 retrievable packer set at 7879'. Minimum I.O. is 3.0". Wireline re-entry guide on bottom. To release: turn 1/4 turn to the right and pick up.

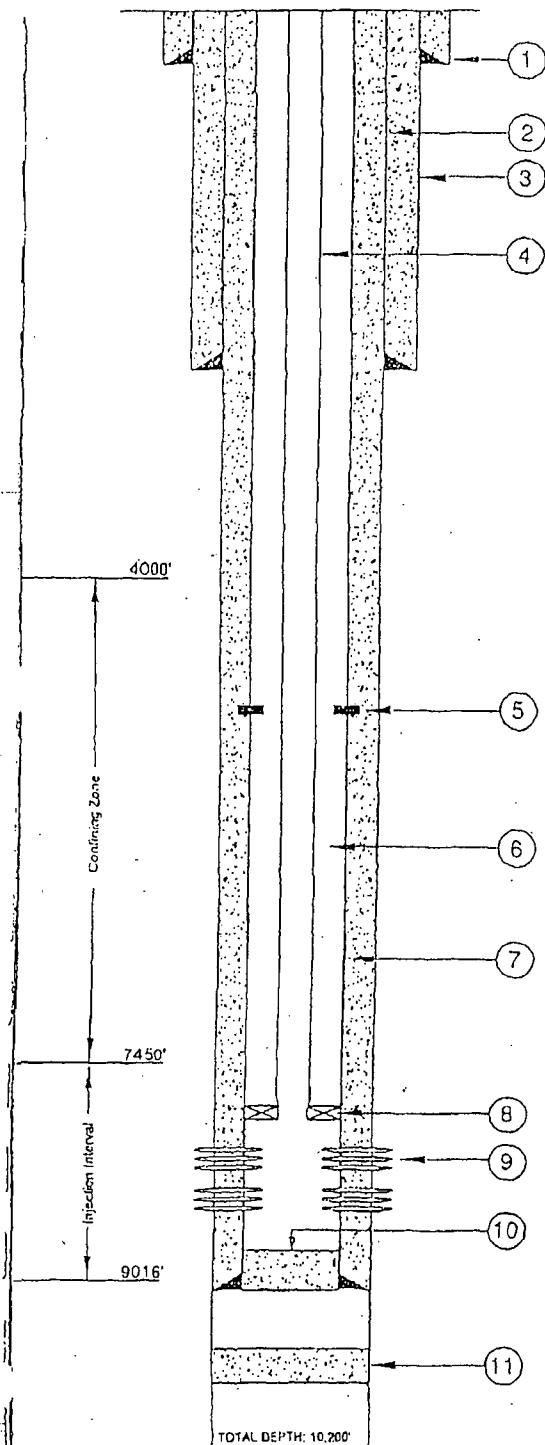
9. Perforations (2 SPF):

Upper Zone - 7924-7942', 7974-8030', 8050-8056', 8066-8080', 8118-8127', 8132-8140', 8160-8164', 8170-8188'.

Lower Zone - 8220-8254', 8260-8270', 8280-8302', 8360-8366', 8370-8378', 8400-8410', 8419-8423', 8430-8446', 8460-8464', 8470-8478'.

10. PBTD: 9004'.

11. Cement Plug: 45 sx Class H from 9624' to 9734'.



SUBSURFACE		HOUSTON, TX. SOUTH BEND, IN. BATON ROUGE, LA.
FIGURE 1		
NAVAJO REFINING COMPANY ARTESIA, NEW MEXICO		
BELOW GROUND DETAILS WASTE DISPOSAL WELL NO. 1		
DATE: 07/13/01	CHECKED BY:	JOB NO: 7005256
DRAWN BY: WDL	APPROVED BY:	DWG. NO:

FIGURE 1

NOTICE OF PUBLICATION

Navajo Refining Company
Artesia, New Mexico

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations (20.6.2.3108 NMAC), the following discharge permit application(s) has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(I-008) Navajo Refining Company, Darrell Moore, Environmental Manager for Water and Waste, 501 East Main Street, P.O. Box Drawer 159, Artesia, New Mexico, 86211-0159, has submitted an application for a Class I Injection Well Discharge Permit (UIC-CL-008) for Injection well WDW-1 (API#30-015-27592) located in the SW/4, SE/4 of Section 31, Township 17 South, Range 28 East, NMPM, Eddy County, New Mexico. The Injection well is located approximately 11 miles East-Southeast of Artesia on Hwy-82 from Hwy-285 and about 1 mile south on Hilltop Road. Oil field exempt and non-exempt non-hazardous industrial waste will be transported about 11 miles underground from the Navajo Artesia Refinery located at 501 E. Main Street, Artesia, NM via a 6 inch dia. pipeline to WDW-1 for disposal into the Wolfcamp, Clisco, and Canyon Formations in the injection interval from 7,924 to 8,476 feet (depth below ground level). The total dissolved solids concentration of the injection zone ranges from 13,000 mg/l to 119,909 mg/l. The Injection rate will not exceed 500 gpm at a maximum injection pressure of 1,580 psig. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 100 feet below the ground surface, with a total dissolved solids concentration of 100 to 1,535 mg/l. The discharge plan addresses operation, monitoring, associated surface facilities, and provides a contingency plan in the event of accidental spills, leaks, and other accidental discharges in order to protect fresh water.

The NMOCD has determined that the application is administratively complete and has prepared a draft permit. The NMOCD will accept comments and statements of interest regarding this application and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be reviewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or also may be viewed at the NMOCD web site <http://www.emnid.state.nm.us/ocd>. Persons interested in obtaining a copy of the application and draft permit may contact NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice, during which interested persons may submit comments or request the NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the permit based on information available, including all comments received. If a public hearing is held, the Director will approve or disapprove the proposed permit based on information in the permit application and information submitted at the hearing.

Published in the Artesia Daily Press on August 9, 2009. Legal 20795.

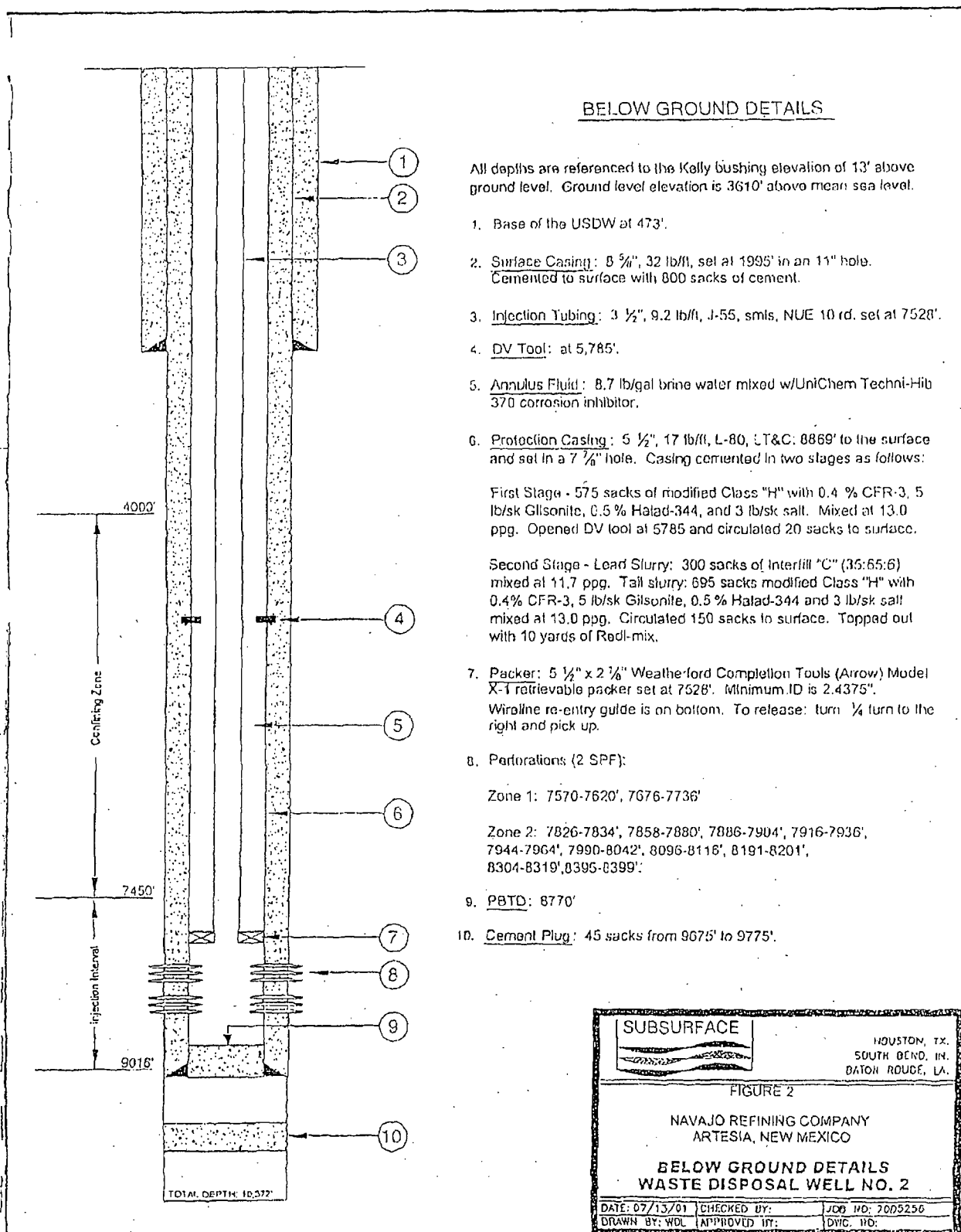


FIGURE 4

NOTICE OF PUBLICATION

Navajo Refining Company
Artesia, New Mexico

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations (20.6.2.3108 NMAC), the following discharge permit application(s) has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(L-008-1) Navajo Refining Company, Darrell Moore, Environmental Manager for Water and Waste, 501 East Main Street, P.O. Box Drawer 159, Artesia, New Mexico, 88211-0159, has submitted an application for a Class I Injection Well Discharge Permit (UIC-CLI-008-1) for injection well WDW-2 (API#30-018-20894) located in the SW/4, NW/4 of Section 12, Township 18 South, Range 27 East, NMPM, Eddy County, New Mexico. The injection well is located approximately 10.5 miles East-Southeast of Artesia on Hwy-82 from Hwy-285 and about 3.3 miles south on Hilltop Road. Oil field exempt and non-exempt non-hazardous industrial waste will be transported about 10.5 miles underground from the Navajo-Artesia Refinery located at 501 E. Main Street, Artesia, NM via a 6 inch dia. pipeline to WDW-2 for disposal into the Wolfcamp, Cisco, and Canyon Formations in the injection interval from 7,570 to 8,399 feet (depth below ground level). The total dissolved solids concentration of the injection zone ranges from 13,000 mg/l to 119,909 mg/l. The injection rate will not exceed 500 gpm at a maximum injection pressure of 1,510 psig. Groundwater most likely to be affected by a spill, leak or accidental discharge is at a depth of approximately 100 feet below the ground surface, with a total dissolved solids concentration of 100 to 1,535 mg/l. The discharge plan addresses well operation, monitoring, associated surface facilities, and provides a contingency plan in the event of accidental spills, leaks, and other accidental discharges in order to protect fresh water.

The NMOCD has determined that the application is administratively complete and has prepared a draft permit. The NMOCD will accept comments and statements of interest regarding this application and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be reviewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or also may be viewed at the NMOCD web site <http://www.emnrd.state.nm.us/ocd>. Persons interested in obtaining a copy of the application and draft permit may contact NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice, during which interested persons may submit comments or request the NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the permit based on information available, including all comments received. If a public hearing is held, the Director will approve or disapprove the proposed permit based on information in the permit application and information submitted at the hearing.

Published in the Artesia Daily Press, August 9, 2008, Legal 20793.

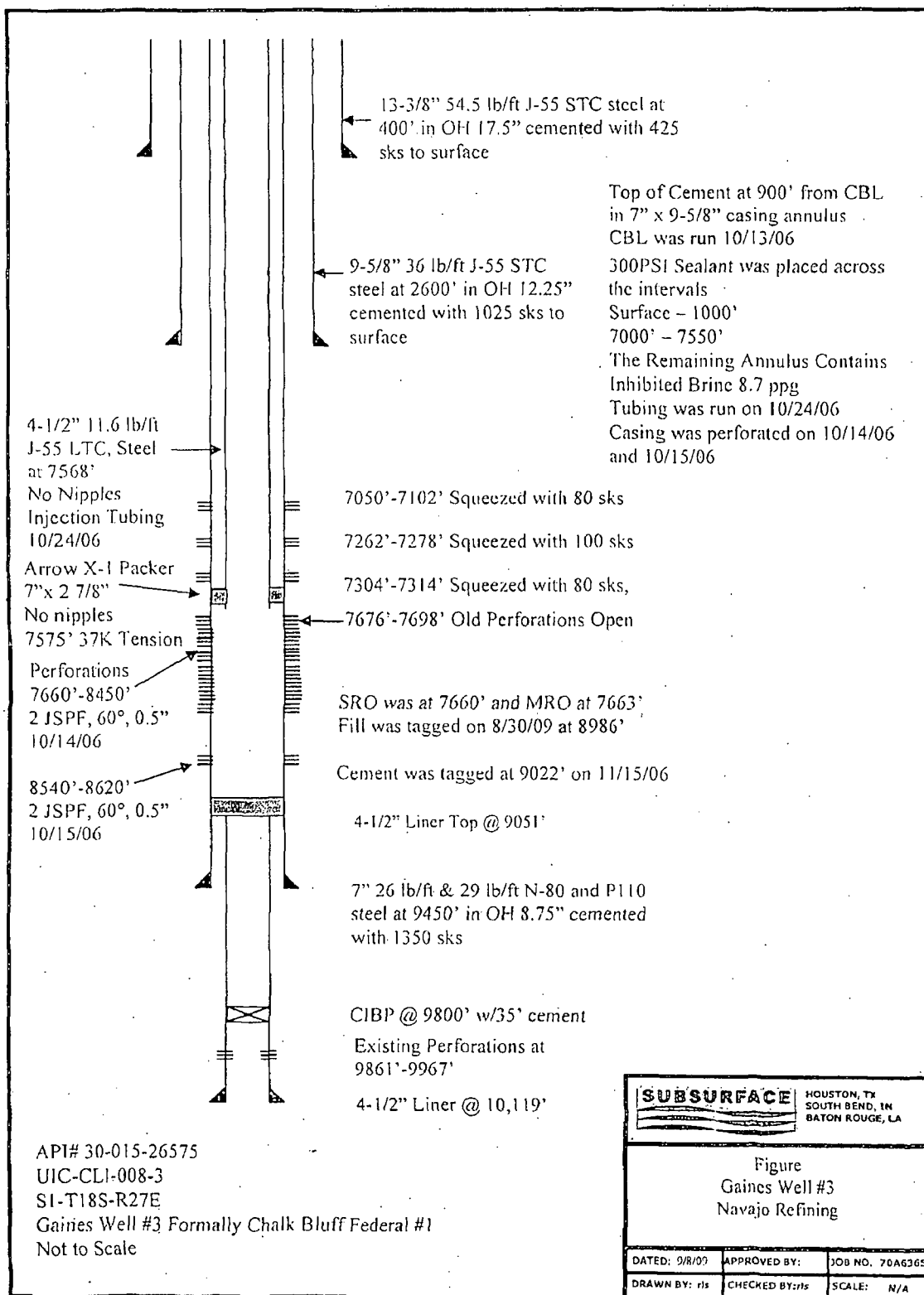


FIGURE 3

PUBLIC NOTICE

NOTICE OF DISCHARGE PERMIT REQUEST

Pursuant to the requirements of the New Mexico Water Quality Control Commission regulation 20 NMAC 6.2.3108, Navajo Refining Company hereby announces that it is making application to the New Mexico Oil Conservation Division (NMOCD) – Environmental Bureau for a discharge permit to inject waste water from Navajo Refining Company's Artesia plant into an injection well that is called WDW-3 located in Unit N, Section 1, Township 18S, Range 27E, Eddy County, New Mexico or approximately 10 miles east of Artesia on US Hwy 82 from US Hwy 285 and about 3 miles south on Hilltop Road. Previously, WDW-1 and WDW-2 were already permitted under separate plans. This waste water will originate at Navajo's Artesia, NM refinery which is located at 501 E. Main Street, Artesia, NM and will then be carried through an underground pipeline approximately 12 miles to the above mentioned well site. The waste water will be injected into the Lower Wolfcamp, Cisco, and Canyon Formations located between 7650 feet and 8620 feet (log depth). The injection rate will not exceed 500 gpm at an injection pressure not to exceed 1530 psig.

The generation of waste water from the Artesia Plant is a result of water that is entrained in the crude supply, water used for cooling and heating, water used to remove salts from the crude supply, and boiler blow down. The Artesia Plant's waste water could potentially be put into WDW-3. This waste water will have a total dissolved solids (TDS) content of 7000 parts per million, a pH from 7 to 9, and minor metal concentrations. In the area of the well location, fresh water is at a depth of 80 feet with a TDS of 1500 to 2200 parts per million.

Navajo's operation of the affected facilities will comply with all applicable State and Federal regulations.

The owner and operator of the facility is: Navajo Refining Company, L.P.
501 E. Main Street
Artesia, NM 88210

Comments and inquiries may be directed to:
Mr. Jim Resinger, Refinery Manager, (505) 748-3311

Persons interested in obtaining further information, submitting comments, or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the New Mexico Oil Conservation Division.

Comments and inquiries on regulations should be directed to:
Director
New Mexico Oil Conservation Division (NMOCD)
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505
Telephone: (505) 476-3440

Chavez, Carl J, EMNRD

Subject: Holly-Frontier (Navajo Refining Co.) OCD UIC Class I (NH) Injection Wells (UICI-008) & Significant Variation in Annulus Pressures Noticed from Monitoring
Location: Telephone Conference Call
Start: Wed 10/5/2011 10:30 AM
End: Wed 10/5/2011 12:00 PM
Recurrence: (none)
Meeting Status: Meeting organizer
Organizer: Chavez, Carl J, EMNRD
Required Attendees: Bailey, Jami, EMNRD; Sanchez, Daniel J., EMNRD; Ezeanyim, Richard, EMNRD; Jones, William V., EMNRD; Dade, Randy, EMNRD; VonGonten, Glenn, EMNRD; Griswold, Jim, EMNRD; Lackey, Johnny; Moore, Darrell; Gonzales, Elidio L, EMNRD; Brown, Maxey G, EMNRD
Categories: Red Category

Request: Request for Holly-Frontier Representatives to send Carl Chavez any presentation in Acrobat Reader (pdf format) for the conference call for Carl to attach to this meeting notice and also Carl will place presentation files into OCD's Telephone Conference Call Folder at L:\ENVIRONM\WORD\COMMON\OCD Training\TELEPHONE CONFERENCE CALLS\Navajo Refining UIC Wells Meeting 10-5-2011 for OCD Staff to access during the telephone conference call and/or to attach the file directly to this meeting notice for all meeting participants to access. Also, please send any agenda items that any of you may wish to add to the agenda by COB next Tuesday. Thank you.

Meeting Call-In Information:

Dial-in Number: 1-712-580-8025 (Midwest)
Participant Access Code: 4509670
Organizer Access Code: * 693464 (you must include the leading star key)

Tentative Meeting Agenda:

Purpose: To discuss monitored variation in injection well annulus pressures during injection for 3 UIC Class I (NH) Injection Wells in Eddy County.

- * Introductions
- * Well Locations
- * Fiberglass Effluent Line from Refinery to Injection Wells
- * Monitored Annulus Pressure Data
- * Miscellaneous
- * Path Forward



UICI-8 FOT
9-22-2011.pdf



Well Info
9-23-2011.pdf



Effluent Line.pdf



Well Inspection
Photos.pdf



PROJECT SUMMARY

PROJECT: 8" Water Effluent Pipeline
PROJECT LOCATION: Artesia, NM

The 8" Water Effluent Pipeline project will consist of designing and constructing approximately 15 miles of new 8" Fiberglass pipeline. This new pipeline will parallel the existing 8" carbon steel water effluent pipeline (starting inside the Navajo Refinery and heading East to three injection wells). The current 8" carbon steel water effluent line is in service and operating but is highly corroded (due to internal corrosion), thus the need to design/construct a new pipeline parallel to it.

The new pipeline design needs to take into consideration the tie ins to the well injection locations and accommodate minimal down time on the existing carbon steel pipeline when activating the new line and deactivating the old (carbon steel) pipeline. The new fiberglass pipeline will be below grade and all below grade to above grade transitions will be accomplished with internal and external coated carbon steel. These carbon steel sections will also be protected with anode banks, for external corrosion protection. The scope of work will stop at the inlet to the filter isolation valves at each injection well sites. The isolation/block valves (qty 6) will be below grade in a concrete valve box (with the exception to the west river valve setting). The entire construction will consist of approximately 10 weeks (see attached schedule).

The 8" Fiberglass is a NOV, STAR, Anhydride line pipe product with a design pressure rating 1500psig at 150deg F (see attached spec sheet). The fluid in this design is effluent water which comes from the Navajo Refinery (see attached water samples). The pipeline max flow rate for design is 750gpm (~26,000bbl/day) at 130deg F (max) and pressures shall stay within the pressure rating of ANSI 600#.

We will use the fiberglass line pipe max temperature rating (150 deg F) and the valves/flanges pressure rating (1480psig) as the constraints for design parameters.

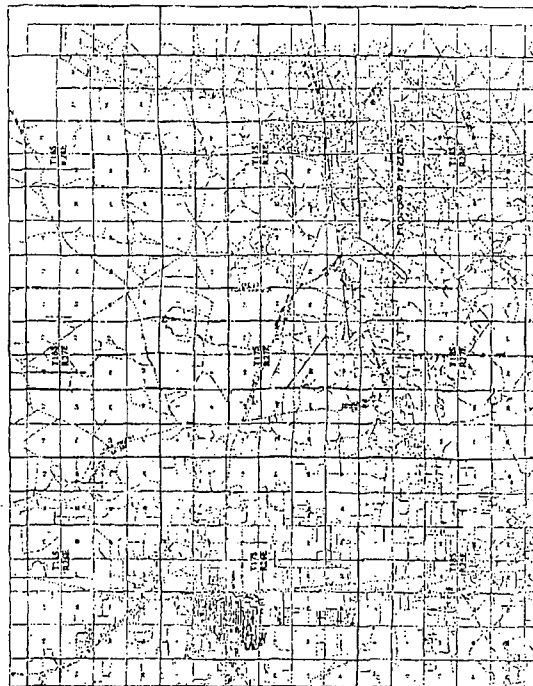
The pipeline will be designed so that it can be pigged (with a foam pig) from the start of the pipeline (inside the refinery), the to last injection well (Mewbourne - Inj. well #1). The two other laterals are short sections with isolation valves that won't be pigged (Chukka - Inj. Well #2; Gains - Inj. Well #3).

This pipeline will have several locations where steel casing will be encasing the fiberglass pipeline to protect it from third party damage as additional precaution. These locations include but are not limited to county road crossings, state highway crossings, river crossing, and major pipeline corridor crossings.

Thus overall the new pipeline design will be much more resilient to internal corrosion and the addition of more isolation valves will make it easier to work on sections of the line or injection well if a problem does prevail.

I. Specifications and Standards for Design

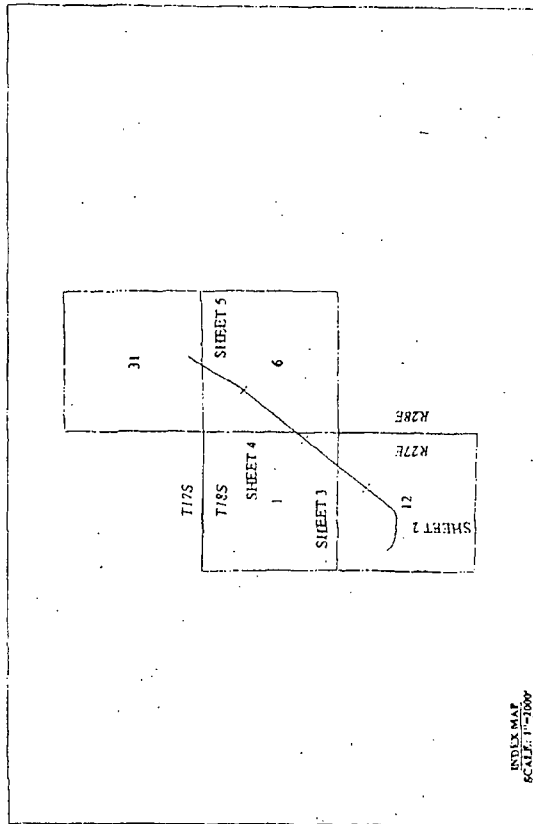
- a. US DOT CFR 49 Part 195 -Hazardous Liquids
- b. American Society of Mechanical Engineers B31.4 (ASME)
- c. American Petroleum Institute 6D(API)
- d. American Petroleum Institute 1104(API)
- e. American Petroleum Institute Recommended Practice 1102(API RP)
- f. American Society for Testing and Materials (ASTM)
- g. Occupational Safety and Health Administration (OSHA)
- h. American Concrete Institute (ACI)
- i. National Association of Corrosion Engineers (NACE)
- j. National Electric Code (NEC)



VICINITY MAP
NOT TO SCALE

LEGEND AND SPECIAL NOTES

- - BOUNDARY OF ADJACENT LANDS
- - BOUNDARY OF ADJACENT TOWNSHIPS
- - BOUNDARY OF ADJACENT COUNTIES
- - BOUNDARY OF ADJACENT STATES
- - BOUNDARY OF ADJACENT COUNTRIES
- - BOUNDARY OF ADJACENT OCEANS
- - BOUNDARY OF ADJACENT ISLANDS
- - BOUNDARY OF ADJACENT LAKES
- - BOUNDARY OF ADJACENT RIVERS
- - BOUNDARY OF ADJACENT MOUNTAINS
- - BOUNDARY OF ADJACENT PLAINS
- - BOUNDARY OF ADJACENT DESERTS
- - BOUNDARY OF ADJACENT SWAMPS
- - BOUNDARY OF ADJACENT TUNDRA
- - BOUNDARY OF ADJACENT GLACIERS
- - BOUNDARY OF ADJACENT ICEBERGS
- - BOUNDARY OF ADJACENT COMETS
- - BOUNDARY OF ADJACENT METEORS
- - BOUNDARY OF ADJACENT ASTEROIDS
- - BOUNDARY OF ADJACENT PLANETS
- - BOUNDARY OF ADJACENT GALAXIES
- - BOUNDARY OF ADJACENT UNIVERSES



INDEX MAP
SCALE: 1"=100'

- - BOUNDARY OF ADJACENT LANDS
- - BOUNDARY OF ADJACENT TOWNSHIPS
- - BOUNDARY OF ADJACENT COUNTIES
- - BOUNDARY OF ADJACENT STATES
- - BOUNDARY OF ADJACENT COUNTRIES
- - BOUNDARY OF ADJACENT OCEANS
- - BOUNDARY OF ADJACENT ISLANDS
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- - BOUNDARY OF ADJACENT ASTEROIDS
- - BOUNDARY OF ADJACENT PLANETS
- - BOUNDARY OF ADJACENT GALAXIES
- - BOUNDARY OF ADJACENT UNIVERSES

HOLLY ENERGY PARTNERS		PLAN AND PROFILE		STA. 00 + 00 TO STA. 115 + 15.7	
SECTION 11, TOWNSHIP 11 SOUTH, RANGE 11 EAST, N.M.		SECTION 11, TOWNSHIP 11 SOUTH, RANGE 11 EAST, N.M.		EDDY COUNTY, NEW MEXICO	
DATE: 10/1/11		DATE: 10/1/11		DATE: 10/1/11	
BY: [Signature]		BY: [Signature]		BY: [Signature]	
CHECKED: [Signature]		CHECKED: [Signature]		CHECKED: [Signature]	
APPROVED: [Signature]		APPROVED: [Signature]		APPROVED: [Signature]	
SCALE: 1"=100'		SCALE: 1"=100'		SCALE: 1"=100'	
SHEET 1 OF 6		SHEET 2 OF 6		SHEET 3 OF 6	
SHEET 4 OF 6		SHEET 5 OF 6		SHEET 6 OF 6	

UICI-008 Navajo Refinery
UIC Class I (NH) Injection Wells (WDWs, 1, 2 & 3)
General Well Expansion Tank (WAM) Monitoring Requirements in Discharge Permit

Injection Record Volumes and Pressures: The owner/operator shall submit quarterly reports of its disposal, operation and well workovers provided herein. The minimum, maximum, average flow waste injection volumes (including total volumes) and annular pressures of waste (oil field exempt/non-exempt non-hazardous waste) injected will be recorded monthly and submitted to the OCD Santa Fe Office on a quarterly basis.

The casing-tubing annulus shall contain fluid and be equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. Due to pressure fluctuations observed at Navajo's other two nearby Class I Injection Wells, WDW-2 shall be equipped with an expansion tank under constant 100 psig pressure connected to the casing-annulus and maintained under constant pressure. The expansion tank shall initially be filled half-full (250 gallon expansion tank) with an approved fluid to establish an equilibrium volume and fluid level. Weekly monitoring of fluid levels in the expansion tank coupled with documented additions/ removals of fluids into or out of the expansion tank is required to maintain the equilibrium volume. Any loss or gain of fluids in the expansion tank shall be recorded, and if significant, reported to the OCD within 24 hours of discovery. The owner/operator shall provide the following information on a quarterly basis: weekly expansion tank volume readings shall be provided in a table in the cover letter of each quarterly report. Navajo shall monitor, record and note any fluid volume additions or removals from the expansion tank on a quarterly basis. In addition, any well activity (i.e., plugging, changing injection intervals, etc.) shall be conducted in accordance with all applicable New Mexico Oil Conservation Division regulations.



October 5, 2011

Mr. Darrell Moore
Navajo Refining Company
P.O. Box 159
Highway 82 East
Artesia, New Mexico 88211

RE: Chukka WDW-2 Annulus Pressure Test (APT) Results
Subsurface Project Number: 70A6645
Test Date: September 26, 2011

Darrell,

A chart recorder was rigged up to the annulus on the wellhead of Chukka WDW-2. The lines from the wellhead to the annulus pumps were closed off at the wellhead and the annulus pumps were turned off. The chart recorder was set to record for 60 minutes. 12 hours on the chart would correspond to a 30-minute test.

The annulus pressure test was started at 1555 hours. This time corresponds with the "1 AM" curve on the attached chart. At 1555 hours, the annulus pressure was approximately 655 psig. At 1625 hours, the annulus pressure was approximately 643 psig. This time corresponds with the "1 PM" curve on the attached chart. The annulus pressure drop was 12 psig or 1.83%. Therefore, Chukka WDW-2 demonstrated mechanical integrity between the casing-tubing annulus.

Sincerely,

Tim Jones
Project Engineer
Subsurface Technology

TJ/bl

Enclosures

T. Walter Cook N.M. PE 20219 Confirmation Attached

**ANNULUS PRESSURE TEST OF NAVAJO REFINING WASTE
DISPOSAL WELL 2 (WDW-2 CHUKKA)**

**NAVAJO REFINING COMPANY
ARTESIA, NEW MEXICO
PROJECT NO. 70A6645**

**SUBMITTED:
SEPTEMBER 2011**

**SUBSURFACE TECHNOLOGY, INC.
6925 PORTWEST DR., STE. 110
HOUSTON, TEXAS 77024
pfh@subsurfacegroup.com**

To whom it may concern:

I Thane Walter Cook, Jr PE certify that the engineering materials contained herein have been prepared by personnel under my supervision. I have met the requirements of NMSA 1978 61-23-3 (definition of responsible charge) with respect to these materials. I have personally reviewed the content and made any calculations and changes needed.

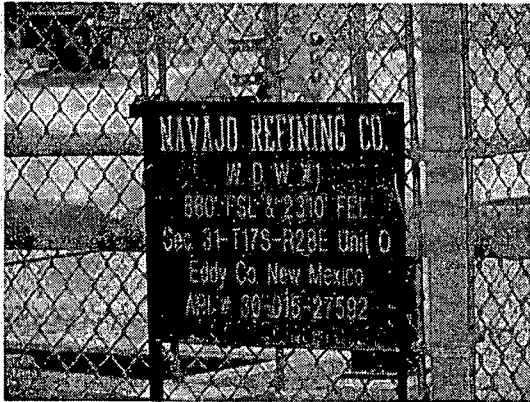


Thaine W. Cook, Jr. PE

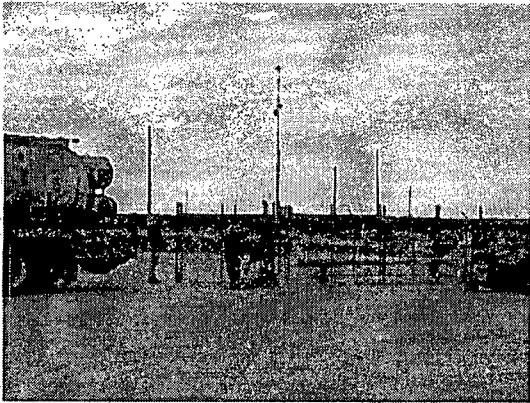
August 26, 2011

New Mexico PE 20219

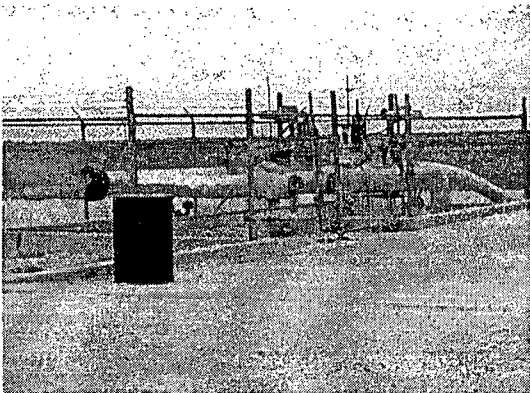
WDW-1 Inspection & MIT (8/14/2009)



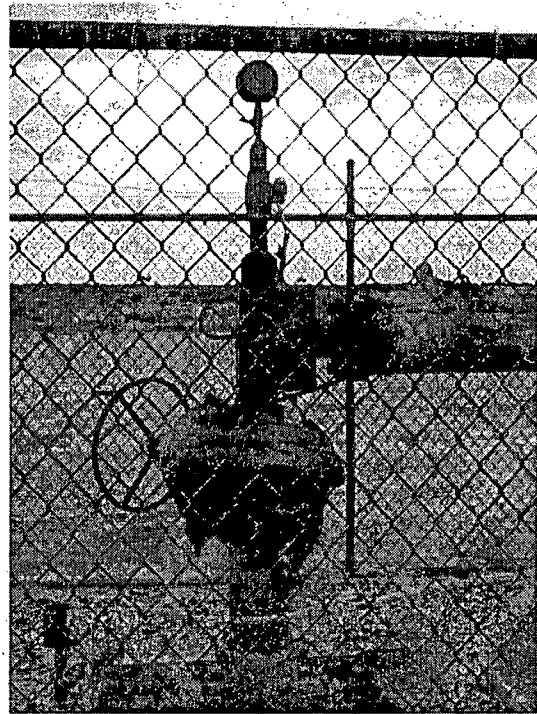
WDW-1 Sign w/ Fenced & Lighted Facility
24/7



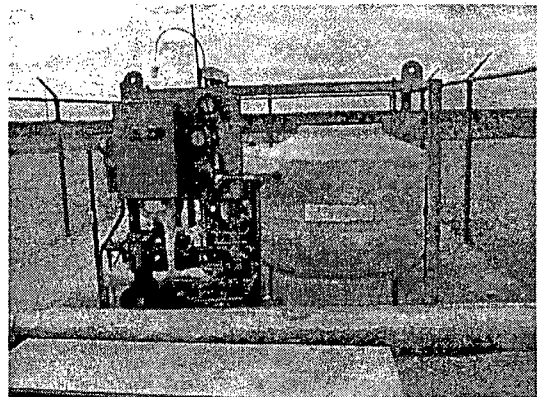
Hot Oil MIT contractor setup for standard
annulus pressure test MIT



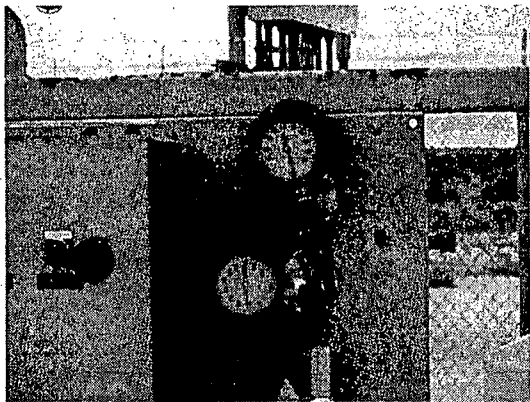
Looking W-SW at fenced pipeline pig
station for ~12 mile WDW-1 back to
refinery



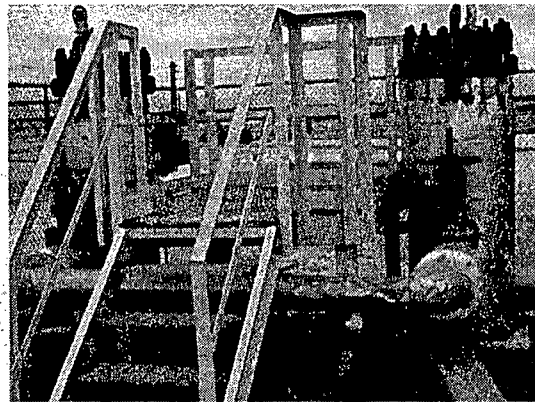
Wellhead



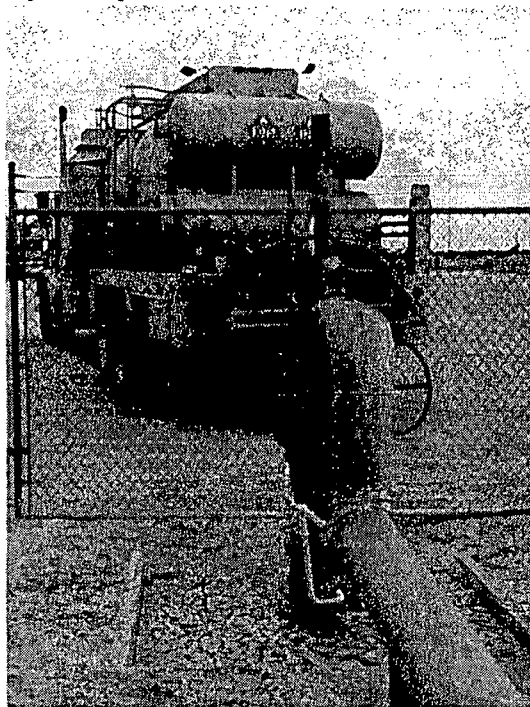
WAMs Unit



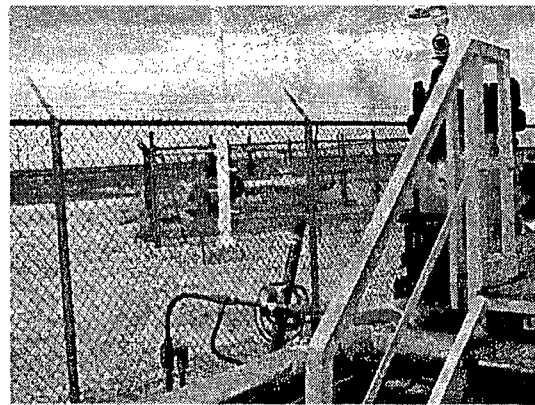
Injection pressure station



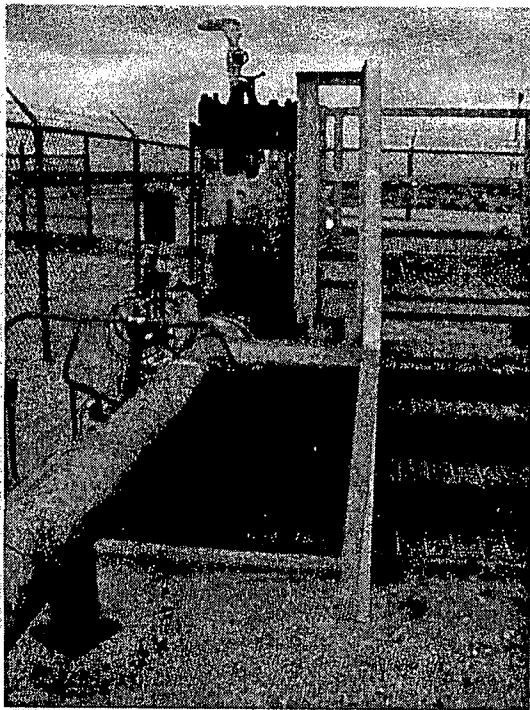
Dual filtration system before injection



Hot Oil Truck fluid pressure up on annulus



Looking S-SW at pipeline pig station in background



Filtration system



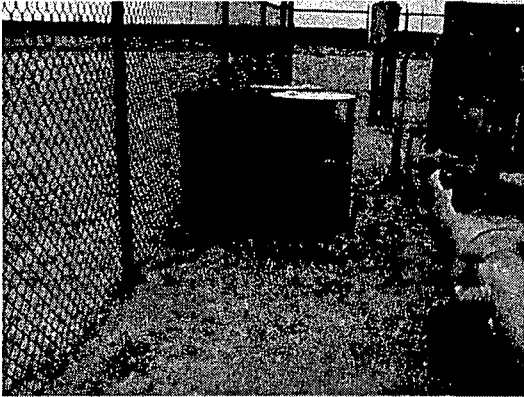
Calibrated chart recorder



Pre-MIT annulus pressure at ~220 psig



Recommended AFE to replace 1/2 inch dia. pipe with 1 inch or greater.



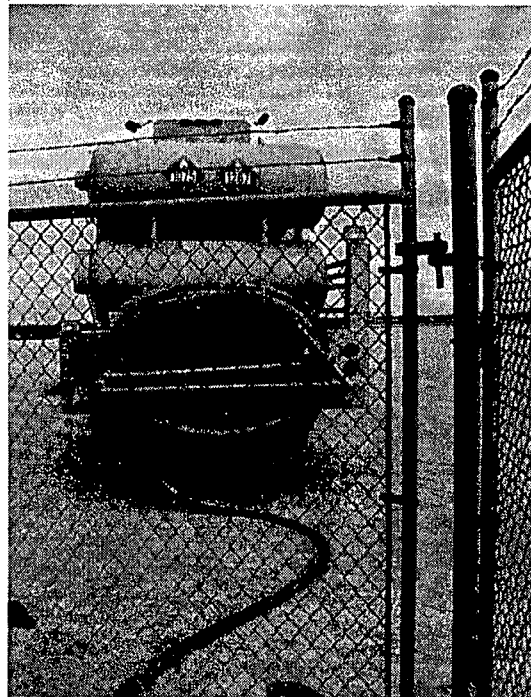
Drums of ethylene glycol stored on ground need to be on impermeable pad



Ethylene glycol drums w/ rusty trash drum close-up



Chart recorder setup w/ valve arrangement during MIT



Hot Oil truck in background connected to annulus during fluid pressure up.



Chart recorder in action

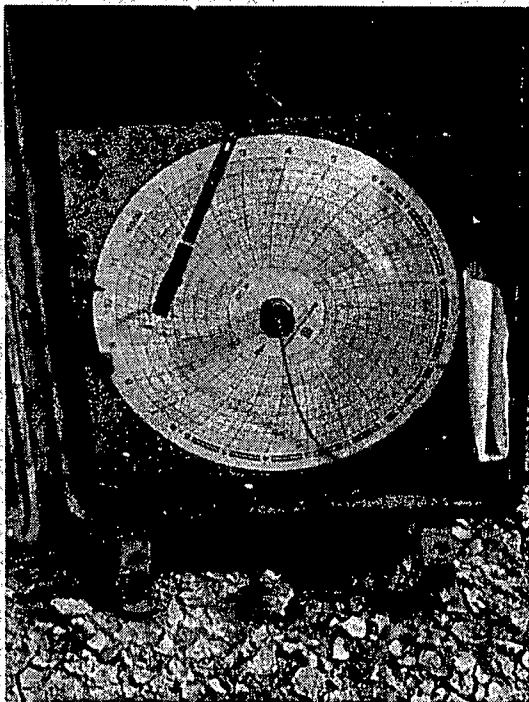
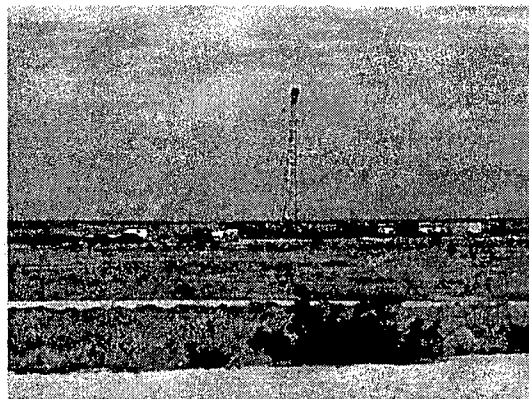
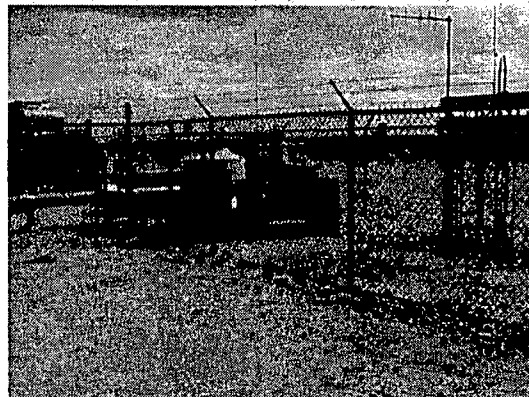


Chart recorder during pressure up w/
calibration sheet



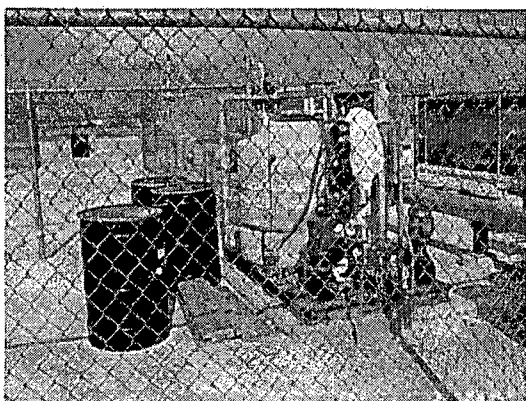
Noticed either new or well workover in
progress NW of disposal well



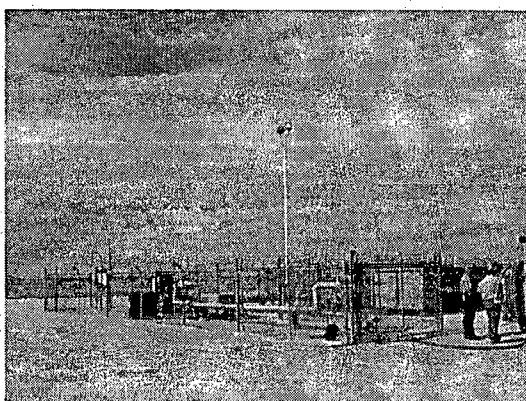
WAMs Unit w/ ethylene glycol drums
sitting on ground



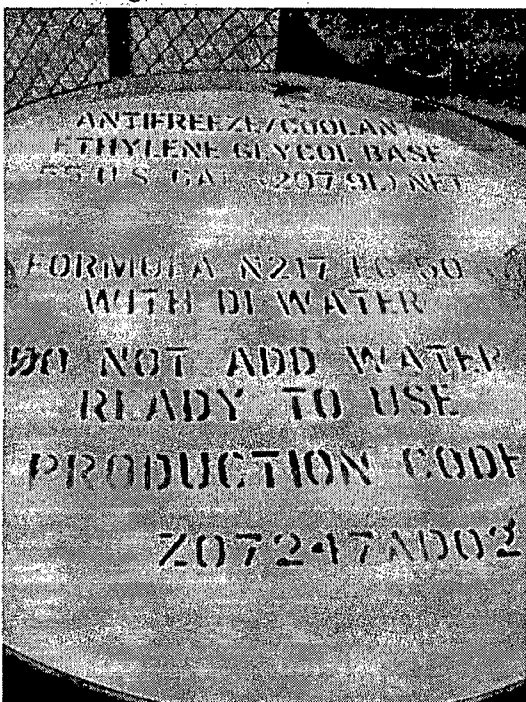
Line pressure gauges ~ 1300 psi injection
pressure during MIT



Drums on ground near WAMs Unit



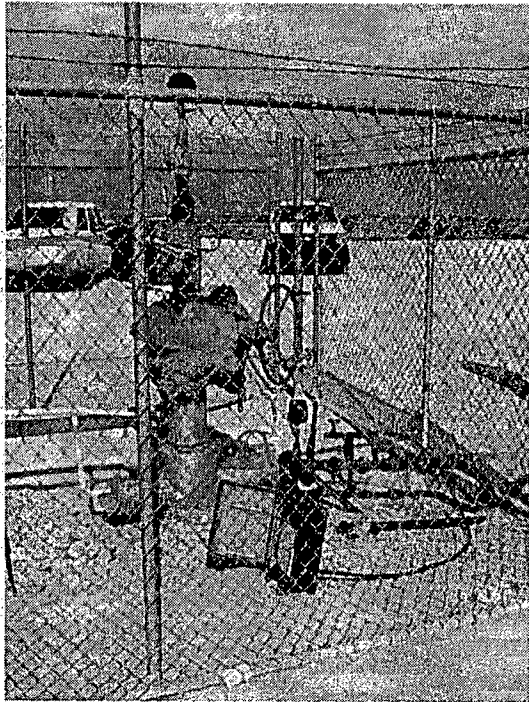
Fenced facility w/ lighting 24/7



Close-up ethylene glycol drum



Hot Oil Truck



Standard annulus pressure test MIT under dynamic condition



Trash drum

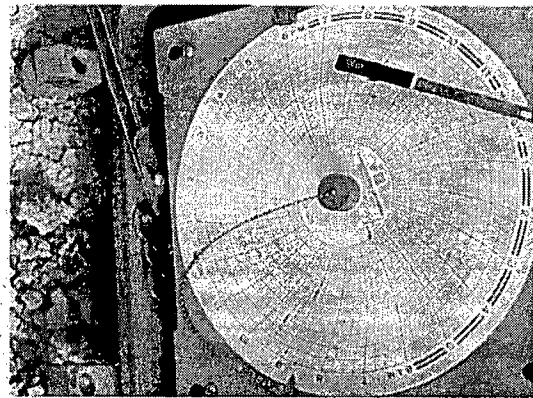
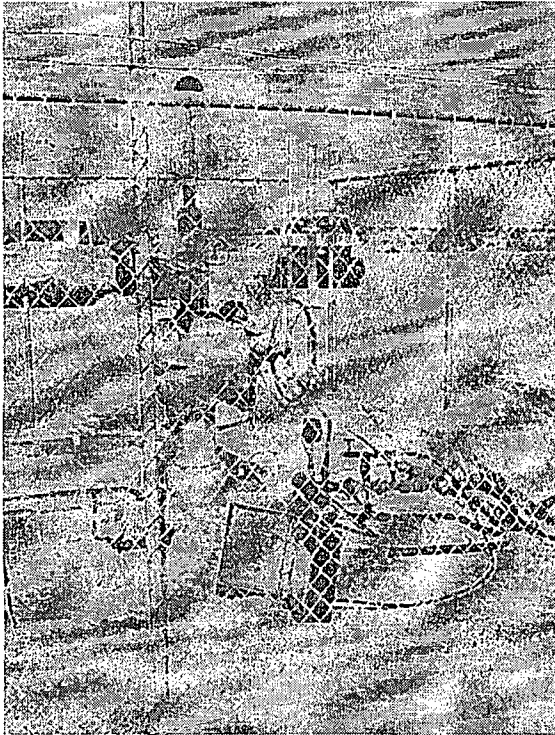


Chart recorder at end of MIT

Notes:

- 1) Passed standard annulus pressure MIT (Start @ 575 psig & End @ 580 psig) over 30 minutes.
- 2) AFE submitted to replace ½ inch dia. piping w/ 1 inch or greater- safety and breakage concerns.
- 3) Operator indicated WAMs fluid level ok (no loss or addition of ethylene glycol).
- 4) Drums containing chemicals need to be stored in impermeable pad area or removed from facility.



Standard annulus pressure test MIT under dynamic condition



Trash drum



Chart recorder at end of MIT

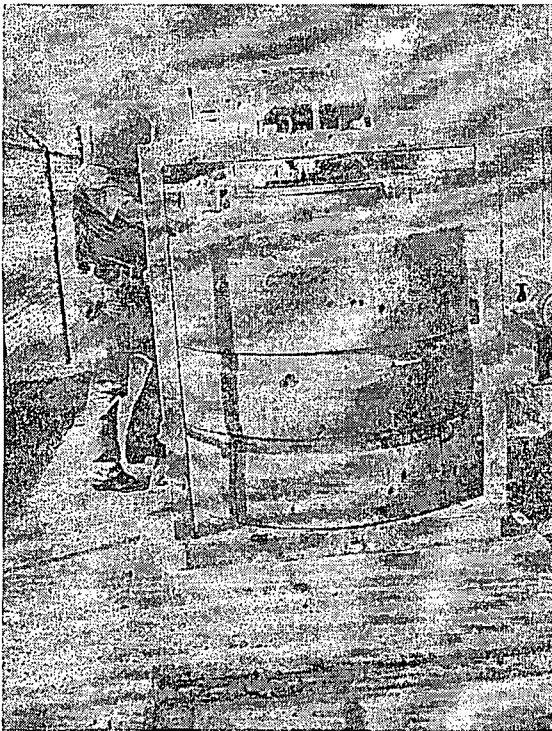
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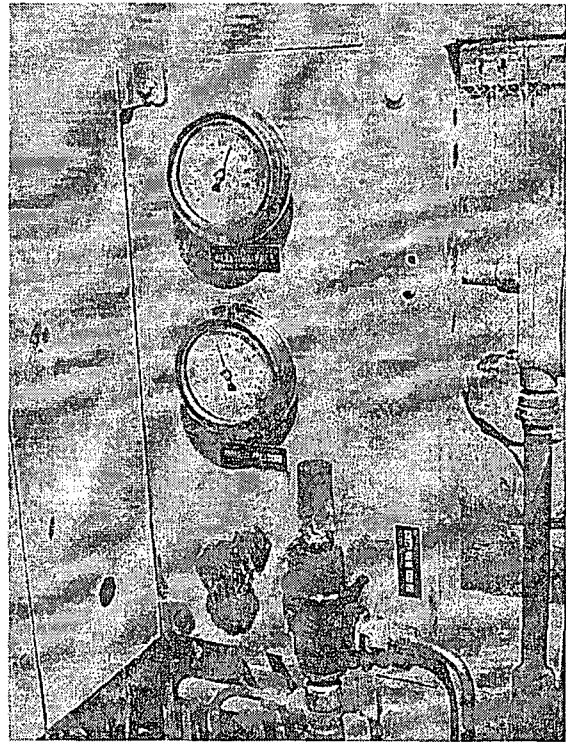
WDW-2 Inspection & MIT (8/14/2009)



Well sign w/ security fence and lighting
24/7



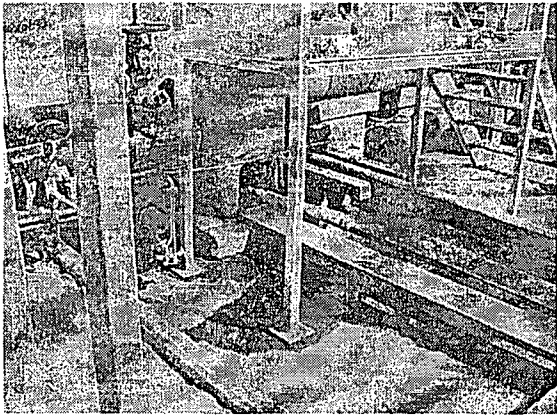
WAMs Unit annulus fluid level monitoring
device for OCD UIC Class I Wells



Injection well pressure monitoring station



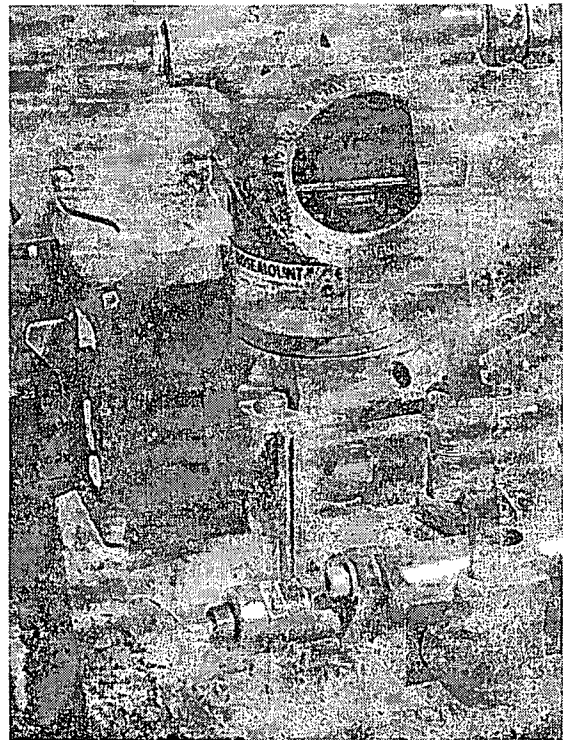
WAMs Unit close-up w/ manometer



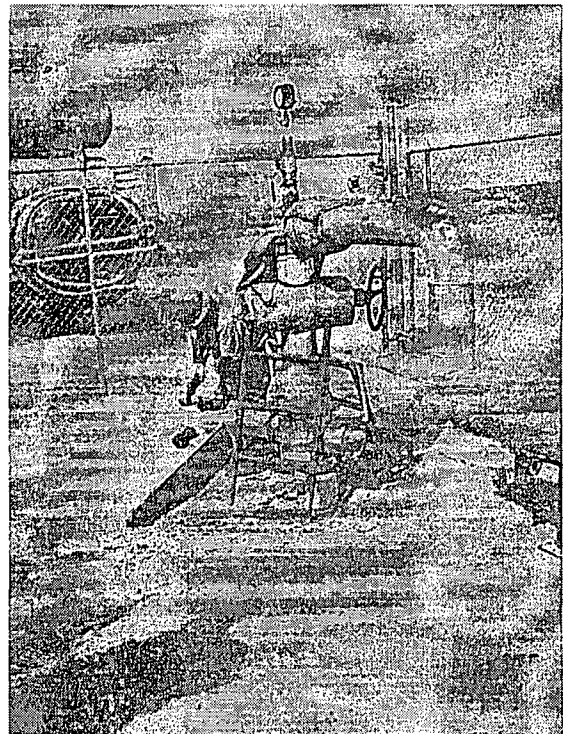
Impermeable curb in process area



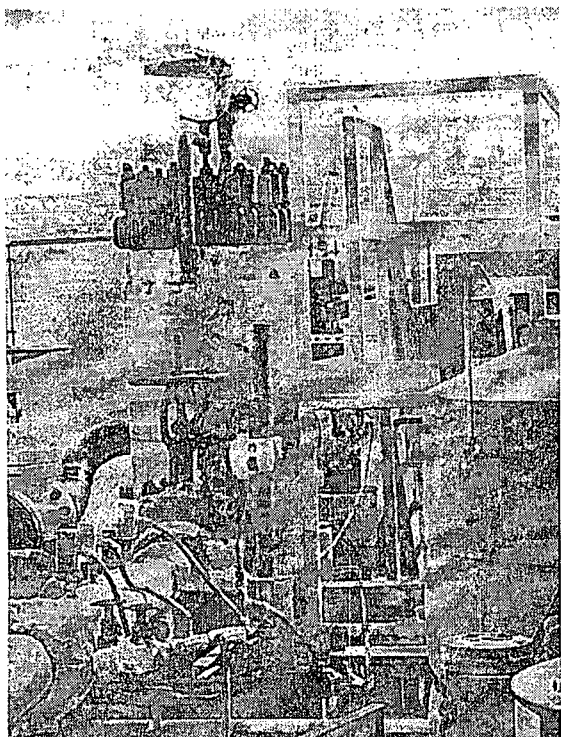
Ethylene glycol fluid needs to be stored on impermeable pad area



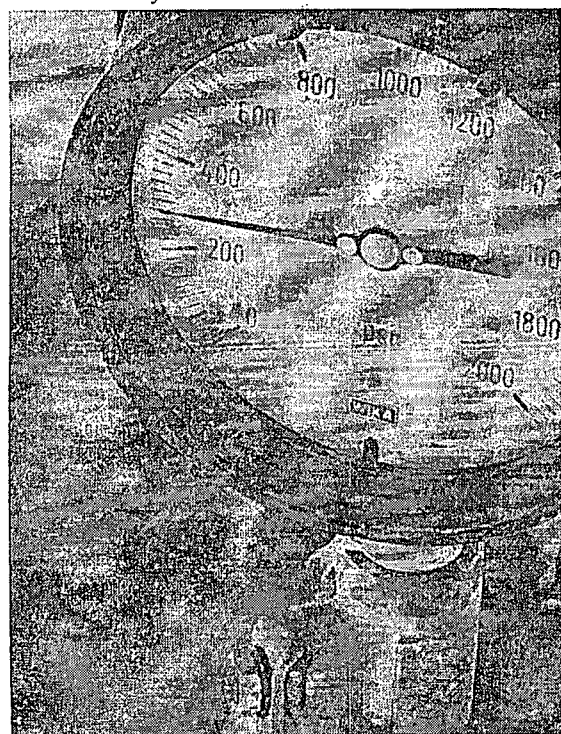
Electronic in-line flow rate monitor gauge



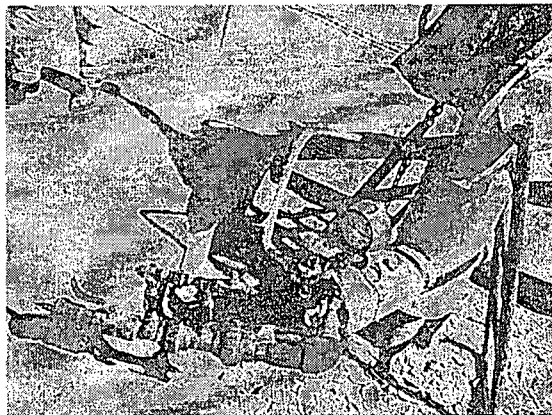
Wellhead w/ Hot Oil Operator preparing to install chart recorder for MIT



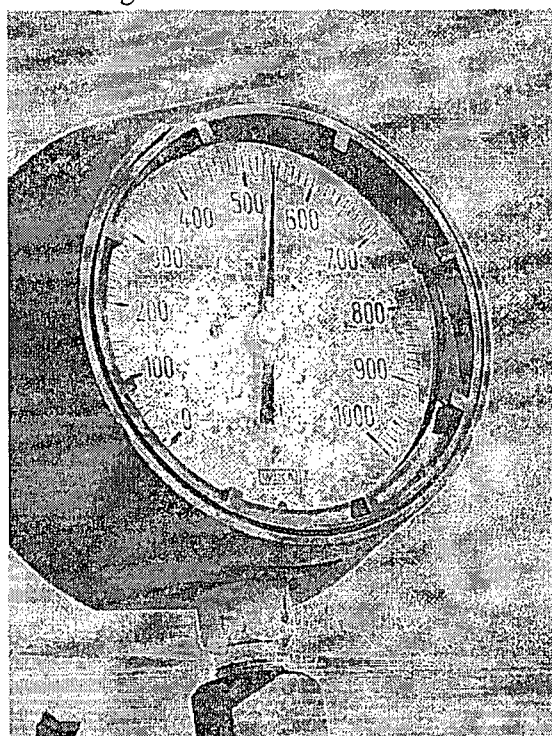
Filtration system before injection w/ boxes for O&M by workers



Pressure gauge reading ~300 psig pre-MIT



Connection to annulus through small 1/2 inch dia. fitting



Annulus pressure gauge reading ~ 535 psig during MIT

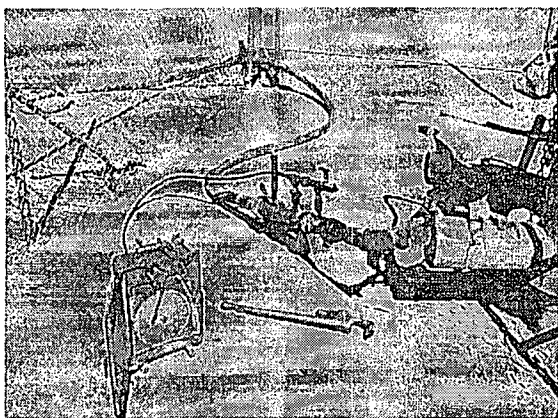
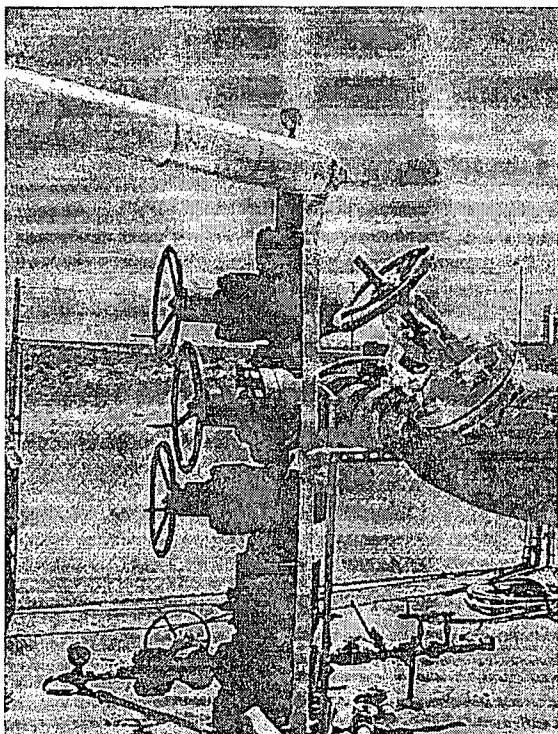
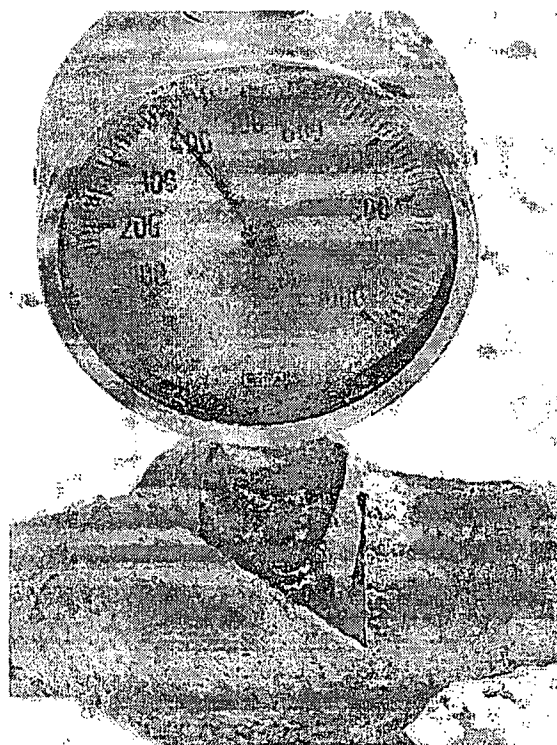


Chart recorder set-up w/ valve arrangement. Operator wants to replace $\frac{1}{2}$ inch line with 1 inch or greater diameter size due to pressure on small line and breakage concerns during MITs.



Wellhead w/ blow-out preventers



Another in-line pressure gauge reading during pressure up pre-MIT

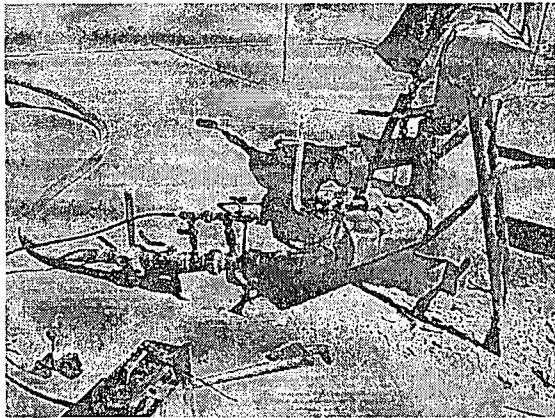
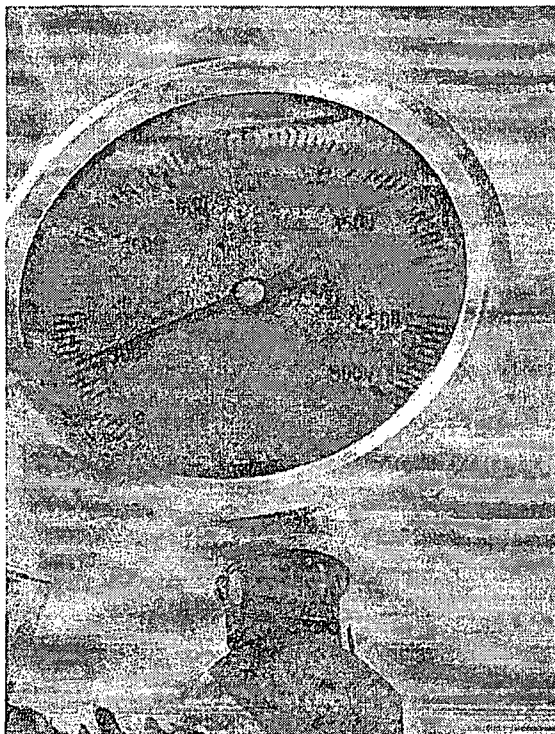


Chart recorder setup w/ valve arrangement

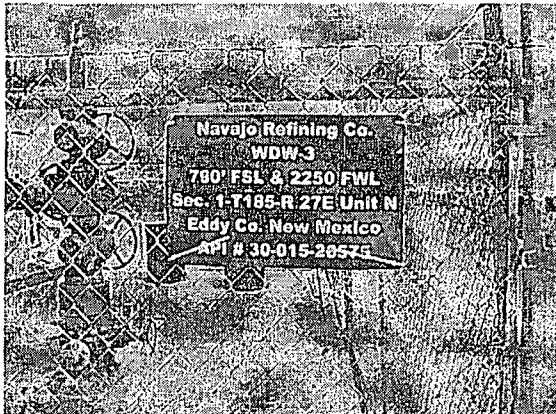


Annulus pressure increasing during pressure up on annulus pre-MIT

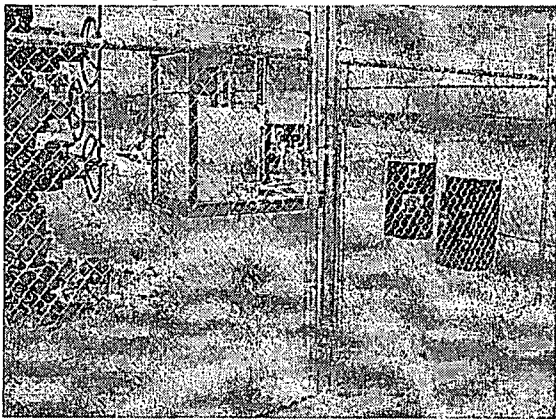
- 1) Passed standard annulus pressure MIT (Start @ 525 psig & End @ 520 psig) over 30 minutes.
- 2) Operator indicated WAMs fluid level ok (no loss or addition of ethylene glycol).
- 3) Drums containing chemicals need to be stored in impermeable pad area or removed from facility.

Notes:

WDW-3 Inspection & MIT (8/14/2009)



UIC Class I Well WDW-3 sign w/ security fence and lighting 24/7.



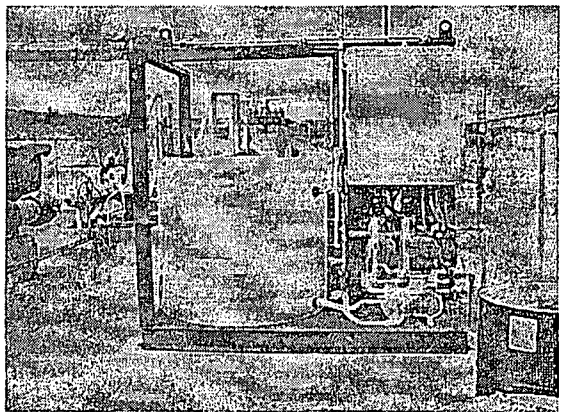
WAMS Unit near wellhead w/ drums of ethylene glycol not stored in impermeable area



Wellhead from a distance looking SE



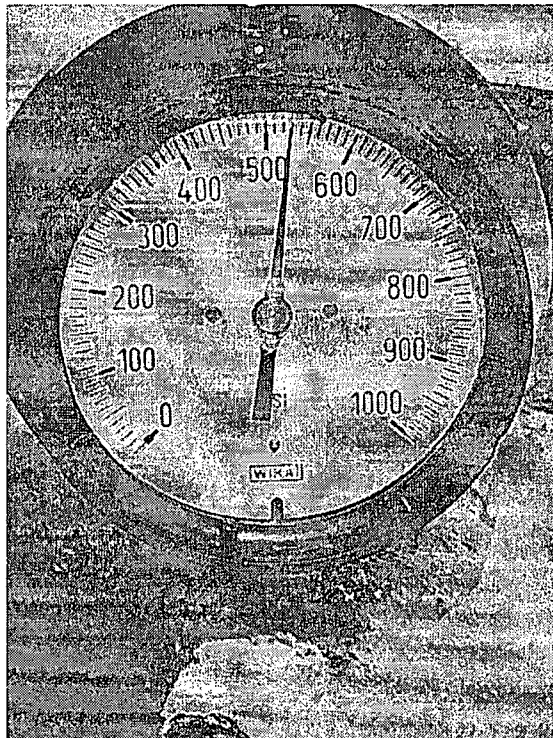
Annulus pressure gauge at top of well casing reading ~ 500 psig during pressure up on annulus



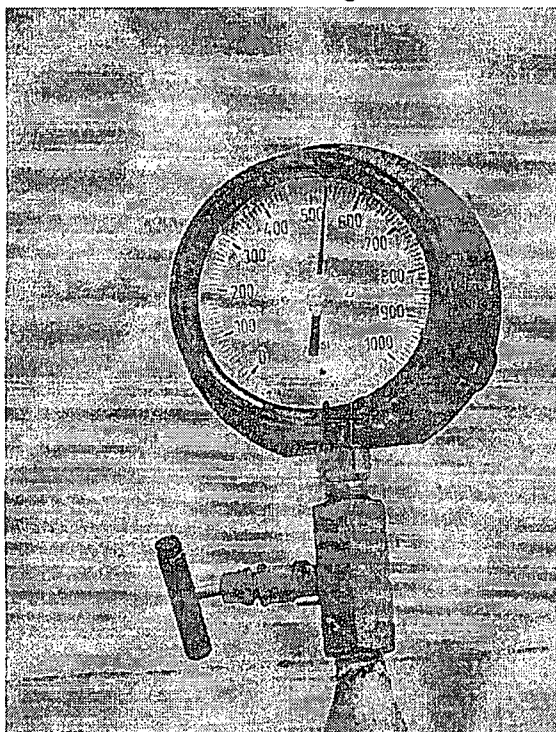
WAMS unit w/ overhead piping to wellhead looking E



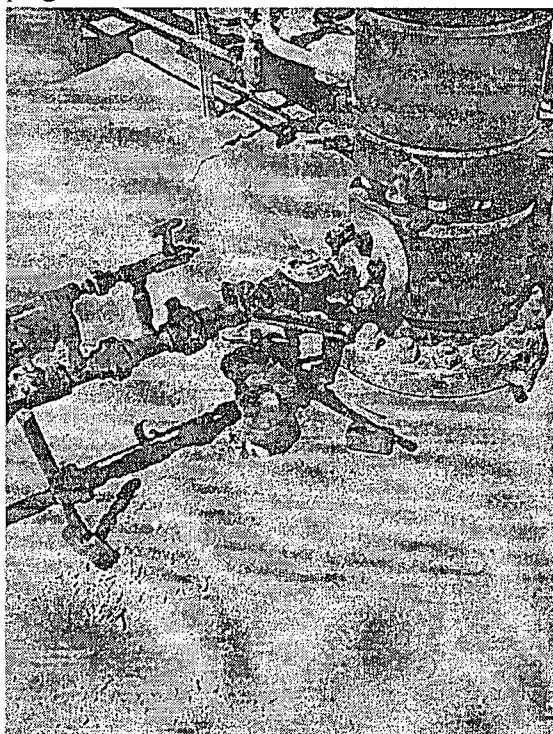
WAMs Unit fluid loss ~ 10gal/mo.



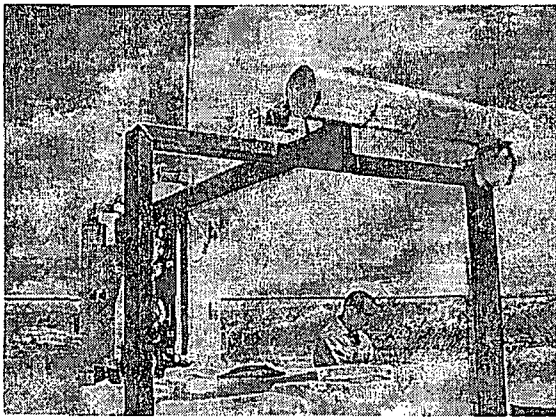
Another pressure gauge during MIT at ~ 530 psig



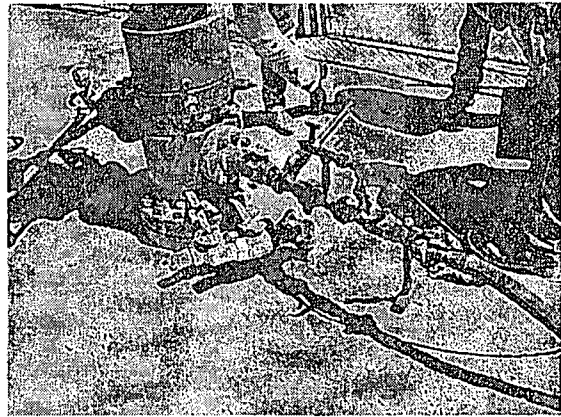
Annulus pressure gauge during MIT at ~530 psig



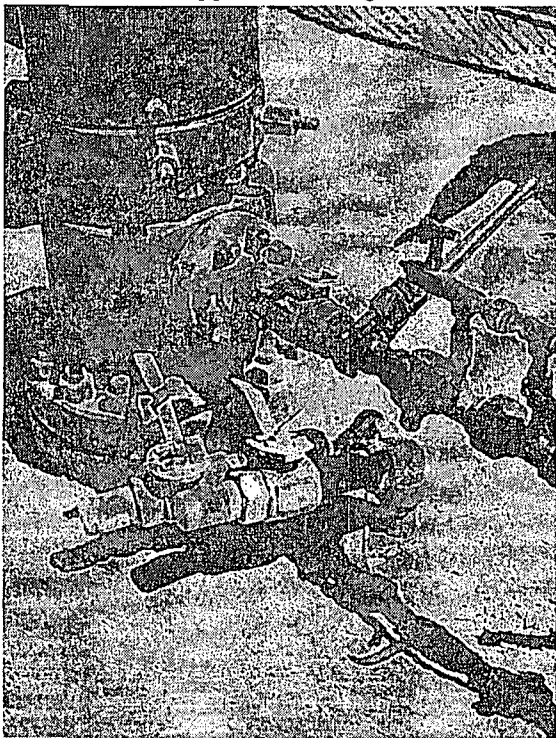
Rusty fittings near wellhead pinhole leak(s)?



WAMs Unit overhead piping into wellhead annulus w/ no apparent leakage observed



Hot Oil fluid pressure up on annulus w/ valve configuration during MIT



Operator wants to replace $\frac{1}{2}$ inch nipple w/ at least 1 inch over breakage concerns and high pressure on small diameter pipe during the MITs, etc.

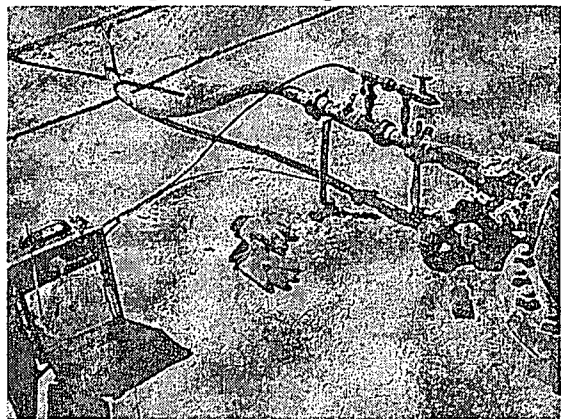
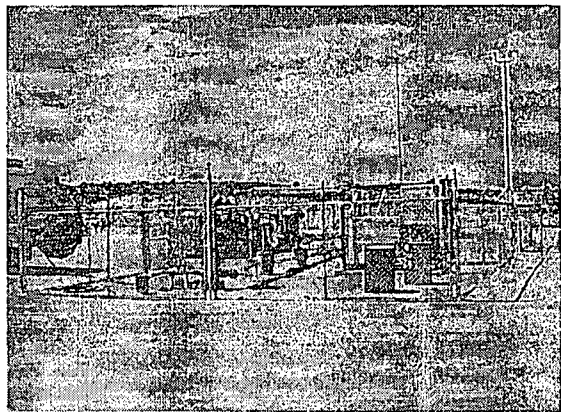
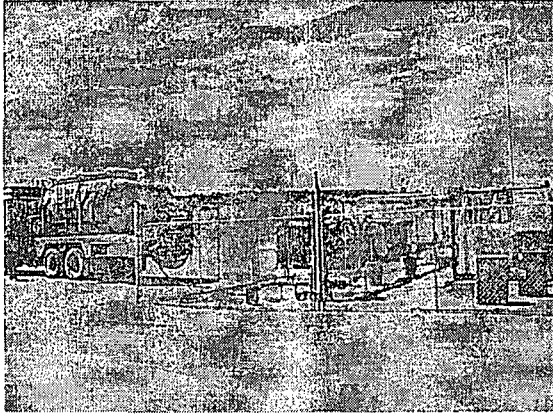


Chart recorder setup for test



Looking E across fenced and lighted facility w/ ethylene glycol drums stored on ground.



Hot Oil truck setup for MIT

Notes:

- 1) MIT passed (Start @ 560 psig w/
End @ 540 psig) on 8/14/2009.
- 2) MIT system integrity concerns about
WAMs Unit & ethylene glycol
leakage somewhere in the system.
No discernable stains, leaks have
been observed at surface. Company
called "300 PSI" performed (~ 2006)
a proprietary sealant leak application
from surface to 1000 ft. and from ~
7000 ft. to near top of perforated
interval.
- 3) Need to test all surface lines, valves,
etc. for pinhole leakage and proceed
into well if leak not found in surface
piping.
- 4) Drums need to be stored in the
impermeable pad area.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, July 01, 2011 8:48 AM
To: 'Lackey, Johnny'; 'Moore, Darrell'
Cc: Sanchez, Daniel J., EMNRD; Dade, Randy, EMNRD
Subject: FW: UICI-8 MIT Explanation Due
Attachments: UICI-8 MIT Explanation Due

Johnny and Darrell:

Good morning. The OCD has not received a response to its request for a signed PE opinion on the anomalous differential annulus pressures occurring in WDWs 1, 2 and 3. At the 7/31 meeting in Santa Fe OCD requested this information by COB on 6/10. Was this sent? If not, when can Navajo Refining Company have its down hole PE Expert provide an opinion for OCD review?

Also, OCD requested a response to the annual Fall-Off Test (FOT) performed in 2010 related to your request for a reduced FOT schedule for the aforementioned WDWs. The response was expected by 6/30 or early July 2011 (5/31 Mtg. in Santa Fe). When can OCD expect to receive this?

Please contact me if you have questions. Thank you.

File: OCD Online WDWs "Annual Report" and "FOT" Thumbnails

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
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E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

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<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)

Chavez, Carl J, EMNRD

Subject: FW: OCD/NMED Mtg
Location: Santa Fe

Start: Tue 5/31/2011 10:00 AM
End: Tue 5/31/2011 12:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Lackey, Johnny

Johnny Lackey, et al.:

Re: Today's Meeting Summary

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I'm writing to provide a basic summary and/or briefing of the meeting based on the agenda (see below) and other items that were discussed based on our communication this morning.

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1) OCD requests a Certified PE down-hole analysis from the recent 2010 Fall-Off Tests that supports Navajo's request for reduced FOTing on wells on wells seated in the same injection zone and that are shown to be connected by pressure differentials of offset Class I Wells during the FOT. By Federal Law, all UIC Class I Wells must undergo a FOT annually. WDWs 2 and 3 are within ½ mile of each other, but are over a mile away from WDW-1. OCD noticed that no professional analysis of the bottom-hole pressure data from off-set UIC Class I Wells was provided in the FOT reports for WDWs 1, 2, and 3. Navajo indicated that their down-hole consultant should have an analysis prepared and submitted to the OCD by June 30th or early July 2011.

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[illegible]

May 31, 2011

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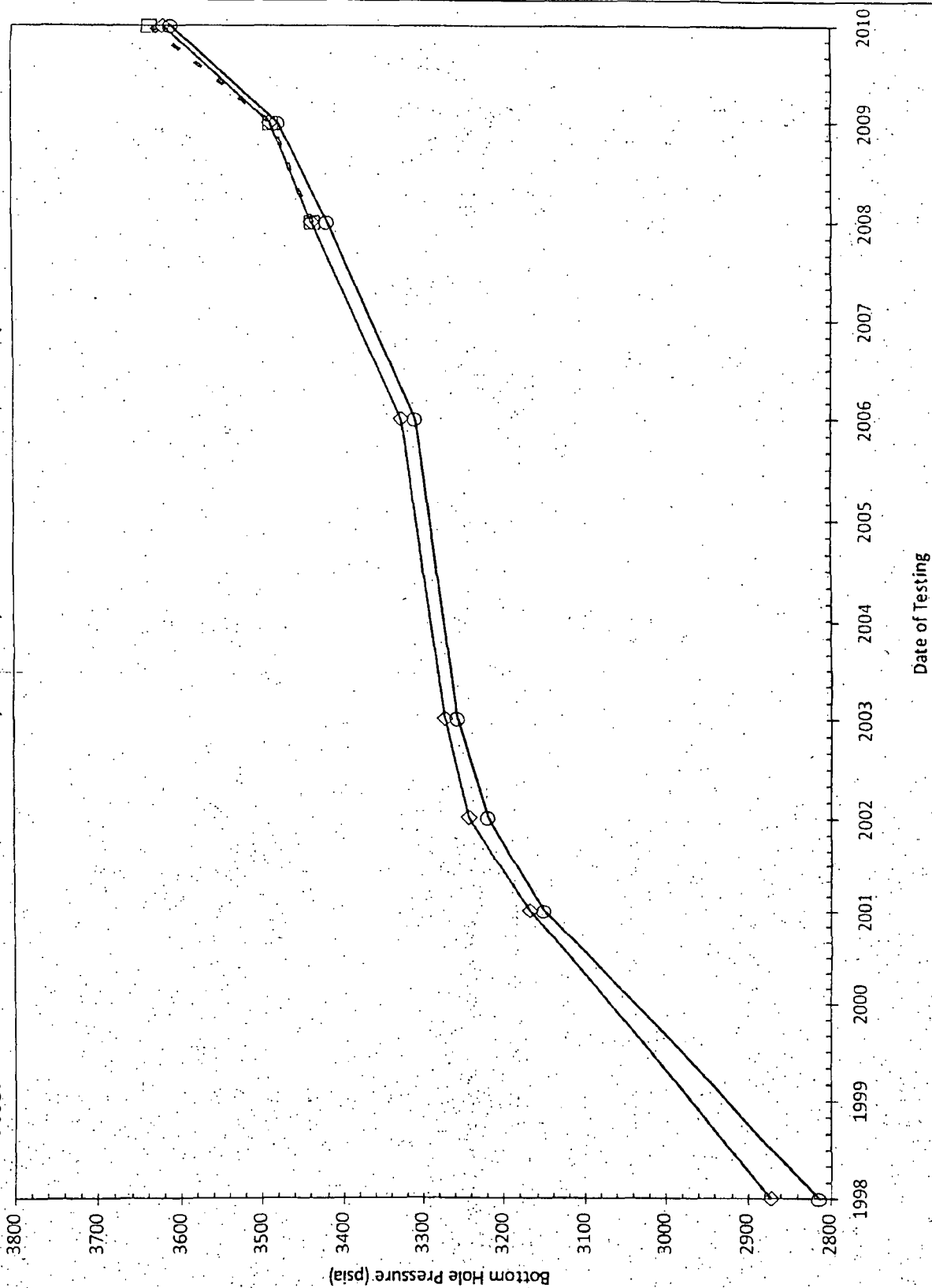
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Fall Off Test

Bottom Hole Pressure for Mewbourne, Chukka, and Gains at Datum Depth of 7660 feet



The previous graph shows clearly that all three wells are in communication and supports Navajo's position that performing one fall off test per year is sufficient.

Discuss State's concerns

FIGURE 1
2010 SUMMARY OF QUARTERLY MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1														
1st qtr	597	688	568	149	274	131	169	268	46	5,108	9,401	4,478	158,333	27,647,056
Feb-10	582	627	429	134	145	109	206	407	99	4,578	4,971	3,737	128,195	27,805,389
Mar-10	605	636	587	131	135	125	414	528	271	4,492	4,638	4,286	139,254	27,933,584
Apr-10	605	653	517	137	135	112	343	535	203	4,364	4,611	3,846	135,279	28,072,838
May-10	548	659	366	130	139	111	462	592	245	4,472	4,749	3,792	138,633	28,211,471
Jun-10	532	622	297	131	136	126	315	456	214	4,493	4,661	4,303	134,777	28,346,248
Jul-10	615	765	367	129	136	93	349	585	182	4,412	4,668	3,318	136,768	28,483,016
Aug-10	644	766	352	130	133	125	313	376	255	4,442	4,554	4,293	137,695	28,620,711
Sep-10	691	691	691	130	130	130	425	425	425	4,460	4,460	4,460	133,791	28,754,502
Oct-10	684	777	628	128	142	124	242	366	77	4,385	4,885	4,263	135,942	28,890,444
Nov-10	641	693	280	121	129	76	137	236	15	4,140	4,430	2,616	124,193	29,014,637
Dec-10	634	748	283	115	140	71	420	650	209	3,960	4,814	2,431	122,746	29,137,383
All 2009	615	777	280	130	274	71	316	650	15	4,442	9,401	2,431	1,625,608	29,272,991
WDW-2														
1st qtr	605	625	560	149	153	142	210	346	128	5,122	5,252	4,882	158,777	14,124,671
Feb-10	568	625	442	145	149	130	346	530	257	4,963	5,097	4,465	138,969	14,263,640
Mar-10	625	650	598	145	153	142	499	616	360	4,968	5,240	4,857	154,635	14,418,275
Apr-10	624	672	502	142	145	128	442	652	251	4,854	4,988	4,404	150,481	14,568,756
May-10	660	926	523	135	142	123	396	551	252	4,630	4,866	4,227	143,524	14,712,280
Jun-10	648	668	583	138	143	135	322	537	124	4,735	4,889	4,825	142,053	14,854,333
Jul-10	647	679	401	138	143	116	570	744	159	4,719	4,896	3,960	146,279	15,000,612
Aug-10	688	709	661	140	141	138	387	608	182	4,785	4,824	4,736	148,339	15,148,951
Sep-10	684	795	469	139	150	118	349	727	197	4,753	5,153	4,050	142,596	15,291,547
Oct-10	639	713	150	136	141	98	482	780	175	4,650	4,843	3,368	144,147	15,435,694
Nov-10	628	707	279	133	138	96	291	576	130	4,565	4,733	3,300	136,954	15,572,648
Dec-10	591	883	293	133	142	105	503	728	267	4,545	4,852	3,601	140,898	15,713,546
All 2009	634	926	150	139	153	96	400	780	124	4,776	5,252	3,300	1,747,643	15,872,314
WDW-3														
1st qtr	614	637	572	199	208	183	262	357	223	6,828	7,120	6,275	211,672	4,559,320
Feb-10	587	639	422	200	212	170	320	403	251	6,871	7,275	5,834	192,376	4,751,696
Mar-10	633	657	570	209	217	187	379	529	236	7,171	7,445	6,406	222,303	4,974,000
Apr-10	635	668	507	204	217	184	371	538	263	7,004	7,452	6,314	217,122	5,191,122
May-10	620	686	460	169	195	129	324	448	253	5,807	6,678	4,374	180,017	5,371,139
Jun-10	655	679	566	179	187	154	338	435	251	6,139	6,402	5,287	184,195	5,555,334
Jul-10	657	705	366	179	189	159	323	460	104	6,126	6,490	5,484	185,917	5,741,251
Aug-10	694	712	678	179	182	174	304	412	154	6,144	6,253	5,953	190,453	5,931,704
Sep-10	663	727	279	179	189	168	264	427	9	6,154	6,497	5,764	184,619	6,116,323
Oct-10	687	790	275	189	211	161	258	424	10	6,490	7,248	5,516	201,128	6,317,451
Nov-10	665	724	284	186	193	180	227	356	137	6,363	6,627	6,167	190,880	6,508,331
Dec-10	630	696	285	185	194	146	338	624	197	6,329	6,660	4,997	186,195	6,694,526
All 2009	645	790	275	188	217	128	311	624	9	6,452	7,452	4,374	2,360,915	6,920,236
Total Injected Fluids:														52,065,213



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TELEPHONE (575) 748-3311

FAX

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July 29, 2011

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2011 Second Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2011 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for this well. The annular space also dropped at WDW-2 during the first week of June; however there were several small leaks on the stainless steel tubing near the antifreeze pump and gauges that were repaired during that timeframe. We are working with a third party to have annulus pressure tests performed on the wells per your request. A Mechanical Integrity Test (MIT) on all the wells was last done on August 12, 2010 and a quarterly Bradenhead for WDW-3 was last done on June 29, 2011. All of the wells passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

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This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael McKee
Vice-President, Navajo Refinery

Electronic cc (w/enc.): DGM, JEL, AMS
Environmental File: Navajo: (ART, REF - 4 A 02 D)

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2011 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/5/11	4/11/11	4/18/11	4/25/11	5/2/11	5/9/11	5/16/11	5/24/11	5/31/11	6/6/11	6/13/11	6/20/11	6/28/11
WDW -1'	180	180	180	175	175	175	175	175	175	175	175	175	175
WDW -2'	180	180	180	180	180	180	180	180	180	150	150	150	150
WDW -3'	155	155	155	150	150	150	150	150	150	150	150	150	150

Comments: Several small antifreeze leaks near the antifreeze pump and gauges were repaired at WDW-2 during the first week of June. These leaks were repaired by replacing stainless steel tubing and fittings.

¹ Graduated tank gauged weekly in the field. Reading is in gallons.

Chavez, Carl J, EMNRD

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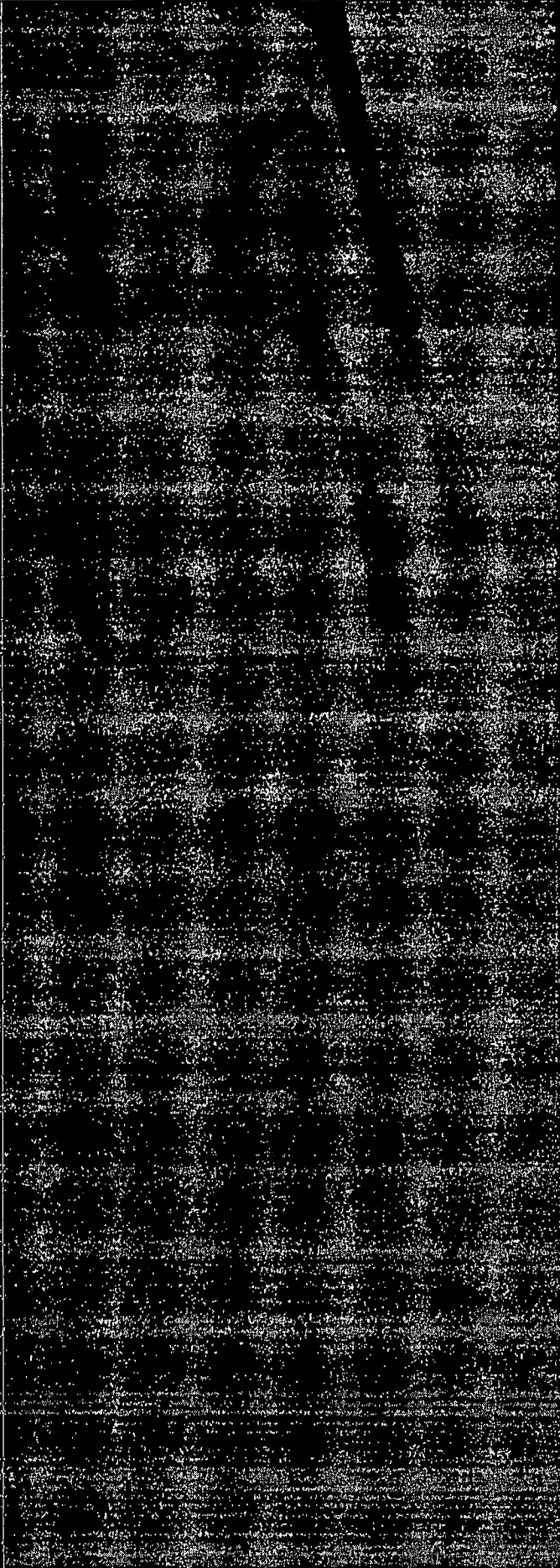
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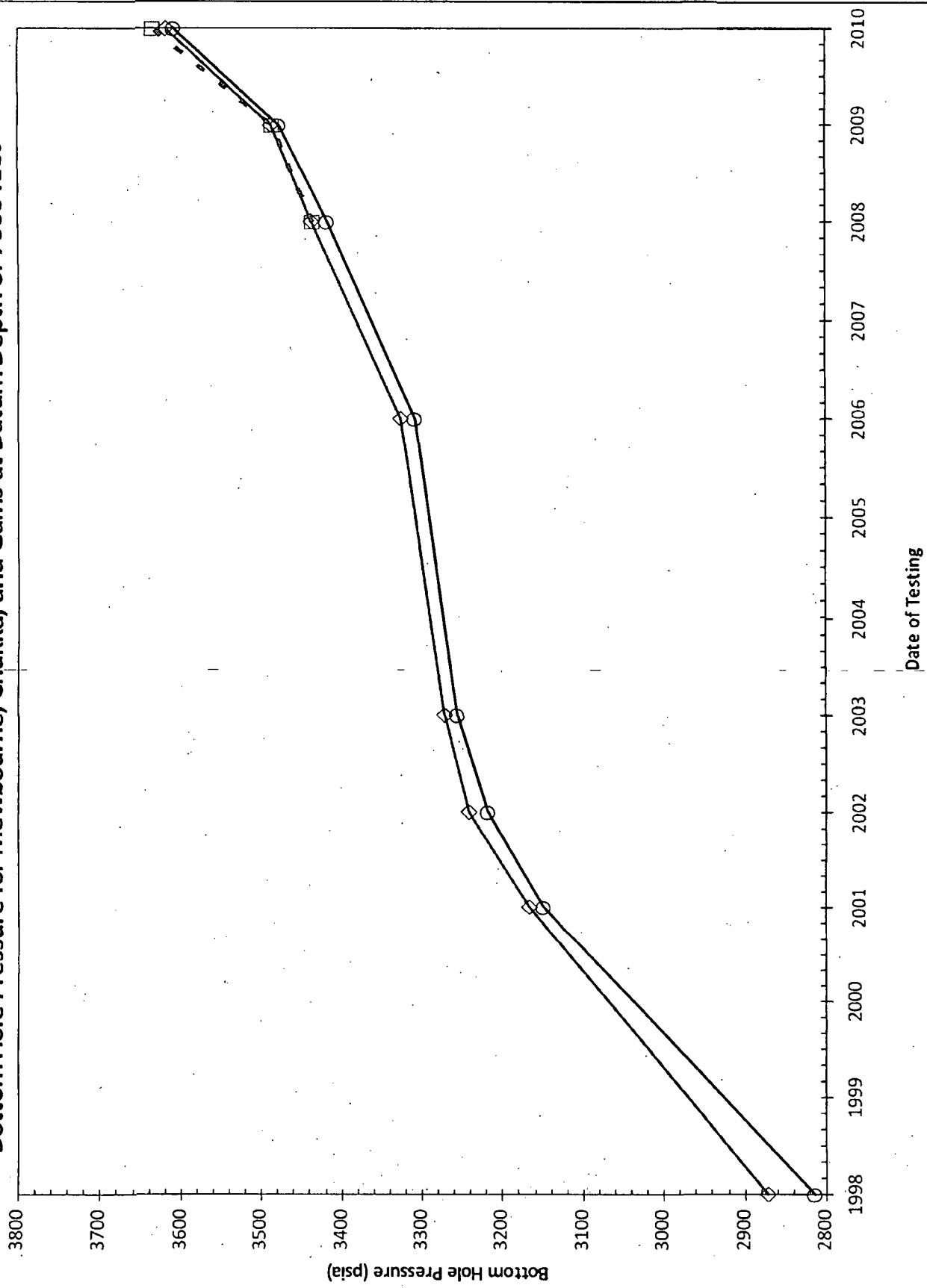
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Vice-President, Navajo Refinery

Electronic cc (w/enc.): DGM, JEL, AMS
Environmental File: Navajo: (ART: REF - 4 A 02 D)

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2011 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1	Previous Quarter													29,779,091
Apr-11	854	1,032	605	186	225	126	347	485	178	6,364	7,722	4,337	197,285	29,976,375
May-11	678	719	637	141	149	132	435	744	183	4,823	5,101	4,522	149,498	30,125,874
Jun-11	711	795	629	145	163	128	416	677	191	4,987	5,580	4,397	149,597	30,275,471
WDW-2	Previous Quarter													16,315,816
Apr-11	574	672	406	153	173	121	356	484	148	5,246	5,918	4,161	162,625	16,478,441
May-11	625	670	586	164	172	148	446	773	229	5,610	5,883	5,084	173,902	16,652,342
Jun-11	647	751	572	167	183	130	409	565	232	5,713	6,279	4,443	171,395	16,823,737
WDW-3	Previous Quarter													7,425,682
Apr-11	589	670	431	121	150	85	386	567	266	4,143	5,153	2,917	128,432	7,554,114
May-11	659	695	617	135	147	120	513	910	313	4,612	5,032	4,124	142,983	7,697,098
Jun-11	686	765	595	138	165	106	577	676	397	4,720	5,641	3,636	141,600	7,838,697
Total Injected fluids:														54,937,906

2011 SECOND QUARTER WEEKLY WAMS LEVEL TABLE

	4/5/11	4/11/11	4/18/11	4/25/11	5/2/11	5/9/11	5/16/11	5/24/11	5/31/11	6/6/11	6/13/11	6/20/11	6/28/11
WDW -1 ¹	180	180	180	175	175	175	175	175	175	175	175	175	175
WDW-2 ¹	180	180	180	180	180	180	180	180	180	150	150	150	150
WDW-3 ¹	155	155	155	150	150	150	150	150	150	150	150	150	150
Comments: Several small antifreeze leaks near the antifreeze pump and gauges were repaired at WDW-2 during the first week of June. These leaks were repaired by replacing stainless steel tubing and fittings.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



08-Jun-2011

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1105823

Dear Aaron,

ALS Environmental received 2 samples on 25-May-2011 09:15 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by Mary K. Knowles

Chris Bryson
Project Manager



Certificate No: T104704231-09A-TX

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ALS Environmental

Date 08-Jun-11

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1105823

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1105823-01	Effluent	Water		5/24/2011 10:50	5/25/2011 09:15	☐
1105823-02	Trip Blank	Water		5/24/2011	5/25/2011 09:15	☐

ALS Environmental*Date: 08-Jun-11*

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1105823

Case Narrative

As the pH analyses were performed in the laboratory, the results are H-flagged as appropriate.

Batch 52874, Metals, Sample 1105925-04 : MS/MSD is for an unrelated sample.

Batch 52774, Semivolatile Organics : LCSD RPD was above the control limits for Benzidine.
The individual recoveries were in control.

Batch R110726, Volatile Organics, Sample 1105756-46 : MS/MSD is for an unrelated sample.

Batch R110849, Anions, Sample 1106102-02 : MSD is for an unrelated sample.

The analysis for Reactive Cyanide and Reactive Sulfide was subcontracted to ALS Laboratory Group in Holland, MI.

ALS Environmental

Date: 08-Jun-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 5/24/2011 10:50 AM

Work Order: 1105823

Lab ID: 1105823-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470		Prep Date: 5/31/2011	Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	5/31/2011 05:01 PM
METALS			SW6020		Prep Date: 6/2/2011	Analyst: ALR
Aluminum	0.438		0.0200	mg/L	2	6/6/2011 07:26 PM
Arsenic	0.0198	*	0.00500	mg/L	1	6/3/2011 11:34 PM
Barium	0.0541		0.00500	mg/L	1	6/3/2011 11:34 PM
Boron	0.353		0.100	mg/L	2	6/6/2011 07:26 PM
Cadmium	ND		0.00200	mg/L	1	6/3/2011 11:34 PM
Chromium	ND		0.00500	mg/L	1	6/3/2011 11:34 PM
Copper	0.00715		0.00500	mg/L	1	6/3/2011 11:34 PM
Lead	ND		0.00500	mg/L	1	6/3/2011 11:34 PM
Manganese	0.0239		0.00500	mg/L	1	6/3/2011 11:34 PM
Molybdenum	0.168		0.00500	mg/L	1	6/3/2011 11:34 PM
Nickel	0.00605		0.00500	mg/L	1	6/3/2011 11:34 PM
Selenium	0.646	*	0.00500	mg/L	1	6/3/2011 11:34 PM
Silver	ND		0.00500	mg/L	1	6/3/2011 11:34 PM
Zinc	0.0884		0.00500	mg/L	1	6/3/2011 11:34 PM
SEMIVOLATILES			SW8270		Prep Date: 5/26/2011	Analyst: ACN
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2,4-Dinitrotoluene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2-Methylphenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2-Nitroaniline	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
2-Nitrophenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
3-Nitroaniline	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
4-Nitroaniline	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
4-Nitrophenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Acenaphthene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Acenaphthylene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Aniline	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Anthracene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Benzidine	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Hexachlorobenzene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Hexachloroethane	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Jun-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1105823

Sample ID: Effluent

Lab ID: 1105823-01

Collection Date: 5/24/2011 10:50 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Isophorone	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Naphthalene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Nitrobenzene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Pentachlorophenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Phenanthrene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Phenol	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Pyrene	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Pyridine	ND		0.0050	mg/L	1	6/1/2011 01:51 PM
Surr. 2,4,6-Tribromophenol	67.9		42-124	%REC	1	6/1/2011 01:51 PM
Surr. 2-Fluorobiphenyl	57.5		48-120	%REC	1	6/1/2011 01:51 PM
Surr. 2-Fluorophenol	47.5		20-120	%REC	1	6/1/2011 01:51 PM
Surr. 4-Terphenyl-d14	63.3		51-135	%REC	1	6/1/2011 01:51 PM
Surr. Nitrobenzene-d5	53.6		41-120	%REC	1	6/1/2011 01:51 PM
Surr. Phenol-d6	53.9		20-120	%REC	1	6/1/2011 01:51 PM
VOLATILES			SW8260		Analyst. PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
2-Butanone	ND		0.010	mg/L	1	6/1/2011 03:42 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	6/1/2011 03:42 PM
2-Hexanone	ND		0.010	mg/L	1	6/1/2011 03:42 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	6/1/2011 03:42 PM
Acetone	ND		0.010	mg/L	1	6/1/2011 03:42 PM
Benzene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Bromodichloromethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Bromoform	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Bromomethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Carbon disulfide	ND		0.010	mg/L	1	6/1/2011 03:42 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Chlorobenzene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Chloroethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Chloroform	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Chloromethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Jun-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 5/24/2011 10:50 AM

Work Order: 1105823

Lab ID: 1105823-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibromochloromethane	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Ethylbenzene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
m,p-Xylene	ND		0.010	mg/L	1	6/1/2011 03:42 PM
Methylene chloride	ND		0.010	mg/L	1	6/1/2011 03:42 PM
Styrene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Tetrachloroethene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Toluene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Trichloroethene	ND		0.0050	mg/L	1	6/1/2011 03:42 PM
Vinyl acetate	ND		0.010	mg/L	1	6/1/2011 03:42 PM
Vinyl chloride	ND		0.0020	mg/L	1	6/1/2011 03:42 PM
Xylenes, Total	ND		0.015	mg/L	1	6/1/2011 03:42 PM
Surr. 1,2-Dichloroethane-d4	98.2		70-125	%REC	1	6/1/2011 03:42 PM
Surr. 4-Bromofluorobenzene	95.1		72-125	%REC	1	6/1/2011 03:42 PM
Surr. Dibromofluoromethane	107		71-125	%REC	1	6/1/2011 03:42 PM
Surr. Toluene-d8	92.3		75-125	%REC	1	6/1/2011 03:42 PM
REACTIVE CYANIDE			SW-846			Analyst: SUB
Reactive Cyanide	ND		40.0	mg/Kg	1	5/27/2011 12:30 PM
REACTIVE SULFIDE			SW-846			Analyst: SUB
Reactive Sulfide	ND		40.0	mg/Kg	1	5/27/2011 12:30 PM
ANIONS - EPA 300.0 (1993)			E300			Analyst: TDW
Chloride	213		5.00	mg/L	10	6/3/2011 03:19 PM
Sulfate	2,240		25.0	mg/L	50	6/6/2011 04:33 PM
Surr. Selenate (surr)	103		85-115	%REC	10	6/3/2011 03:19 PM
Surr. Selenate (surr)	98.5		85-115	%REC	50	6/6/2011 04:33 PM
ALKALINITY			SM2320B			Analyst: DM
Alkalinity, Bicarbonate (As CaCO3)	243		5.00	mg/L	1	5/31/2011 02:30 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/31/2011 02:30 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/31/2011 02:30 PM
Alkalinity, Total (As CaCO3)	243		5.00	mg/L	1	5/31/2011 02:30 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: DM
Specific Conductivity	4,680		1.00	µmhos/cm	1	5/26/2011 10:15 AM
IGNITIBILITY			SW1010			Analyst: KAH
Ignitability	> 212		50.0	°F	1	6/3/2011 03:00 PM
PH			SW9040			Analyst: DM
pH	7.85	H	0.100	pH units	1	5/26/2011 11:30 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation

ALS Environmental

Date: 08-Jun-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1105823

Sample ID: Effluent

Lab ID: 1105823-01

Collection Date: 5/24/2011 10:50 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: JKP
Total Dissolved Solids (Residue, Filterable)	3,400		10.0	mg/L	1	5/31/2011 10:35 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date 08-Jun-11

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 52816 Instrument ID: Mercury Method: SW7470

MBLK Sample ID: GBLKW2-053111-52816 Units: mg/L Analysis Date: 5/31/2011 04:27 PM
 Client ID: Run ID: MERCURY_110531A SeqNo: 2407056 Prep Date: 5/31/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW2-053111-52816 Units: mg/L Analysis Date: 5/31/2011 04:29 PM
 Client ID: Run ID: MERCURY_110531A SeqNo: 2407060 Prep Date: 5/31/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00538	0.00020	0.005	0	108	85-115	0			

MS Sample ID: 1105864-08CMS Units: mg/L Analysis Date: 5/31/2011 04:35 PM
 Client ID: Run ID: MERCURY_110531A SeqNo: 2407068 Prep Date: 5/31/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00502	0.00020	0.005	-0.000003	100	85-115	0			

MSD Sample ID: 1105864-08CMSD Units: mg/L Analysis Date: 5/31/2011 04:37 PM
 Client ID: Run ID: MERCURY_110531A SeqNo: 2407069 Prep Date: 5/31/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00505	0.00020	0.005	-0.000003	101	85-115	0.00502	0.596	20	

DUP Sample ID: 1105864-08CDUP Units: mg/L Analysis Date: 5/31/2011 04:33 PM
 Client ID: Run ID: MERCURY_110531A SeqNo: 2407067 Prep Date: 5/31/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000003	0	20	

The following samples were analyzed in this batch:

1105823-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1105823
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 52874 Instrument ID: ICPMS03 Method: SW6020

MBLK		Sample ID: MBLKW2-060211-52874				Units: mg/L		Analysis Date: 6/6/2011 03:12 PM		
Client ID:		Run ID: ICPMS03_110606A				SeqNo: 2413608		Prep Date: 6/2/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Boron	0.02016	0.050								J
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Manganese	ND	0.0050								
Molybdenum	0.002082	0.0050								J
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Zinc	ND	0.0050								

LCS		Sample ID: MLCSW2-060211-52874				Units: mg/L		Analysis Date: 6/6/2011 03:04 PM		
Client ID:		Run ID: ICPMS03_110606A				SeqNo: 2413607		Prep Date: 6/2/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09684	0.010	0.1	0	96.8	80-120	0			
Arsenic	0.05093	0.0050	0.05	0	102	80-120	0			
Barium	0.04904	0.0050	0.05	0	98.1	80-120	0			
Boron	0.4566	0.050	0.5	0	91.3	80-120	0			
Cadmium	0.04988	0.0020	0.05	0	99.8	80-120	0			
Chromium	0.04946	0.0050	0.05	0	98.9	80-120	0			
Copper	0.04973	0.0050	0.05	0	99.5	80-120	0			
Lead	0.04928	0.0050	0.05	0	98.6	80-120	0			
Manganese	0.05148	0.0050	0.05	0	103	80-120	0			
Molybdenum	0.04824	0.0050	0.05	0	96.5	80-120	0			
Nickel	0.04964	0.0050	0.05	0	99.3	80-120	0			
Selenium	0.05265	0.0050	0.05	0	105	80-120	0			
Silver	0.04987	0.0050	0.05	0	99.7	80-120	0			
Zinc	0.05136	0.0050	0.05	0	103	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID 52874 Instrument ID ICPMS03 Method SW6020

MS Sample ID: 1105925-04AMS Units mg/L Analysis Date: 6/6/2011 04:48 PM

Client ID Run ID ICPMS03_110606A SeqNo: 2413951 Prep Date: 6/2/2011 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2092	0.050	0.1	0.08945	120	80-120	0			
Arsenic	0.0607	0.025	0.05	0.008105	105	80-120	0			
Barium	0.1019	0.025	0.05	0.0517	100	80-120	0			
Boron	4.238	0.25	0.5	3.702	107	80-120	0			O
Cadmium	0.0509	0.010	0.05	0.00186	98.1	80-120	0			
Chromium	0.0521	0.025	0.05	0.0007795	103	80-120	0			
Copper	0.04693	0.025	0.05	-0.001476	96.8	80-120	0			
Lead	0.05195	0.025	0.05	0.000925	102	80-120	0			
Manganese	10.75	0.025	0.05	10.65	200	80-120	0			SEO
Molybdenum	0.09915	0.025	0.05	0.04766	103	80-120	0			
Nickel	0.0923	0.025	0.05	0.04406	96.5	80-120	0			
Selenium	0.06155	0.025	0.05	0.005515	112	80-120	0			
Silver	0.04716	0.025	0.05	0.0004823	93.3	80-120	0			
Zinc	0.053	0.025	0.05	0.00974	86.5	80-120	0			

MSD Sample ID: 1105925-04AMSD Units mg/L Analysis Date: 6/6/2011 04:53 PM

Client ID Run ID: ICPMS03_110606A SeqNo: 2413952 Prep Date: 6/2/2011 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.2022	0.050	0.1	0.08945	113	80-120	0.2092	3.38	15	
Arsenic	0.06255	0.025	0.05	0.008105	109	80-120	0.0607	3	15	
Barium	0.1041	0.025	0.05	0.0517	105	80-120	0.1019	2.14	15	
Boron	4.362	0.25	0.5	3.702	132	80-120	4.238	2.88	15	SO
Cadmium	0.0504	0.010	0.05	0.00186	97.1	80-120	0.0509	0.987	15	
Chromium	0.0537	0.025	0.05	0.0007795	106	80-120	0.0521	3.02	15	
Copper	0.04882	0.025	0.05	-0.001476	101	80-120	0.04693	3.96	15	
Lead	0.05245	0.025	0.05	0.000925	103	80-120	0.05195	0.958	15	
Manganese	11.08	0.025	0.05	10.65	860	80-120	10.75	3.02	15	SEO
Molybdenum	0.09665	0.025	0.05	0.04766	98	80-120	0.09915	2.55	15	
Nickel	0.09645	0.025	0.05	0.04406	105	80-120	0.0923	4.4	15	
Selenium	0.0611	0.025	0.05	0.005515	111	80-120	0.06155	0.734	15	
Silver	0.04754	0.025	0.05	0.0004823	94.1	80-120	0.04716	0.813	15	
Zinc	0.0673	0.025	0.05	0.00974	115	80-120	0.053	23.8	15	R

Note: See Qualifiers Page for a list of Qualifiers and their explanation

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID 52874 Instrument ID ICPMS03 Method: SW6020

DUP Sample ID: 1105925-04ADUP Units: mg/L Analysis Date: 6/6/2011 04:25 PM

Client ID: Run ID: ICPMS03_110606A SeqNo: 2413947 Prep Date: 6/2/2011 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09685	0.050	0	0	0	0-0	0.08945	7.94	25	
Arsenic	0.007515	0.025	0	0	0	0-0	0.008105	0	25	J
Barium	0.05165	0.025	0	0	0	0-0	0.0517	0.0968	25	
Boron	3.873	0.25	0	0	0	0-0	3.702	4.5	25	
Cadmium	ND	0.010	0	0	0	0-0	0.00186	0	25	
Chromium	ND	0.025	0	0	0	0-0	0.0007795	0	25	
Copper	ND	0.025	0	0	0	0-0	-0.001476	0	25	
Lead	ND	0.025	0	0	0	0-0	0.000925	0	25	
Molybdenum	0.04683	0.025	0	0	0	0-0	0.04766	1.77	25	
Nickel	0.04412	0.025	0	0	0	0-0	0.04406	0.147	25	
Selenium	ND	0.025	0	0	0	0-0	0.005515	0	25	
Silver	ND	0.025	0	0	0	0-0	0.0004823	0	25	
Zinc	ND	0.025	0	0	0	0-0	0.00974	0	25	

DUP Sample ID: 1105925-04ADUP Units: mg/L Analysis Date: 6/6/2011 09:06 PM

Client ID: Run ID: ICPMS03_110606A SeqNo: 2414081 Prep Date: 6/2/2011 DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	10.25	0.50	0	0	0	0-0	10.75	4.76	25	

The following samples were analyzed in this batch: 1105823-01F

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 52774 Instrument ID: SV-5 Method: SW8270

MBLK Sample ID: SBLKW1-110526-52774 Units: µg/L Analysis Date: 5/27/2011 01:09 PM

Client ID: Run ID: SV-5_110527B SeqNo: 2406655 Prep Date: 5/26/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachlorobenzene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Pyridine	ND	5.0								
Surr: 2,4,6-Tribromophenol	75.9	5.0	100	0	75.9	42-124	0			
Surr: 2-Fluorobiphenyl	68.71	5.0	100	0	68.7	48-120	0			
Surr: 2-Fluorophenol	58.32	5.0	100	0	58.3	20-120	0			
Surr: 4-Terphenyl-d14	71.17	5.0	100	0	71.2	51-135	0			
Surr: Nitrobenzene-d5	73.03	5.0	100	0	73	41-120	0			
Surr: Phenol-d6	64.89	5.0	100	0	64.9	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID 52774 Instrument ID SV-5 Method. SW8270

LCS Sample ID: SLCSW1-110526-52774 Units: µg/L Analysis Date: 5/27/2011 03:09 PM

Client ID. Run ID: SV-5_110527B SeqNo: 2406657 Prep Date: 5/26/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.5	5.0	50	0	87	50-120	0			
2,4,5-Trichlorophenol	81.63	5.0	100	0	81.6	50-120	0			
2,4,6-Trichlorophenol	81.96	5.0	100	0	82	50-120	0			
2,4-Dinitrotoluene	40.7	5.0	50	0	81.4	50-120	0			
2-Methylnaphthalene	45.07	5.0	50	0	90.1	55-120	0			
2-Methylphenol	80.62	5.0	100	0	80.6	50-120	0			
2-Nitroaniline	40.84	5.0	50	0	81.7	55-120	0			
2-Nitrophenol	82.91	5.0	100	0	82.9	55-120	0			
3&4-Methylphenol	116.7	5.0	150	0	77.8	55-120	0			
3-Nitroaniline	30	5.0	50	0	60	40-120	0			
4-Nitroaniline	30.99	5.0	50	0	62	50-120	0			
4-Nitrophenol	75.64	5.0	100	0	75.6	45-120	0			
Acenaphthene	42.84	5.0	50	0	85.7	55-120	0			
Acenaphthylene	42.77	5.0	50	0	85.5	55-120	0			
Aniline	25.15	5.0	50	0	50.3	30-120	0			
Anthracene	44.26	5.0	50	0	88.5	55-120	0			
Benz(a)anthracene	43.32	5.0	50	0	86.6	55-120	0			
Benzidine	11.34	5.0	50	0	22.7	10-120	0			
Hexachlorobenzene	43.74	5.0	50	0	87.5	55-120	0			
Hexachloroethane	42.54	5.0	50	0	85.1	55-120	0			
Indeno(1,2,3-cd)pyrene	39.68	5.0	50	0	79.4	55-120	0			
Isophorone	41.64	5.0	50	0	83.3	55-120	0			
N-Nitrosodi-n-propylamine	40.56	5.0	50	0	81.1	50-120	0			
N-Nitrosodimethylamine	39.61	5.0	50	0	79.2	45-120	0			
N-Nitrosodiphenylamine	44.49	5.0	50	0	89	55-120	0			
Naphthalene	44.11	5.0	50	0	88.2	55-120	0			
Nitrobenzene	44.13	5.0	50	0	88.3	55-120	0			
Pentachlorophenol	78.73	5.0	100	0	78.7	55-120	0			
Phenanthrene	42.58	5.0	50	0	85.2	55-120	0			
Phenol	79.27	5.0	100	0	79.3	50-120	0			
Pyrene	44.26	5.0	50	0	88.5	55-120	0			
Pyridine	32.5	5.0	50	0	65	35-120	0			
Surr: 2,4,6-Tribromophenol	71.11	5.0	100	0	71.1	42-124	0			
Surr: 2-Fluorobiphenyl	81.91	5.0	100	0	81.9	48-120	0			
Surr: 2-Fluorophenol	80.91	5.0	100	0	80.9	20-120	0			
Surr: 4-Terphenyl-d14	75.75	5.0	100	0	75.8	51-135	0			
Surr: Nitrobenzene-d5	83.44	5.0	100	0	83.4	41-120	0			
Surr: Phenol-d6	76.63	5.0	100	0	76.6	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 52774 Instrument ID: SV-5 Method: SW8270

LCSD	Sample ID	SLCSDW1-110526-52774				Units: µg/L		Analysis Date: 5/27/2011 02:42 PM		
Client ID:	Run ID: SV-5_110527B				SeqNo: 2406656		Prep Date: 5/26/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.11	5.0	50	0	86.2	50-120	43.5	0.886	20	
2,4,5-Trichlorophenol	82.74	5.0	100	0	82.7	50-120	81.63	1.35	20	
2,4,6-Trichlorophenol	81.32	5.0	100	0	81.3	50-120	81.96	0.794	20	
2,4-Dinitrotoluene	44.91	5.0	50	0	89.8	50-120	40.7	9.83	20	
2-Methylnaphthalene	46.29	5.0	50	0	92.6	55-120	45.07	2.66	20	
2-Methylphenol	88.25	5.0	100	0	88.3	50-120	80.62	9.04	20	
2-Nitroaniline	42.59	5.0	50	0	85.2	55-120	40.84	4.2	20	
2-Nitrophenol	83.45	5.0	100	0	83.4	55-120	82.91	0.643	20	
3&4-Methylphenol	129.5	5.0	150	0	86.3	55-120	116.7	10.4	20	
3-Nitroaniline	33.43	5.0	50	0	66.9	40-120	30	10.8	20	
4-Nitroaniline	34.54	5.0	50	0	69.1	50-120	30.99	10.8	20	
4-Nitrophenol	86.06	5.0	100	0	86.1	45-120	75.64	12.9	20	
Acenaphthene	42.95	5.0	50	0	85.9	55-120	42.84	0.26	20	
Acenaphthylene	42.16	5.0	50	0	84.3	55-120	42.77	1.44	20	
Aniline	30.09	5.0	50	0	60.2	30-120	25.15	17.9	20	
Anthracene	44.46	5.0	50	0	88.9	55-120	44.26	0.444	20	
Benz(a)anthracene	43.49	5.0	50	0	87	55-120	43.32	0.386	20	
Benzidine	14.28	5.0	50	0	28.6	10-120	11.34	23	20	R
Hexachlorobenzene	42.72	5.0	50	0	85.4	55-120	43.74	2.35	20	
Hexachloroethane	42.43	5.0	50	0	84.9	55-120	42.54	0.266	20	
Indeno(1,2,3-cd)pyrene	41.89	5.0	50	0	83.8	55-120	39.68	5.42	20	
Isophorone	43.64	5.0	50	0	87.3	55-120	41.64	4.7	20	
N-Nitrosodi-n-propylamine	45.05	5.0	50	0	90.1	50-120	40.56	10.5	20	
N-Nitrosodimethylamine	38.15	5.0	50	0	76.3	45-120	39.61	3.75	20	
N-Nitrosodiphenylamine	43.77	5.0	50	0	87.5	55-120	44.49	1.61	20	
Naphthalene	43.88	5.0	50	0	87.8	55-120	44.11	0.518	20	
Nitrobenzene	43.66	5.0	50	0	87.3	55-120	44.13	1.06	20	
Pentachlorophenol	80.87	5.0	100	0	80.9	55-120	78.73	2.68	20	
Phenanthrene	42.64	5.0	50	0	85.3	55-120	42.58	0.159	20	
Phenol	85.22	5.0	100	0	85.2	50-120	79.27	7.24	20	
Pyrene	44.62	5.0	50	0	89.2	55-120	44.26	0.811	20	
Pyridine	30.24	5.0	50	0	60.5	35-120	32.5	7.19	20	
Surr: 2,4,6-Tribromophenol	77.59	5.0	100	0	77.6	42-124	71.11	8.71	20	
Surr: 2-Fluorobiphenyl	77.13	5.0	100	0	77.1	48-120	81.91	6.02	20	
Surr: 2-Fluorophenol	83.93	5.0	100	0	83.9	20-120	80.91	3.66	20	
Surr: 4-Terphenyl-d14	74.68	5.0	100	0	74.7	51-135	75.75	1.43	20	
Surr: Nitrobenzene-d5	83.15	5.0	100	0	83.1	41-120	83.44	0.35	20	
Surr: Phenol-d6	83.82	5.0	100	0	83.8	20-120	76.63	8.96	20	

The following samples were analyzed in this batch:

1105823-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID R110726 Instrument ID VOA1 Method. SW8260

MBLK Sample ID VBLKW-060111-R110726 Units µg/L Analysis Date. 6/1/2011 11:22 AM

Client ID Run ID. VOA1_110601A SeqNo 2408605 Prep.Date DF 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr. 1,2-Dichloroethane-d4	46.27	5.0	50	0	92.5	70-125	0			
Surr. 4-Bromofluorobenzene	48.66	5.0	50	0	97.3	72-125	0			
Surr. Dibromofluoromethane	47.13	5.0	50	0	94.3	71-125	0			
Surr. Toluene-d8	44.65	5.0	50	0	89.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID R110726 Instrument ID VOA1 Method SW8260

LCS		Sample ID. VLCSW-060111-R110726				Units µg/L		Analysis Date 6/1/2011 10:06 AM		
Client ID		Run ID: VOA1_110601A				SeqNo 2408604		Prep Date		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.23	5.0	50	0	102	80-120	0			
1,1,2,2-Tetrachloroethane	46.09	5.0	50	0	92.2	72-120	0			
1,1,2-Trichloroethane	46.38	5.0	50	0	92.8	80-120	0			
1,1-Dichloroethane	48.29	5.0	50	0	96.6	76-120	0			
1,1-Dichloroethene	48.17	5.0	50	0	96.3	73-124	0			
1,2-Dichloroethane	46.01	5.0	50	0	92	78-120	0			
2-Butanone	82.85	10	100	0	82.8	58-132	0			
2-Chloroethyl vinyl ether	96.39	10	100	0	96.4	74-120	0			
2-Hexanone	85.87	10	100	0	85.9	61-130	0			
4-Methyl-2-pentanone	87.75	10	100	0	87.8	65-127	0			
Acetone	82.96	10	100	0	83	59-137	0			
Benzene	47.73	5.0	50	0	95.5	73-121	0			
Bromodichloromethane	48.55	5.0	50	0	97.1	80-120	0			
Bromoform	46.63	5.0	50	0	93.3	79-120	0			
Bromomethane	56.86	5.0	50	0	114	66-137	0			
Carbon disulfide	100.4	10	100	0	100	68-141	0			
Carbon tetrachloride	51.48	5.0	50	0	103	75-124	0			
Chlorobenzene	49.26	5.0	50	0	98.5	80-120	0			
Chloroethane	54.15	5.0	50	0	108	76-121	0			
Chloroform	48.53	5.0	50	0	97.1	80-120	0			
Chloromethane	44.93	5.0	50	0	89.9	67-123	0			
cis-1,3-Dichloropropene	53.96	5.0	50	0	108	80-120	0			
Dibromochloromethane	51.48	5.0	50	0	103	80-120	0			
Ethylbenzene	50.43	5.0	50	0	101	80-120	0			
m,p-Xylene	100.5	10	100	0	101	78-121	0			
Methylene chloride	50.35	10	50	0	101	65-133	0			
Styrene	51.18	5.0	50	0	102	80-120	0			
Tetrachloroethene	46.53	5.0	50	0	93.1	79-120	0			
Toluene	46.05	5.0	50	0	92.1	80-120	0			
trans-1,3-Dichloropropene	52.76	5.0	50	0	106	80-120	0			
Trichloroethene	50.91	5.0	50	0	102	80-120	0			
Vinyl acetate	98.15	10	100	0	98.2	67-139	0			
Vinyl chloride	52.04	2.0	50	0	104	70-127	0			
Xylenes, Total	151.8	15	150	0	101	80-120	0			
Surr: 1,2-Dichloroethane-d4	46.3	5.0	50	0	92.6	70-125	0			
Surr: 4-Bromofluorobenzene	47	5.0	50	0	94	72-125	0			
Surr: Dibromofluoromethane	48.56	5.0	50	0	97.1	71-125	0			
Surr: Toluene-d8	46.07	5.0	50	0	92.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R110726 Instrument ID: VOA1 Method: SW8260

MS		Sample ID: 1105756-46AMS		Units: µg/L		Analysis Date: 6/1/2011 01:30 PM				
Client ID:		Run ID: VOA1_110601A		SeqNo: 2408609		Prep Date:		DF 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	252.9	25	250	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	240.3	25	250	0	96.1	72-120	0			
1,1,2-Trichloroethane	246.2	25	250	0	98.5	80-120	0			
1,1-Dichloroethane	249.2	25	250	0	99.7	76-120	0			
1,1-Dichloroethene	237.8	25	250	0	95.1	73-124	0			
1,2-Dichloroethane	268	25	250	0	107	78-120	0			
2-Butanone	464.3	50	500	0	92.9	58-132	0			
2-Chloroethyl vinyl ether	37.14	50	500	0	7.43	74-120	0			JS
2-Hexanone	481.3	50	500	0	96.3	61-130	0			
4-Methyl-2-pentanone	492.4	50	500	0	98.5	65-127	0			
Acetone	445.7	50	500	0	89.1	59-137	0			
Benzene	269.4	25	250	0	108	73-121	0			
Bromodichloromethane	287.1	25	250	0	115	80-120	0			
Bromoform	242.4	25	250	0	96.9	79-120	0			
Bromomethane	190.6	25	250	0	76.2	66-137	0			
Carbon disulfide	509.7	50	500	0	102	68-141	0			
Carbon tetrachloride	255	25	250	0	102	75-124	0			
Chlorobenzene	247.6	25	250	0	99.1	80-120	0			
Chloroethane	260.1	25	250	0	104	76-121	0			
Chloroform	247.8	25	250	0	99.1	80-120	0			
Chloromethane	206.9	25	250	0	82.8	67-123	0			
cis-1,3-Dichloropropene	275	25	250	0	110	80-120	0			
Dibromochloromethane	264.5	25	250	0	106	80-120	0			
Ethylbenzene	265.7	25	250	29.08	94.6	80-120	0			
m,p-Xylene	484.1	50	500	0	96.8	78-121	0			
Methylene chloride	246.8	50	250	0	98.7	65-133	0			
Styrene	250.9	25	250	0	100	80-120	0			
Tetrachloroethene	237.9	25	250	0	95.2	79-120	0			
Toluene	245.7	25	250	0	98.3	80-120	0			
trans-1,3-Dichloropropene	297.7	25	250	0	119	80-120	0			
Trichloroethene	271.3	25	250	0	109	80-120	0			
Vinyl acetate	502.3	50	500	0	100	67-139	0			
Vinyl chloride	234.6	10	250	0	93.9	70-127	0			
Xylenes, Total	734.8	75	750	0	98	80-120	0			
Surr: 1,2-Dichloroethane-d4	237.3	25	250	0	94.9	70-125	0			
Surr: 4-Bromofluorobenzene	247.4	25	250	0	99	72-125	0			
Surr: Dibromofluoromethane	246.8	25	250	0	98.7	71-125	0			
Surr: Toluene-d8	235.9	25	250	0	94.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R110726 Instrument ID VOA1 Method: SW8260

MSD	Sample ID. 1105756-46AMSD	Units µg/L		Analysis Date. 6/1/2011 01:56 PM						
Client ID	Run ID VOA1_110601A	SeqNo: 2408610		Prep Date		DF 5				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	239.8	25	250	0	95.9	80-120	252.9	5.33	20	
1,1,2,2-Tetrachloroethane	222.1	25	250	0	88.8	72-120	240.3	7.86	20	
1,1,2-Trichloroethane	252.6	25	250	0	101	80-120	246.2	2.58	20	
1,1-Dichloroethane	244	25	250	0	97.6	76-120	249.2	2.09	20	
1,1-Dichloroethene	237.5	25	250	0	95	73-124	237.8	0.151	20	
1,2-Dichloroethane	249	25	250	0	99.6	78-120	268	7.32	20	
2-Butanone	480.4	50	500	0	96.1	58-132	464.3	3.4	20	
2-Chloroethyl vinyl ether	ND	50	500	0	0	74-120	37.14	0	20	S
2-Hexanone	473.4	50	500	0	94.7	61-130	481.3	1.66	20	
4-Methyl-2-pentanone	440.6	50	500	0	88.1	65-127	492.4	11.1	20	
Acetone	433	50	500	0	86.6	59-137	445.7	2.9	20	
Benzene	252.3	25	250	0	101	73-121	269.4	6.57	20	
Bromodichloromethane	248.6	25	250	0	99.4	80-120	287.1	14.4	20	
Bromoform	233.7	25	250	0	93.5	79-120	242.4	3.64	20	
Bromomethane	228.8	25	250	0	91.5	66-137	190.6	18.2	20	
Carbon disulfide	484.7	50	500	0	96.9	68-141	509.7	5.04	20	
Carbon tetrachloride	235.1	25	250	0	94	75-124	255	8.13	20	
Chlorobenzene	243.1	25	250	0	97.2	80-120	247.6	1.86	20	
Chloroethane	230.6	25	250	0	92.2	76-121	260.1	12	20	
Chloroform	247.3	25	250	0	98.9	80-120	247.8	0.204	20	
Chloromethane	192.2	25	250	0	76.9	67-123	206.9	7.34	20	
cis-1,3-Dichloropropene	263.9	25	250	0	106	80-120	275	4.12	20	
Dibromochloromethane	256.8	25	250	0	103	80-120	264.5	2.95	20	
Ethylbenzene	244.9	25	250	29.08	86.3	80-120	265.7	8.15	20	
m,p-Xylene	466.8	50	500	0	93.4	78-121	484.1	3.65	20	
Methylene chloride	239.2	50	250	0	95.7	65-133	246.8	3.11	20	
Styrene	242	25	250	0	96.8	80-120	250.9	3.63	20	
Tetrachloroethene	227.1	25	250	0	90.8	79-120	237.9	4.66	20	
Toluene	237	25	250	0	94.8	80-120	245.7	3.58	20	
trans-1,3-Dichloropropene	262.2	25	250	0	105	80-120	297.7	12.7	20	
Trichloroethene	256.2	25	250	0	102	80-120	271.3	5.74	20	
Vinyl acetate	491.2	50	500	0	98.2	67-139	502.3	2.24	20	
Vinyl chloride	233.5	10	250	0	93.4	70-127	234.6	0.461	20	
Xylenes, Total	712.5	75	750	0	95	80-120	734.8	3.09	20	
Surr: 1,2-Dichloroethane-d4	244.5	25	250	0	97.8	70-125	237.3	2.97	20	
Surr: 4-Bromofluorobenzene	230	25	250	0	92	72-125	247.4	7.32	20	
Surr: Dibromofluoromethane	250.1	25	250	0	100	71-125	246.8	1.33	20	
Surr: Toluene-d8	233.7	25	250	0	93.5	75-125	235.9	0.921	20	

The following samples were analyzed in this batch: 1105823-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation

Client: Navajo Refining Company
Work Order: 1105823
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID **R110566** Instrument ID **WetChem** Method. **SW9040**

LCS Sample ID: **WLCSW1-052611-R110566** Units: **pH units** Analysis Date: **5/26/2011 11:30 AM**

Client ID: Run ID: **WETCHEM_110526G** SeqNo: **2404273** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.1	0.10	6	0	102	90-110	0			

DUP Sample ID: **1105823-01BDUP** Units: **pH units** Analysis Date: **5/26/2011 11:30 AM**

Client ID: **Effluent** Run ID: **WETCHEM_110526G** SeqNo: **2404275** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.93	0.10	0	0	0	0-0	7.85	1.01	20	H

The following samples were analyzed in this batch:

1105823-01B

Client: Navajo Refining Company
Work Order: 1105823
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R110567 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW1-052611-R110567 Units: $\mu\text{mhos/cm}$ Analysis Date: 5/26/2011 10:15 AM

Client ID: Run ID: WETCHEM_110526H SeqNo 2404278 Prep Date: DF 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1 0								

LCS Sample ID: WLCSW1-052611-R110567 Units: $\mu\text{mhos/cm}$ Analysis Date: 5/26/2011 10:15 AM

Client ID: Run ID: WETCHEM_110526H SeqNo 2404279 Prep Date: DF 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1400	1 0	1413	0	99 1	80-120	0			

DUP Sample ID: 1105823-01BDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 5/26/2011 10:15 AM

Client ID Effluent Run ID: WETCHEM_110526H SeqNo 2404281 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	4670	1.0	0	0	0		4680	0.214	20	

The following samples were analyzed in this batch:

1105823-01B

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID. **R110694** Instrument ID **WetChem** Method. **SM2320B**

MBLK Sample ID: **WBLKW1-053111-R110694** Units: **mg/L** Analysis Date: **5/31/2011 02:30 PM**

Client ID. Run ID: **WETCHEM_110531I** SeqNo: **2407693** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: **WLCSW1-053111-R110694** Units: **mg/L** Analysis Date: **5/31/2011 02:30 PM**

Client ID: Run ID: **WETCHEM_110531I** SeqNo: **2407694** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	989.7	5.0	1000	0	99	80-120	0			
Alkalinity, Total (As CaCO3)	989.7	5.0	1000	0	99	80-120	0			

DUP Sample ID: **1105705-10CDUP** Units: **mg/L** Analysis Date: **5/31/2011 02:30 PM**

Client ID: Run ID: **WETCHEM_110531I** SeqNo: **2407713** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	200.9	5.0	0	0	0	0-0	201.9	0.492	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	200.9	5.0	0	0	0	0-0	201.9	0.492	20	

The following samples were analyzed in this batch:

1105823-01B

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID R110702 Instrument ID Balance1 Method M2540C

MBLK Sample ID BLANK-R110702 Units: mg/L Analysis Date: 5/31/2011 10:35 AM
 Client ID: Run ID BALANCE1_110531F SeqNo: 2408003 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID LCS-R110702 Units: mg/L Analysis Date: 5/31/2011 10:35 AM
 Client ID: Run ID BALANCE1_110531F SeqNo: 2408004 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1064	10	1000	0	106	85-115	0			

DUP Sample ID 1105756-34EDUP Units: mg/L Analysis Date: 5/31/2011 10:35 AM
 Client ID: Run ID BALANCE1_110531F SeqNo: 2407982 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	2410	10	0	0	0	0-0	2412	0.083	20	

DUP Sample ID 1105756-46EDUP Units: mg/L Analysis Date: 5/31/2011 10:35 AM
 Client ID: Run ID BALANCE1_110531F SeqNo: 2407991 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1222	10	0	0	0	0-0	1170	4.35	20	

The following samples were analyzed in this batch:

1105823-01B

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID R110849 Instrument ID ICS2100 Method E300

MBLK	Sample ID: WBLKW3-060211-R110849				Units: mg/L		Analysis Date: 6/3/2011 10:57 AM			
Client ID:	Run ID: ICS2100_110603A				SeqNo: 2411502		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.35	0.50								J
Surr. Selenate (surr)	5.178	0.10	5	0	104	85-115	0			

LCS	Sample ID: WLC3W3-060211-R110849				Units: mg/L		Analysis Date: 6/3/2011 11:11 AM			
Client ID	Run ID: ICS2100_110603A				SeqNo: 2411503		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.82	0.50	20	0	104	90-110	0			
Surr: Selenate (surr)	4.901	0.10	5	0	98	85-115	0			

LCSD	Sample ID: WLCSDW3-060211-R110849				Units: mg/L		Analysis Date: 6/3/2011 11:26 AM			
Client ID:	Run ID: ICS2100_110603A				SeqNo: 2411504		Prep Date		DF 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.49	0.50	20	0	107	90-110	20.82	3.19	20	
Surr. Selenate (surr)	5.025	0.10	5	0	100	85-115	4.901	2.5	20	

MS	Sample ID: 1105704-06BMS				Units: mg/L		Analysis Date: 6/3/2011 12:09 PM			
Client ID	Run ID: ICS2100_110603A				SeqNo. 2411507		Prep Date:		DF 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	125.4	0.50	10	117	84	80-120	0			EO
Surr Selenate (surr)	4.953	0.10	5	0	99.1	85-115	0			

MS	Sample ID: 1106102-02CMS				Units: mg/L		Analysis Date 6/3/2011 05:27 PM			
Client ID:	Run ID: ICS2100_110603A				SeqNo. 2412453		Prep Date:		DF 100	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	138500	50	1000	137600	90.4	80-120		0		EO
Surr. Selenate (surr)	507.4	10	500	0	101	85-115		0		

MSD	Sample ID 1105704-06BMSD				Units: mg/L		Analysis Date 6/3/2011 12:24 PM			
Client ID.	Run ID. ICS2100_110603A				SeqNo: 2411508		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	125.1	0.50	10	117	80.7	80-120	125.4	0.263	20	EO
Surr. Selenate (surr)	4.965	0.10	5	0	99.3	85-115	4.953	0.242	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1105823
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID **R110849** Instrument ID **ICS2100** Method **E300**

MSD Sample ID. **1106102-02CMSD** Units: mg/L Analysis Date. **6/3/2011 05:41 PM**

Client ID. Run ID **ICS2100_110603A** SeqNo: **2412454** Prep Date. DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	126500	50	1000	137600	-1110	80-120	138500	9.07	20	SEO
Surr: Selenate (surr)	462.8	10	500	0	92.6	85-115	507.4	9.2	20	

The following samples were analyzed in this batch:

1105823-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1105823
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R110875** Instrument ID: **WetChem** Method: **SW1010**

LCS Sample ID: **WLCS-060311-R110875** Units: °F Analysis Date: **6/3/2011 03:00 PM**

Client ID: Run ID: **WETCHEM_110603H** SeqNo: **2411828** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	84	50	83	0	101	80-120	0			

LCSD Sample ID: **WLCSD-060311-R110875** Units: °F Analysis Date: **6/3/2011 03:00 PM**

Client ID: Run ID: **WETCHEM_110603H** SeqNo: **2411829** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	84	12	25	

DUP Sample ID: **1106074-07FDUP** Units: °F Analysis Date: **6/3/2011 03:00 PM**

Client ID: Run ID: **WETCHEM_110603H** SeqNo: **2411825** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch:

1105823-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1105823
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID R110987 Instrument ID ICS3000 Method E300

MBLK	Sample ID: WBLKW1-060611-R110987				Units mg/L		Analysis Date: 6/6/2011 06:25 PM			
Client ID:	Run ID ICS3000_110606A				SeqNo 2414849		Prep Date		DF 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	ND	0.50								
Surr: Selenate (surr)	4.522	0.10	5	0	90.4	85-115	0			

LCS	Sample ID: WLCSW1-060611-R110987					Units: mg/L		Analysis Date: 6/6/2011 06:46 PM		
Client ID:	Run ID: ICS3000_110606A				SeqNo: 2414850		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	20.9	0.50	20	0	104	90-110	0			
Surr. Selenate (surr)	5.095	0.10	5	0	102	85-115	0			

LCSD	Sample ID: WLCSDW1-060611-R110987				Units: mg/L		Analysis Date: 6/6/2011 07:07 PM			
Client ID:	Run ID: ICS3000_110606A				SeqNo: 2414852		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	20.85	0.50	20	0	104	90-110	20.9	0.216	20	
Surr: Selenate (surr)	5.061	0.10	5	0	101	85-115	5.095	0.67	20	

MS	Sample ID	1105899-40IMS				Units. mg/L	Analysis Date: 6/7/2011 12:44 AM			
Client ID	Run ID: ICS3000_110606A				SeqNo. 2414887		Prep Date		DF 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	57.42	2.5	50	7.255	100	80-120	0			
Surr: Selenate (surr)	23.66	0.50	25	0	94.6	85-115	0			

MS	Sample ID 1105899-39IMS					Units. mg/L		Analysis Date 6/7/2011 10:21 AM		
Client ID:	Run ID ICS3000_110606A				SeqNo. 2414891		Prep Date.		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	55.45	2.5	50	0	111	80-120	0			
Surr. Selenate (surr)	24.38	0.50	25	0	97.5	85-115	0			

MSD	Sample ID: 1105899-40IMS				Units: mg/L		Analysis Date: 6/7/2011 01:48 AM			
Client ID:	Run ID: ICS3000_110606A				SeqNo: 2414890		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	57.64	2.5	50	7.255	101	80-120	57.42	0.391	20	
Surr: Selenate (surr)	23.65	0.50	25	0	94.6	85-115	23.66	0.0211	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1105823
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID. **R110987** Instrument ID **ICS3000** Method **E300**

MSD Sample ID. **1105899-39IMS** Units: **mg/L** Analysis Date **6/7/2011 10:42 AM**

Client ID. Run ID **ICS3000_110606A** SeqNo **2414892** Prep Date DF. **5**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	55.91	2.5	50	0	112	80-120	55.45	0.826	20	
Surr: Selenate (surr)	24.66	0.50	25	0	98.6	85-115	24.38	1.14	20	

The following samples were analyzed in this batch:

1105823-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date 08-Jun-11

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1105823

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



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Chain of Custody Form

Page 1 of 1

COC ID: **33684**

1105823

NAVAJO REFINING: Navajo Refining Company

Project: Injection Well Quarterly



ALS Project Manager:

Customer Information		Project Information	
Purchase Order		Project Name	Injection Well Quarterly
Work Order		Project Number	
Company Name	Navajo Refining Company	Bill To Company	Navajo Refining Company
Send Report To	Aaron Strange	Invoice Attn	Aaron Strange
Address	PQ Box 159	Address	PO Box 159
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211
Phone	(575) 748- 6733 3311	Phone	(575) 748- 6733 3311
Fax	(575) 746- 5421 5451	Fax	(575) 746- 5421 5451
e-Mail Address		e-Mail Address	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Effluent	5-24-11	10:50	L	Y	9	X	X	X	X	X	X	X	X	X		
2	Trip blank																
3	Temp blank																
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Aaron Strange		Fed Ex		☒ 10 WK Days ☐ 5 WK Days ☐ 2 WK Days ☐ 24 Hour			
Relinquished by:	Date: 5-24-11	Time: 1615	Received by:	Notes: 10 Day TAT.			
Relinquished by:	Date:	Time:	Received by (Laboratory):	Cooler ID	Cooler Temp.	QC Package: (Check One Box Below)	
Logged by (Laboratory):	Date:	Time:	Checked by (Laboratory):			☒ Level I Std QC ☐ TRFP Check List	
Preservative Key: 1-HCl 2-HNO ₃ 3-H ₂ SO ₄ 4-NaOH 5-Na ₂ S ₂ O ₃ 6-NaHSO ₄ 7-Other 8-4°C 9-5035				☐ Level III Std QC/Raw Data ☐ TRFP Level IV			
				☐ Level IV SW346/CLP ☐ Other / EDD			

- ote: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions of this form.
3. The Chain of Custody is a legal document.

ALS Environmental

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 25-May-11 09:15

Work Order 1105823

Received by: DWH

Checklist completed by David A. Hightower
eSignature

25-May-11
Date

Reviewed by: Chris Bryson
eSignature

29-May-11
Date

Matrices: water

Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s).	<u>2.0c</u> <u>002</u>		
Cooler(s)/Kit(s)	<u>3401</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by.	<u></u>		
Login Notes:	<u></u>		

Client Contacted:

Date Contacted

Person Contacted:

Contacted By:

Regarding

Comments:

Corrective Action:

Client: ALS Environmental
Project: 1105823
Work Order: 1105675

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1105675-01	1105823-01D	Water		5/24/2011 10:50	5/27/2011 09:45	☐

Client: ALS Environmental

Project: 1105823

WorkOrder: 1105675

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: 27-May-11

Client: ALS Environmental
Project: 1105823
Sample ID: 1105823-01D
Collection Date: 5/24/2011 10:50 AM

Work Order: 1105675
Lab ID: 1105675-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: CV
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/27/2011 12:30 PM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: CV
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/27/2011 12:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date 27-May-11

Client: ALS Environmental
Work Order: 1105675
Project: 1105823

QC BATCH REPORT

Batch ID **R90393** Instrument ID **WETCHEM** Method: **SW7.3.3.2**

MBLK Sample ID: **WBLKW1-110524-R90393** Units: **mg/Kg** Analysis Date: **5/24/2011 10:00 AM**
 Client ID: Run ID: **WETCHEM_110524C** SeqNo: **1633537** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: **WLCSW1-110524-R90393** Units: **mg/Kg** Analysis Date: **5/24/2011 10:00 AM**
 Client ID: Run ID: **WETCHEM_110524C** SeqNo: **1633538** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	0			

LCSD Sample ID: **WLCSDW1-110524-R90393** Units: **mg/Kg** Analysis Date: **5/24/2011 10:00 AM**
 Client ID: Run ID: **WETCHEM_110524C** SeqNo: **1633542** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	249.6	0	35	

MS Sample ID: **1105504-02A MS** Units: **mg/Kg** Analysis Date: **5/25/2011 01:00 PM**
 Client ID: Run ID: **WETCHEM_110524C** SeqNo: **1634710** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	278.9	40	250	0	112	50-150	0			

MSD Sample ID: **1105504-02A MSD** Units: **mg/Kg** Analysis Date: **5/25/2011 01:00 PM**
 Client ID: Run ID: **WETCHEM_110524C** SeqNo: **1634711** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	278.9	11.1	35	

The following samples were analyzed in this batch:

1105675-01A

Client: ALS Environmental
Work Order: 1105675
Project: 1105823

QC BATCH REPORT

Batch ID **R90528** Instrument ID **WETCHEM** Method **SW7.3.4.2**

MBLK Sample ID **WBLKW1-110527-R90528** Units **mg/Kg** Analysis Date **5/27/2011 12:30 PM**

Client ID: Run ID **WETCHEM_110527D** SeqNo: **1636809** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1105675-01A

1105675



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 25-May-11
COC ID: 10516
Due Date: 07-Jun-11

Customer Information		Project Information		Parameter/Method Request for Analysis													
Purchase Order		Project Name	1105823	A	Reactive Cyanide (SW-846)												
Work Order		Project Number		B	Reactive Sulfide (SW-846)												
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C													
Send Report To	JayLynn F Thibault	Inv Attn	Accounts Payable	D													
Address	10450 Stancliff Rd, Suite 210	Address	10450 Stancliff Rd, Suite 210	E													
				F													
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G													
Phone	(281) 530-5656	Phone	(281) 530-5656	H													
Fax	(281) 530-5887	Fax	(281) 530-5887	I													
eMail Address	jaylynn.thibault@alsenviro.com	eMail CC		J													
Sample ID	Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J				
1105823-01D (Effluent)	Water	24/May/2011 10:50	(1) 1LPNEAT	X	X												

Comments: Please analyze for Reactive Cyanide & Sulfide cc:glenda.ramos@alsglobal.com mary.knowles@alsglobal.com

Relinquished by: [Signature] Date/Time: 5/27/11 Received by: [Signature] Date/Time: 0945 Cooler IDs: 4.02 Report/QC Level Std: 4.02

ALS Group USA, Corp

Sample Receipt Checklist

Client Name. ALS - HOUSTON

Date/Time Received 27-May-11 09:45

Work Order 1105675

Received by. DS

Checklist completed by Diane Sham
eSignature

27-May-11
Date

Reviewed by Bill Carey
eSignature

27-May-11
Date

Matrices Water

Carrier name. FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

40 c

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☐

No ☐

No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

N/A ☒

pH adjusted?

Yes ☐

No ☐

N/A ☒

pH adjusted by:

Login Notes

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments

CorrectiveAction

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, May 12, 2011 2:42 PM
To: 'Jaylynn Thibault'
Cc: John Cady; Dave Pangrazio; darrell.moore@hollycorp.com
Subject: RE: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Jaylynn:

Regarding your response, see below in red text.

Reactivity:

Well the ND of I think 40 mg/kg for reactivity of a waste water sample? Was your lab in error by providing soil weight units for a waste water sample? What is the work order for this job so we can check our notes. (Work Order: 1102690)

Based on your response, any waste water sample received that is not thick enough to be treated as a soil gets the "ND 40 mg/kg" reporting units or "Negative" results? No. If it is analyzed as a water it will be reported in mg/L. (Sample was waste water and the ND was reported in "mg/kg" units.)

Please clarify that the above is correct. This means that water samples are automatically negative for reactivity from your lab unless they can be treated as soils. No. Reactive Cyanide and Reactive Sulfide are typically done on soils, but they can be done on waters. Total Cyanide and Total Sulfide are the best test to analyze on waters. (I think I'm understanding that waste water media samples can be analyzed for reactive sulfide and cyanide, but the reporting units should be in mg/L and a certain "ND" value of 40 mg/L?

Analytical Data Results & QA/QC: I let Navajo Refining Company know that there were some mathematical errors in some of the QA/QC Summary Results from your laboratory last reporting period. Navajo is supposed to review your QA/QC to make sure your recovery % and RPDs are accurate and within limits. They are supposed to send back the results for corrections to your lab before resending it to the OCD. You may want to double check the QA/QC to make sure you don't have a glitch somewhere in the QA/QC Summary Reports.

I gave this data to our QA department and they went through it. They found no errors. What specific errors are you referring to? Also see

http://ocdimage.emnrd.state.nm.us/Imaging/FileStore/SantaFeAdmin/AO/79311/pLWP0425236022_25_AO.tif (Page 7 and beyond) with QA/QC (i.e., % Recovery & RPD) arithmetic errors on Page 16, 17, etc..

Thanks for your cooperation in this matter. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

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<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>

From: Jaylynn Thibault [<mailto:Jaylynn.Thibault@ALSGlobal.com>]
Sent: Thursday, May 12, 2011 2:28 PM
To: Chavez, Carl J, EMNRD
Cc: John Cady; Dave Pangrazio; darrell.moore@hollycorp.com

Subject: RE: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

See below

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]

Sent: Thursday, May 12, 2011 1:53 PM

To: Jaylynn Thibault

Subject: RE: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Jalynn:

My call was related to a waste water sample that is injected into a Underground Injection Control (UIC) Class I (Non-Hazardous) Disposal Well in NM. Please provide clarification on my responses below.

I believe the pH exceeded the holding time, but this was an operator issue and not a laboratory issue right?

pH is a field test and should be done on site.

Ignitability:

I did look up the regulations and it stipulates the OCD temperature and not ALS temperature. I recommend that your lab consider revising the reporting temperature for flash to comply with the regulation.

The temperature in which we record meets 140 degrees and exceeds. If there is an ignitability below 212 degrees, there will be a value.

Reactivity:

Well the ND of I think 40 mg/kg for reactivity of a waste water sample? Was your lab in error by providing soil weight units for a waste water sample? What is the work order for this job so we can check our notes.

Based on your response, any waste water sample received that is not thick enough to be treated as a soil gets the "ND 40 mg/kg" reporting units or "Negative" results? No. If it is analyzed as a water it will be reported in mg/L.

Please clarify that the above is correct. This means that water samples are automatically negative for reactivity from your lab unless they can be treated as soils. No. Reactive Cyanide and Reactive Sulfide are typically done on soils, but they can be done on waters. Total Cyanide and Total Sulfide are the best test to analyze on waters.

Analytical Data Results & QA/QC: I let Navajo Refining Company know that there were some mathematical errors in some of the QA/QC Summary Results from your laboratory last reporting period. Navajo is supposed to review your QA/QC to make sure your recovery % and RPDs are accurate and within limits. They are supposed to send back the results for corrections to your lab before resending it to the OCD. You may want to double check the QA/QC to make sure you don't have a glitch somewhere in the QA/QC Summary Reports.

I gave this data to our QA department and they went through it. They found no errors. What specific errors are you referring to?

Thanks.

Carl J. Chavez, CHMM

New Mexico Energy, Minerals & Natural Resources Dept.

Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

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From: Jaylynn Thibault [mailto:Jaylynn.Thibault@ALSGlobal.com]

Sent: Thursday, May 12, 2011 11:46 AM

To: Chavez, Carl J, EMNRD

Subject: RE: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Hi Carl,

I believe we came to a clarification for the ignitability and you were waiting for corrosivity clarification. I spoke with the lab director of the Michigan lab and he said that reactives are not typically analyzed on waters but can be. The mg/kg units will be applied to a water if it is thick enough to be treated as a soil. If the sample is analyzed as a water it will have the mg/L units.

Does this answer your question?

Thanks,

JayLynn

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]

Sent: Tuesday, May 03, 2011 12:00 PM

To: Jaylynn Thibault

Subject: FW: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Note to file:

On 5/3 contacted ALS Labs who performs Characteristically Hazardous Analytical Testing for operator. Requested clarification for ignitability and the use of 212 °F limit instead of 140 °F for analytical reporting and for Corrosivity clarification of the ND 40 mg/kg limit for reactivity with Sulfide and/or Cyanide for UIC Class I (NH) Disposal Well waste water. JayLynn F. Thibault (ALS Project Mgr.) at (281) 530-5656 will clarify w/ Michigan Contract Lab and respond to clarification request from OCD. Ok.

Thank you.

Carl J. Chavez, CHMM

New Mexico Energy, Minerals & Natural Resources Dept.

Oil Conservation Division, Environmental Bureau

1220 South St. Francis Dr., Santa Fe, New Mexico 87505

Office: (505) 476-3490

Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

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From: Chavez, Carl J, EMNRD

Sent: Tuesday, May 03, 2011 10:52 AM

To: 'jaylynn.thibault@alsglobal.com'

Subject: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/ocd/index.htm>

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<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, May 03, 2011 4:16 PM
To: Whatley, Michael
Subject: 2011 Q1 Injection Report for Wells WDWs-1, 2 and 3 ALS Environmental Laboratory QA/QC

Michael:

Good afternoon. Some quick observations of concern to the OCD on the quarterly report are as follows:

- 1) The pH holding time was exceeded for the analytical data results provided.
- 2) There were some mathematical errors (i.e., percent recovered, relative percent difference, etc.) in portions of the QA/QC data provided by the lab.
- 3) A clarification request on Ignitability and Corrosivity was sent to the Program Manager to clarify the methods of analysis based on the Federal 40 CFR 261 Regulations for Characteristically Hazardous determinations.
- 4) There is some concern about the variability in annular pressures in the wells, since the pressure should be stable at around 100 psi.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/oed/index.htm>

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<http://www.emnrd.state.nm.us/oed/environmental.htm#environmental>)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, May 03, 2011 11:00 AM
To: 'jaylynn.thibault@alsglobal.com'
Subject: FW: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Note to file:

- On 5/3 contacted ALS Labs who performs Characteristically Hazardous Analytical Testing for operator. Requested clarification for ignitability and the use of 212 °F limit instead of 140 °F for analytical reporting and for Corrossivity clarification of the ND 40 mg/kg limit for reactivity with Sulfide and/or Cyanide for UIC Class I (NH) Disposal Well waste water. JayLynn F. Thibault (ALS Project Mgr.) at (281) 530-5656 will clarify w/ Michigan Contract Lab and respond to clarification request from OCD. Ok.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/oecd/index.htm>

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<http://www.emnrd.state.nm.us/oecd/environmental.htm#environmental>)

From: Chavez, Carl J, EMNRD
Sent: Tuesday, May 03, 2011 10:52 AM
To: 'jaylynn.thibault@alsglobal.com'
Subject: Reactivity and Ignitability Question Clarification of Lab Procedure Compliant w/ Fed Reg. for Characteristic Haz. Waste

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462

E-mail: CarlJ.Chavez@state.nm.us

Website: <http://www.emnrd.state.nm.us/oecd/index.htm>

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<http://www.emnrd.state.nm.us/oecd/environmental.htm#environmental>)



REFINING COMPANY, LLC

RECEIVED OOD

FAX

(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 1592
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

April 29, 2011

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2011 First Quarter Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the first quarter of 2011 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for this well. A Mechanical Integrity Test (MIT) on all the wells was last done on August 12, 2010 and a quarterly Bradenhead for WDW-3 was last done on March 18, 2011. All of the wells passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore.

This report covers the period from Jan. 1, 2011 to Mar. 31, 2011. We have disposed a total of 53,520,588 barrels of fluid into the three wells as of March 31, 2011. The volume per well is:

- 29,779,091 barrels into WDW-1
- 16,315,816 barrels into WDW-2
- 7,425,682 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)

2011 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1														
Jan-11	669	696	392	124	278	80	517	661	395	4,252	9,546	2,730	131,810	29,272,663
Feb-11	604	1,000	229	174	596	78	505	882	153	5,956	20,436	2,676	166,762	29,404,474
Mar-11	884	1,000	606	196	217	138	473	880	229	6,705	7,455	4,735	207,855	29,571,236
WDW-2														
Jan-11	647	719	383	137	142	110	452	651	295	4,714	4,884	3,788	146,125	15,872,314
Feb-11	490	701	222	149	253	109	531	942	151	5,117	8,662	3,748	143,288	16,018,439
Mar-11	506	575	391	145	160	132	496	735	323	4,971	5,488	4,540	154,088	16,161,727
WDW-3														
Jan-11	680	727	376	189	195	158	366	521	233	6,474	6,698	5,417	200,689	6,920,236
Feb-11	609	1,000	404	158	308	93	535	831	235	5,417	10,556	3,204	151,680	7,120,925
Mar-11	542	619	468	144	170	113	521	860	309	4,938	5,841	3,881	153,077	7,272,604
Total Injected fluids:														53,520,588

2011 FIRST QUARTER WEEKLY WAMS LEVEL TABLE

	1/3/11	1/10/11	1/17/11	1/24/11	1/31/11	2/7/11	2/14/11	2/21/11	2/28/11	3/7/11	3/14/11	3/21/11	3/28/11
WDW -1 ¹	185	185	180	180	180	180	180	180	180	180	180	180	180
WDW-2 ¹	150	150	150	150	150	150	180	180	180	180	180	180	180
WDW-3 ¹	175	175	170	170	165	155	155	155	155	155	155	155	155
Comments: Added antifreeze to WDW-1 and to WDW-3 on 12/28/2010. WDW-1 was brought up to 190 gallons and WDW-3 was brought up to 180 gallons. Added antifreeze to WDW-2 on 2/10/2011. WDW-2 was brought up to 180. The antifreeze was added as a maintenance procedure, not because of a leak or drop in the antifreeze level.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



08-Mar-2011

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1102690**

Dear Aaron,

ALS Environmental received 2 samples on 24-Feb-2011 08:50 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 39.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

JayLynn F Thibault

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10450 Standiford Rd, Suite 210 Houston, Texas 77039-4338 | PHONE (281) 530-5555 | FAX (281) 530-5557

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ALS Environmental

Date: 08-Mar-11

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1102690

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1102690-01	Effluent	Water		2/23/2011 08:50	2/24/2011 08:50	☐
1102690-02	Trip Blank	Water		2/23/2011	2/24/2011 08:50	☐

ALS Environmental

Date: 26-Apr-11

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1102690

Case Narrative

Ignitability reflects >212 F, this shows that the sample did not flash or ignite at 212 degrees. Therefore, this would be considered a Negative result. For waters, we measure to 212 degrees.

Reactive Sulfide and Reactive Cyanide are subbed to our Michigan lab. The reported 'ND' would be considered a Negative result.

Batch 50327 Semivolatiles (Sample 1102690-01) Sample had to be ran at 5X due to sample matrix.

Batch 50340 Metals (sample 1102716-01) MS/MSD unrelated sample.

Batch R105900 Volatiles (sample 1102658-01) MS/MSD unrelated sample.

Batch R106075 Anions (sample 1102742-01) MS/MSD unrelated sample.

ALS Environmental

Date: 08-Mar-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1102690

Sample ID: Effluent

Lab ID: 1102690-01

Collection Date: 2/23/2011 08:50 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470		Prep Date: 3/1/2011	Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	3/1/2011 03:35 PM
METALS			SW6020		Prep Date: 2/25/2011	Analyst: ALR
Aluminum	6.00		0.500	mg/L	50	2/28/2011 06:13 PM
Arsenic	0.0557		0.00500	mg/L	1	2/25/2011 09:21 PM
Barium	0.0590		0.00500	mg/L	1	2/25/2011 09:21 PM
Beryllium	ND		0.00200	mg/L	1	2/25/2011 09:21 PM
Boron	0.216		0.0200	mg/L	1	2/25/2011 09:21 PM
Cadmium	ND		0.00200	mg/L	1	2/25/2011 09:21 PM
Calcium	124		0.500	mg/L	1	2/25/2011 09:21 PM
Chromium	0.00562		0.00500	mg/L	1	2/25/2011 09:21 PM
Cobalt	ND		0.00500	mg/L	1	2/25/2011 09:21 PM
Copper	0.0265		0.00500	mg/L	1	2/25/2011 09:21 PM
Iron	3.80		0.200	mg/L	1	2/25/2011 09:21 PM
Lead	ND		0.00500	mg/L	1	2/25/2011 09:21 PM
Magnesium	37.3		0.200	mg/L	1	2/25/2011 09:21 PM
Manganese	0.0940		0.00500	mg/L	1	2/25/2011 09:21 PM
Molybdenum	0.202		0.00500	mg/L	1	2/25/2011 09:21 PM
Nickel	0.0141		0.00500	mg/L	1	2/25/2011 09:21 PM
Potassium	28.7		0.200	mg/L	1	2/25/2011 09:21 PM
Selenium	0.382		0.00500	mg/L	1	2/25/2011 09:21 PM
Silver	ND		0.00500	mg/L	1	2/25/2011 09:21 PM
Sodium	959		10.0	mg/L	50	2/28/2011 06:13 PM
Vanadium	0.0193		0.00500	mg/L	1	2/25/2011 09:21 PM
Zinc	1.42		0.00500	mg/L	1	2/25/2011 09:21 PM
SEMIVOLATILES			SW8270		Prep Date: 2/24/2011	Analyst: ACN
1,2,4-Trichlorobenzene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
2,4,5-Trichlorophenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
2,4,6-Trichlorophenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
2-Methylnaphthalene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
2-Methylphenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
2-Nitroaniline	ND		0.025	mg/L	5	2/25/2011 04:39 PM
2-Nitrophenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
3&4-Methylphenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
3-Nitroaniline	ND		0.025	mg/L	5	2/25/2011 04:39 PM
4-Nitroaniline	ND		0.025	mg/L	5	2/25/2011 04:39 PM
4-Nitrophenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Acenaphthene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Acenaphthylene	ND		0.025	mg/L	5	2/25/2011 04:39 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Mar-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1102690

Sample ID: Effluent

Lab ID: 1102690-01

Collection Date: 2/23/2011 08:50 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Anthracene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Benz(a)anthracene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Benzidine	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Hexachloroethane	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Indeno(1,2,3-cd)pyrene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Isophorone	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Naphthalene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Nitrobenzene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
N-Nitrosodimethylamine	ND		0.025	mg/L	5	2/25/2011 04:39 PM
N-Nitrosodi-n-propylamine	ND		0.025	mg/L	5	2/25/2011 04:39 PM
N-Nitrosodiphenylamine	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Pentachlorophenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Phenanthrene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Phenol	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Pyrene	ND		0.025	mg/L	5	2/25/2011 04:39 PM
Surr: 2,4,6-Tribromophenol	91.8		42-124	%REC	5	2/25/2011 04:39 PM
Surr: 2-Fluorobiphenyl	88.7		48-120	%REC	5	2/25/2011 04:39 PM
Surr: 2-Fluorophenol	65.7		20-120	%REC	5	2/25/2011 04:39 PM
Surr: 4-Terphenyl-d14	80.2		51-135	%REC	5	2/25/2011 04:39 PM
Surr: Nitrobenzene-d5	77.4		41-120	%REC	5	2/25/2011 04:39 PM
Surr: Phenol-d6	64.9		20-120	%REC	5	2/25/2011 04:39 PM
VOLATILES			SW8260		Analyst: PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
2-Butanone	ND		0.010	mg/L	1	2/24/2011 06:32 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	2/24/2011 06:32 PM
2-Hexanone	ND		0.010	mg/L	1	2/24/2011 06:32 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	2/24/2011 06:32 PM
Acetone	0.025		0.010	mg/L	1	2/24/2011 06:32 PM
Benzene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Bromodichloromethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Bromoform	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Bromomethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Carbon disulfide	ND		0.010	mg/L	1	2/24/2011 06:32 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	2/24/2011 06:32 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Mar-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1102690

Sample ID: Effluent

Lab ID: 1102690-01

Collection Date: 2/23/2011 08:50 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Chloroethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Chloroform	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Chloromethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Dibromochloromethane	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Ethylbenzene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
m,p-Xylene	ND		0.010	mg/L	1	2/24/2011 06:32 PM
Methylene chloride	ND		0.010	mg/L	1	2/24/2011 06:32 PM
Styrene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Tetrachloroethene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Toluene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Trichloroethene	ND		0.0050	mg/L	1	2/24/2011 06:32 PM
Vinyl acetate	ND		0.010	mg/L	1	2/24/2011 06:32 PM
Vinyl chloride	ND		0.0020	mg/L	1	2/24/2011 06:32 PM
Xylenes, Total	ND		0.015	mg/L	1	2/24/2011 06:32 PM
Surr: 1,2-Dichloroethane-d4	94.0		70-125	%REC	1	2/24/2011 06:32 PM
Surr: 4-Bromofluorobenzene	95.8		72-125	%REC	1	2/24/2011 06:32 PM
Surr: Dibromofluoromethane	95.2		71-125	%REC	1	2/24/2011 06:32 PM
Surr: Toluene-d8	97.2		75-125	%REC	1	2/24/2011 06:32 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	2/28/2011 10:00 AM
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	2/28/2011 10:00 AM
ANIONS			E300			Analyst: TDW
Chloride	410		5.00	mg/L	10	2/26/2011 01:28 AM
Sulfate	1,510		25.0	mg/L	50	3/2/2011 02:09 AM
Surr: Selenate (surr)	95.0		85-115	%REC	10	2/26/2011 01:28 AM
Surr: Selenate (surr)	103		85-115	%REC	50	3/2/2011 02:09 AM
ALKALINITY			SM2320B			Analyst: DM
Alkalinity, Bicarbonate (As CaCO3)	441		5.00	mg/L	1	3/4/2011 09:30 AM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	3/4/2011 09:30 AM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	3/4/2011 09:30 AM
Alkalinity, Total (As CaCO3)	441		5.00	mg/L	1	3/4/2011 09:30 AM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: DM
Specific Conductivity	6,270		1.00	µmhos/cm	1	3/7/2011 09:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Mar-11

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 2/23/2011 08:50 AM

Work Order: 1102690

Lab ID: 1102690-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
IGNITIBILITY			SW1010			Analyst: JKP
Ignitability	> 212		50.0	°F	1	3/4/2011 10:00 AM
PH			E150.1			Analyst: DM
pH	7.40	H	0.100	pH units	1	3/2/2011 01:00 PM
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: JKP
Total Dissolved Solids (Residue, Filterable)	3,310		10.0	mg/L	1	3/1/2011 03:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 08-Mar-11

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50340 Instrument ID ICPMS03 Method: SW6020

MBLK	Sample ID: MBLKW1-022511-50340				Units: mg/L		Analysis Date: 2/25/2011 03:53 PM			
Client ID:	Run ID: ICPMS03_110225A				SeqNo: 2290830		Prep Date: 2/25/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	0.01716	0.050								J
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50340 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW1-022511-50340 Units: mg/L Analysis Date: 2/25/2011 03:58 PM

Client ID: Run ID: ICPMS03_110225A SeqNo: 2290831 Prep Date: 2/25/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1065	0.010	0.1	0	106	80-120	0			
Arsenic	0.04971	0.0050	0.05	0	99.4	80-120	0			
Barium	0.05105	0.0050	0.05	0	102	80-120	0			
Beryllium	0.05071	0.0020	0.05	0	101	80-120	0			
Boron	0.5158	0.050	0.5	0	103	80-120	0			
Cadmium	0.05049	0.0020	0.05	0	101	80-120	0			
Calcium	5.162	0.50	5	0	103	80-120	0			
Chromium	0.04908	0.0050	0.05	0	98.2	80-120	0			
Cobalt	0.04995	0.0050	0.05	0	99.9	80-120	0			
Copper	0.0506	0.0050	0.05	0	101	80-120	0			
Iron	4.942	0.20	5	0	98.8	80-120	0			
Lead	0.05038	0.0050	0.05	0	101	80-120	0			
Magnesium	5.035	0.20	5	0	101	80-120	0			
Manganese	0.05085	0.0050	0.05	0	102	80-120	0			
Molybdenum	0.04969	0.0050	0.05	0	99.4	80-120	0			
Nickel	0.05028	0.0050	0.05	0	101	80-120	0			
Potassium	5.067	0.20	5	0	101	80-120	0			
Selenium	0.04992	0.0050	0.05	0	99.8	80-120	0			
Silver	0.05021	0.0050	0.05	0	100	80-120	0			
Sodium	5.035	0.20	5	0	101	80-120	0			
Vanadium	0.04847	0.0050	0.05	0	96.9	80-120	0			
Zinc	0.05204	0.0050	0.05	0	104	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50340 Instrument ID ICPMS03 Method: SW6020

MS Sample ID: 1102716-01DMS Units: mg/L Analysis Date: 2/25/2011 04:24 PM

Client ID: Run ID: ICPMS03_110225A SeqNo: 2290836 Prep Date: 2/25/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.383	0.010	0.1	1.317	66	80-120	0			SO
Arsenic	0.05555	0.0050	0.05	0.004552	102	80-120	0			
Barium	0.1866	0.0050	0.05	0.1391	95	80-120	0			
Beryllium	0.05096	0.0020	0.05	0.0002062	102	80-120	0			
Boron	0.6296	0.050	0.5	0.1208	102	80-120	0			
Cadmium	0.05097	0.0020	0.05	0.00001532	102	80-120	0			
Calcium	27.29	0.50	5	22.66	92.6	80-120	0			O
Chromium	0.05251	0.0050	0.05	0.003365	98.3	80-120	0			
Cobalt	0.05036	0.0050	0.05	0.0003329	100	80-120	0			
Copper	0.05437	0.0050	0.05	0.004448	99.8	80-120	0			
Iron	5.848	0.20	5	0.9871	97.2	80-120	0			
Lead	0.05417	0.0050	0.05	0.003855	101	80-120	0			
Magnesium	7.581	0.20	5	2.835	94.9	80-120	0			
Manganese	0.08381	0.0050	0.05	0.03486	97.9	80-120	0			
Molybdenum	0.0538	0.0050	0.05	0.002954	102	80-120	0			
Nickel	0.0514	0.0050	0.05	0.001801	99.2	80-120	0			
Potassium	37.47	0.20	5	33.6	77.4	80-120	0			SO
Selenium	0.05219	0.0050	0.05	0.0008471	103	80-120	0			
Silver	0.04987	0.0050	0.05	-0.0001762	100	80-120	0			
Sodium	51	0.20	5	47.13	77.4	80-120	0			SO
Vanadium	0.05334	0.0050	0.05	0.004668	97.3	80-120	0			
Zinc	0.07856	0.0050	0.05	0.02639	104	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50340 Instrument ID ICPMS03 Method: SW6020

MSD		Sample ID: 1102716-01DMSD				Units: mg/L		Analysis Date: 2/25/2011 04:29 PM		
Client ID:		Run ID: ICPMS03_110225A				SeqNo: 2290837		Prep Date: 2/25/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.602	0.010	0.1	1.317	285	80-120	1.383	14.7	15	SO
Arsenic	0.05702	0.0050	0.05	0.004552	105	80-120	0.05555	2.61	15	
Barium	0.193	0.0050	0.05	0.1391	108	80-120	0.1866	3.37	15	
Beryllium	0.05114	0.0020	0.05	0.0002062	102	80-120	0.05096	0.353	15	
Boron	0.6442	0.050	0.5	0.1208	105	80-120	0.6296	2.29	15	
Cadmium	0.05162	0.0020	0.05	0.00001532	103	80-120	0.05097	1.27	15	
Calcium	27.63	0.50	5	22.66	99.4	80-120	27.29	1.24	15	O
Chromium	0.05323	0.0050	0.05	0.003365	99.7	80-120	0.05251	1.36	15	
Cobalt	0.05094	0.0050	0.05	0.0003329	101	80-120	0.05036	1.15	15	
Copper	0.05558	0.0050	0.05	0.004448	102	80-120	0.05437	2.2	15	
Iron	6.006	0.20	5	0.9871	100	80-120	5.848	2.67	15	
Lead	0.05441	0.0050	0.05	0.003855	101	80-120	0.05417	0.442	15	
Magnesium	7.626	0.20	5	2.835	95.8	80-120	7.581	0.592	15	
Manganese	0.08481	0.0050	0.05	0.03486	99.9	80-120	0.08381	1.19	15	
Molybdenum	0.05382	0.0050	0.05	0.002954	102	80-120	0.0538	0.0372	15	
Nickel	0.05274	0.0050	0.05	0.001801	102	80-120	0.0514	2.57	15	
Potassium	37.91	0.20	5	33.6	86.2	80-120	37.47	1.17	15	O
Selenium	0.05345	0.0050	0.05	0.0008471	105	80-120	0.05219	2.39	15	
Silver	0.05051	0.0050	0.05	-0.0001762	101	80-120	0.04987	1.28	15	
Sodium	50.87	0.20	5	47.13	74.8	80-120	51	0.255	15	SO
Vanadium	0.05487	0.0050	0.05	0.004668	100	80-120	0.05334	2.83	15	
Zinc	0.07832	0.0050	0.05	0.02639	104	80-120	0.07856	0.306	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50340 Instrument ID ICPMS03 Method: SW6020

DUP	Sample ID: 1102716-01DDUP				Units: mg/L		Analysis Date: 2/25/2011 04:14 PM			
Client ID:	Run ID: ICPMS03_110225A				SeqNo: 2290834		Prep Date: 2/25/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.274	0.010	0	0	0	0-0	1.317	3.32	25	
Arsenic	0.00439	0.0050	0	0	0	0-0	0.004552	0	25	J
Barium	0.1384	0.0050	0	0	0	0-0	0.1391	0.505	25	
Beryllium	ND	0.0020	0	0	0	0-0	0.0002062	0	25	
Boron	0.1168	0.050	0	0	0	0-0	0.1208	3.37	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.00001532	0	25	
Calcium	22.29	0.50	0	0	0	0-0	22.66	1.65	25	
Chromium	0.003164	0.0050	0	0	0	0-0	0.003365	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	0.0003329	0	25	
Copper	0.004629	0.0050	0	0	0	0-0	0.004448	0	25	J
Iron	0.9153	0.20	0	0	0	0-0	0.9871	7.55	25	
Lead	0.003715	0.0050	0	0	0	0-0	0.003855	0	25	J
Magnesium	2.779	0.20	0	0	0	0-0	2.835	2	25	
Manganese	0.03395	0.0050	0	0	0	0-0	0.03486	2.64	25	
Molybdenum	0.00302	0.0050	0	0	0	0-0	0.002954	0	25	J
Nickel	0.00147	0.0050	0	0	0	0-0	0.001801	0	25	J
Potassium	33.35	0.20	0	0	0	0-0	33.6	0.747	25	
Selenium	ND	0.0050	0	0	0	0-0	0.0008471	0	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0001762	0	25	
Sodium	46.96	0.20	0	0	0	0-0	47.13	0.361	25	
Vanadium	0.00459	0.0050	0	0	0	0-0	0.004668	0	25	J
Zinc	0.02171	0.0050	0	0	0	0-0	0.02639	19.5	25	

The following samples were analyzed in this batch:

1102690-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50423 Instrument ID Mercury Method: SW7470

MBLK	Sample ID: GBLKW2-030111-50423				Units: mg/L		Analysis Date: 3/1/2011 03:09 PM			
Client ID:	Run ID: MERCURY_110301A				SeqNo: 2294808		Prep Date: 3/1/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: GLCSW2-030111-50423				Units: mg/L		Analysis Date: 3/1/2011 03:11 PM			
Client ID:	Run ID: MERCURY_110301A				SeqNo: 2294810		Prep Date: 3/1/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00509	0.00020	0.005	0	102	85-115	0			

MS	Sample ID: 1102798-02CMS					Units: mg/L		Analysis Date: 3/1/2011 03:17 PM		
Client ID:	Run ID: MERCURY_110301A				SeqNo: 2294815		Prep Date: 3/1/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0051	0.00020	0.005	-0.000004	102	85-115	0			

MSD	Sample ID: 1102798-02CMSD					Units: mg/L		Analysis Date: 3/1/2011 03:19 PM		
Client ID:	Run ID: MERCURY_110301A				SeqNo: 2294817		Prep Date: 3/1/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00512	0.00020	0.005	-0.000004	102	85-115	0.0051	0.391	20	

DUP	Sample ID: 1102798-02CDUP					Units: mg/L		Analysis Date: 3/1/2011 03:15 PM		
Client ID:	Run ID: MERCURY_110301A				SeqNo: 2294813		Prep Date: 3/1/2011		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000004	0	20	

The following samples were analyzed in this batch:

1102690-01B

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50327 Instrument ID SV-3 Method: SW8270

MBLK Sample ID: SBLKW2-110224-50327 Units: µg/L Analysis Date: 2/25/2011 10:32 AM
 Client ID: Run ID: SV-3_110225C SeqNo: 2291908 Prep Date: 2/24/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	81.73	5.0	100	0	81.7	42-124	0			
Surr: 2-Fluorobiphenyl	73.83	5.0	100	0	73.8	48-120	0			
Surr: 2-Fluorophenol	60.73	5.0	100	0	60.7	20-120	0			
Surr: 4-Terphenyl-d14	73.03	5.0	100	0	73	51-135	0			
Surr: Nitrobenzene-d5	74.66	5.0	100	0	74.7	41-120	0			
Surr: Phenol-d6	59.28	5.0	100	0	59.3	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50327 Instrument ID SV-3 Method: SW8270

LCS		Sample ID: SLCSW2-110224-50327				Units: µg/L		Analysis Date: 2/25/2011 10:54 AM		
Client ID:		Run ID: SV-3_110225C				SeqNo: 2291909		Prep Date: 2/24/2011		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	44.79	5.0	50	0	89.6	50-120	0			
2,4,5-Trichlorophenol	84.75	5.0	100	0	84.7	50-120	0			
2,4,6-Trichlorophenol	85.29	5.0	100	0	85.3	50-120	0			
2-Methylnaphthalene	41.56	5.0	50	0	83.1	55-120	0			
2-Methylphenol	68.6	5.0	100	0	68.6	50-120	0			
2-Nitroaniline	52.28	5.0	50	0	105	55-120	0			
2-Nitrophenol	82.98	5.0	100	0	83	55-120	0			
3&4-Methylphenol	96.02	5.0	150	0	64	55-120	0			
3-Nitroaniline	30	5.0	50	0	60	40-120	0			
4-Nitroaniline	40.02	5.0	50	0	80	50-120	0			
4-Nitrophenol	89.22	5.0	100	0	89.2	45-120	0			
Acenaphthene	45.48	5.0	50	0	91	55-120	0			
Acenaphthylene	46.5	5.0	50	0	93	55-120	0			
Aniline	27.95	5.0	50	0	55.9	30-120	0			
Anthracene	48.71	5.0	50	0	97.4	55-120	0			
Benz(a)anthracene	47.13	5.0	50	0	94.3	55-120	0			
Benzidine	16.98	5.0	50	0	34	10-120	0			
Hexachloroethane	40.36	5.0	50	0	80.7	55-120	0			
Indeno(1,2,3-cd)pyrene	45.46	5.0	50	0	90.9	55-120	0			
Isophorone	39.57	5.0	50	0	79.1	55-120	0			
Naphthalene	44.72	5.0	50	0	89.4	55-120	0			
Nitrobenzene	42.54	5.0	50	0	85.1	55-120	0			
N-Nitrosodimethylamine	39.75	5.0	50	0	79.5	45-120	0			
N-Nitrosodi-n-propylamine	33.44	5.0	50	0	66.9	50-120	0			
N-Nitrosodiphenylamine	46.83	5.0	50	0	93.7	55-120	0			
Pentachlorophenol	84.94	5.0	100	0	84.9	55-120	0			
Phenanthrene	48.94	5.0	50	0	97.9	55-120	0			
Phenol	68.93	5.0	100	0	68.9	50-120	0			
Pyrene	47.24	5.0	50	0	94.5	55-120	0			
Surr: 2,4,6-Tribromophenol	81.04	5.0	100	0	81	42-124	0			
Surr: 2-Fluorobiphenyl	89.76	5.0	100	0	89.8	48-120	0			
Surr: 2-Fluorophenol	77.84	5.0	100	0	77.8	20-120	0			
Surr: 4-Terphenyl-d14	79.75	5.0	100	0	79.7	51-135	0			
Surr: Nitrobenzene-d5	79.22	5.0	100	0	79.2	41-120	0			
Surr: Phenol-d6	67.25	5.0	100	0	67.3	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 50327 Instrument ID SV-3 Method: SW8270

LCSD Sample ID: SLCSDW2-110224-50327 Units: µg/L Analysis Date: 2/25/2011 11:16 AM

Client ID: Run ID: SV-3_110225C SeqNo: 2291910 Prep Date: 2/24/2011 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.51	5.0	50	0	83	50-120	44.79	7.6	20	
2,4,5-Trichlorophenol	82.32	5.0	100	0	82.3	50-120	84.75	2.91	20	
2,4,6-Trichlorophenol	80.71	5.0	100	0	80.7	50-120	85.29	5.52	20	
2-Methylnaphthalene	42.23	5.0	50	0	84.5	55-120	41.56	1.59	20	
2-Methylphenol	78.54	5.0	100	0	78.5	50-120	68.6	13.5	20	
2-Nitroaniline	50.52	5.0	50	0	101	55-120	52.28	3.41	20	
2-Nitrophenol	80.36	5.0	100	0	80.4	55-120	82.98	3.22	20	
3&4-Methylphenol	112.7	5.0	150	0	75.1	55-120	96.02	16	20	
3-Nitroaniline	29.25	5.0	50	0	58.5	40-120	30	2.51	20	
4-Nitroaniline	39.11	5.0	50	0	78.2	50-120	40.02	2.3	20	
4-Nitrophenol	86.48	5.0	100	0	86.5	45-120	89.22	3.12	20	
Acenaphthene	43.56	5.0	50	0	87.1	55-120	45.48	4.32	20	
Acenaphthylene	43.76	5.0	50	0	87.5	55-120	46.5	6.07	20	
Aniline	31.63	5.0	50	0	63.3	30-120	27.95	12.3	20	
Anthracene	47.13	5.0	50	0	94.3	55-120	48.71	3.29	20	
Benz(a)anthracene	44.23	5.0	50	0	88.5	55-120	47.13	6.35	20	
Benzidine	19.98	5.0	50	0	40	10-120	16.98	16.2	20	
Hexachloroethane	39.19	5.0	50	0	78.4	55-120	40.36	2.95	20	
Indeno(1,2,3-cd)pyrene	44.35	5.0	50	0	88.7	55-120	45.46	2.46	20	
Isophorone	40.56	5.0	50	0	81.1	55-120	39.57	2.47	20	
Naphthalene	42.6	5.0	50	0	85.2	55-120	44.72	4.85	20	
Nitrobenzene	39.59	5.0	50	0	79.2	55-120	42.54	7.18	20	
N-Nitrosodimethylamine	36.14	5.0	50	0	72.3	45-120	39.75	9.5	20	
N-Nitrosodi-n-propylamine	38.81	5.0	50	0	77.6	50-120	33.44	14.9	20	
N-Nitrosodiphenylamine	43.82	5.0	50	0	87.6	55-120	46.83	6.63	20	
Pentachlorophenol	83.9	5.0	100	0	83.9	55-120	84.94	1.24	20	
Phenanthrene	45.45	5.0	50	0	90.9	55-120	48.94	7.38	20	
Phenol	75.63	5.0	100	0	75.6	50-120	68.93	9.27	20	
Pyrene	46.15	5.0	50	0	92.3	55-120	47.24	2.33	20	
Surr: 2,4,6-Tribromophenol	81.86	5.0	100	0	81.9	42-124	81.04	1	20	
Surr: 2-Fluorobiphenyl	80.35	5.0	100	0	80.3	48-120	89.76	11.1	20	
Surr: 2-Fluorophenol	78.92	5.0	100	0	78.9	20-120	77.84	1.38	20	
Surr: 4-Terphenyl-d14	78.76	5.0	100	0	78.8	51-135	79.75	1.25	20	
Surr: Nitrobenzene-d5	75.41	5.0	100	0	75.4	41-120	79.22	4.93	20	
Surr: Phenol-d6	73.58	5.0	100	0	73.6	20-120	67.25	8.99	20	

The following samples were analyzed in this batch:

1102690-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R105900 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-022411-R105900 Units: µg/L Analysis Date: 2/24/2011 11:47 AM

Client ID: Run ID: VOA1_110224B SeqNo: 2290447 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	0.5954	10								J
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	49.97	5.0	50	0	99.9	70-125	0			
Surr: 4-Bromofluorobenzene	48.32	5.0	50	0	96.6	72-125	0			
Surr: Dibromofluoromethane	48.9	5.0	50	0	97.8	71-125	0			
Surr: Toluene-d8	50.18	5.0	50	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R105900 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-022411-R105900 Units: µg/L Analysis Date: 2/24/2011 10:56 AM

Client ID: Run ID: VOA1_110224B SeqNo: 2290445 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.14	5.0	50	0	92.3	80-120	0			
1,1,2,2-Tetrachloroethane	52.1	5.0	50	0	104	72-120	0			
1,1,2-Trichloroethane	44.96	5.0	50	0	89.9	80-120	0			
1,1-Dichloroethane	47.54	5.0	50	0	95.1	76-120	0			
1,1-Dichloroethene	47.56	5.0	50	0	95.1	73-124	0			
1,2-Dichloroethane	51.36	5.0	50	0	103	78-120	0			
2-Butanone	95.28	10	100	0	95.3	58-132	0			
2-Chloroethyl vinyl ether	112.4	10	100	0	112	74-120	0			
2-Hexanone	108.8	10	100	0	109	61-130	0			
4-Methyl-2-pentanone	103.5	10	100	0	104	65-127	0			
Acetone	99.99	10	100	0	100	59-137	0			
Benzene	51.93	5.0	50	0	104	73-121	0			
Bromodichloromethane	53.26	5.0	50	0	107	80-120	0			
Bromoform	49.92	5.0	50	0	99.8	79-120	0			
Bromomethane	61.91	5.0	50	0	124	66-137	0			
Carbon disulfide	96.68	10	100	0	96.7	68-141	0			
Carbon tetrachloride	49.7	5.0	50	0	99.4	75-124	0			
Chlorobenzene	46	5.0	50	0	92	80-120	0			
Chloroethane	39.82	5.0	50	0	79.6	76-121	0			
Chloroform	48.93	5.0	50	0	97.9	80-120	0			
Chloromethane	39.52	5.0	50	0	79	67-123	0			
cis-1,3-Dichloropropene	52.54	5.0	50	0	105	80-120	0			
Dibromochloromethane	46.26	5.0	50	0	92.5	80-120	0			
Ethylbenzene	46.88	5.0	50	0	93.8	80-120	0			
m,p-Xylene	92.51	10	100	0	92.5	78-121	0			
Methylene chloride	48.62	10	50	0	97.2	65-133	0			
Styrene	43.05	5.0	50	0	86.1	80-120	0			
Tetrachloroethene	47.77	5.0	50	0	95.5	79-120	0			
Toluene	43.26	5.0	50	0	86.5	80-120	0			
trans-1,3-Dichloropropene	54.52	5.0	50	0	109	80-120	0			
Trichloroethene	54.74	5.0	50	0	109	80-120	0			
Vinyl acetate	93.83	10	100	0	93.8	67-139	0			
Vinyl chloride	43.29	2.0	50	0	86.6	70-127	0			
Xylenes, Total	136.1	15	150	0	90.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	45.82	5.0	50	0	91.6	70-125	0			
Surr: 4-Bromofluorobenzene	45.9	5.0	50	0	91.8	72-125	0			
Surr: Dibromofluoromethane	47.55	5.0	50	0	95.1	71-125	0			
Surr: Toluene-d8	46.36	5.0	50	0	92.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R105900 Instrument ID VOA1 Method: SW8260

MS		Sample ID: 1102658-01ZMS				Units: µg/L		Analysis Date: 2/24/2011 01:28 PM		
Client ID:		Run ID: VOA1_110224B				SeqNo: 2290458		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.53	5.0	50	0	93.1	80-120	0			
1,1,2,2-Tetrachloroethane	50.16	5.0	50	0	100	72-120	0			
1,1,2-Trichloroethane	47.43	5.0	50	0	94.9	80-120	0			
1,1-Dichloroethane	49.87	5.0	50	0	99.7	76-120	0			
1,1-Dichloroethene	44.61	5.0	50	0	89.2	73-124	0			
1,2-Dichloroethane	49.5	5.0	50	0	99	78-120	0			
2-Butanone	107	10	100	0	107	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	102.8	10	100	0	103	61-130	0			
4-Methyl-2-pentanone	110	10	100	0	110	65-127	0			
Acetone	96.87	10	100	0	96.9	59-137	0			
Benzene	48.06	5.0	50	0	96.1	73-121	0			
Bromodichloromethane	52.89	5.0	50	0	106	80-120	0			
Bromoform	51.47	5.0	50	0	103	79-120	0			
Bromomethane	63.72	5.0	50	0	127	66-137	0			
Carbon disulfide	88.75	10	100	0	88.7	68-141	0			
Carbon tetrachloride	44.55	5.0	50	0	89.1	75-124	0			
Chlorobenzene	47.07	5.0	50	0	94.1	80-120	0			
Chloroethane	39.38	5.0	50	0	78.8	76-121	0			
Chloroform	49.87	5.0	50	0	99.7	80-120	0			
Chloromethane	40.61	5.0	50	0	81.2	67-123	0			
cis-1,3-Dichloropropene	51.17	5.0	50	0	102	80-120	0			
Dibromochloromethane	48.96	5.0	50	0	97.9	80-120	0			
Ethylbenzene	45.76	5.0	50	0	91.5	80-120	0			
m,p-Xylene	91.18	10	100	0	91.2	78-121	0			
Methylene chloride	48.76	10	50	0	97.5	65-133	0			
Styrene	43.63	5.0	50	0	87.3	80-120	0			
Tetrachloroethene	43.42	5.0	50	0	86.8	79-120	0			
Toluene	43.11	5.0	50	0	86.2	80-120	0			
trans-1,3-Dichloropropene	52.96	5.0	50	0	106	80-120	0			
Trichloroethene	51.89	5.0	50	0	104	80-120	0			
Vinyl acetate	97.23	10	100	0	97.2	67-139	0			
Vinyl chloride	39.73	2.0	50	0	79.5	70-127	0			
Xylenes, Total	136	15	150	0	90.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	48.17	5.0	50	0	96.3	70-125	0			
Surr: 4-Bromofluorobenzene	50.33	5.0	50	0	101	72-125	0			
Surr: Dibromofluoromethane	48.7	5.0	50	0	97.4	71-125	0			
Surr: Toluene-d8	47.29	5.0	50	0	94.6	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R105900 Instrument ID VOA1 Method: SW8260

MSD	Sample ID: 1102658-01ZMSD	Units: µg/L				Analysis Date: 2/24/2011 01:54 PM				
Client ID:	Run ID: VOA1_110224B	SeqNo: 2290459				Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.91	5.0	50	0	91.8	80-120	46.53	1.34	20	
1,1,2,2-Tetrachloroethane	52.15	5.0	50	0	104	72-120	50.16	3.88	20	
1,1,2-Trichloroethane	47.7	5.0	50	0	95.4	80-120	47.43	0.585	20	
1,1-Dichloroethane	47.86	5.0	50	0	95.7	76-120	49.87	4.1	20	
1,1-Dichloroethene	44.92	5.0	50	0	89.8	73-124	44.61	0.7	20	
1,2-Dichloroethane	47.81	5.0	50	0	95.6	78-120	49.5	3.47	20	
2-Butanone	107.5	10	100	0	108	58-132	107	0.476	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	117	10	100	0	117	61-130	102.8	12.9	20	
4-Methyl-2-pentanone	116.1	10	100	0	116	65-127	110	5.39	20	
Acetone	100.8	10	100	0	101	59-137	96.87	4	20	
Benzene	46.51	5.0	50	0	93	73-121	48.06	3.28	20	
Bromodichloromethane	49.1	5.0	50	0	98.2	80-120	52.89	7.44	20	
Bromoform	51.63	5.0	50	0	103	79-120	51.47	0.311	20	
Bromomethane	64.13	5.0	50	0	128	66-137	63.72	0.639	20	
Carbon disulfide	88.45	10	100	0	88.4	68-141	88.75	0.334	20	
Carbon tetrachloride	42.34	5.0	50	0	84.7	75-124	44.55	5.07	20	
Chlorobenzene	46.98	5.0	50	0	94	80-120	47.07	0.191	20	
Chloroethane	40.26	5.0	50	0	80.5	76-121	39.38	2.23	20	
Chloroform	48.96	5.0	50	0	97.9	80-120	49.87	1.86	20	
Chloromethane	37.91	5.0	50	0	75.8	67-123	40.61	6.85	20	
cis-1,3-Dichloropropene	49.94	5.0	50	0	99.9	80-120	51.17	2.44	20	
Dibromochloromethane	51.34	5.0	50	0	103	80-120	48.96	4.75	20	
Ethylbenzene	47.87	5.0	50	0	95.7	80-120	45.76	4.53	20	
m,p-Xylene	94.72	10	100	0	94.7	78-121	91.18	3.81	20	
Methylene chloride	51.97	10	50	0	104	65-133	48.76	6.37	20	
Styrene	46.67	5.0	50	0	93.3	80-120	43.63	6.72	20	
Tetrachloroethene	44.16	5.0	50	0	88.3	79-120	43.42	1.68	20	
Toluene	47.88	5.0	50	0	95.8	80-120	43.11	10.5	20	
trans-1,3-Dichloropropene	51.45	5.0	50	0	103	80-120	52.96	2.9	20	
Trichloroethene	51	5.0	50	0	102	80-120	51.89	1.73	20	
Vinyl acetate	90.65	10	100	0	90.6	67-139	97.23	7.01	20	
Vinyl chloride	39.63	2.0	50	0	79.3	70-127	39.73	0.243	20	
Xylenes, Total	143.8	15	150	0	95.9	80-120	136	5.55	20	
Surr: 1,2-Dichloroethane-d4	47.15	5.0	50	0	94.3	70-125	48.17	2.14	20	
Surr: 4-Bromofluorobenzene	52.08	5.0	50	0	104	72-125	50.33	3.41	20	
Surr: Dibromofluoromethane	49.5	5.0	50	0	99	71-125	48.7	1.64	20	
Surr: Toluene-d8	48.69	5.0	50	0	97.4	75-125	47.29	2.92	20	

The following samples were analyzed in this batch:

1102690-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R106075 Instrument ID ICS3K2 Method: E300

MBLK Sample ID: WBLKW1-022511-R106075 Units: mg/L Analysis Date: 2/25/2011 12:05 PM

Client ID: Run ID: ICS3K2_110225A SeqNo: 2295380 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	4.932	0.10	5	0	98.6	85-115	0			

LCS Sample ID: WLC5W1-022511-R106075 Units: mg/L Analysis Date: 2/25/2011 12:27 PM

Client ID: Run ID: ICS3K2_110225A SeqNo: 2295381 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.96	0.50	20	0	99.8	90-110	0			
Sulfate	18.83	0.50	20	0	94.2	90-110	0			
Surr: Selenate (surr)	5.106	0.10	5	0	102	85-115	0			

LCSD Sample ID: WLC5DW1-022511-R106075 Units: mg/L Analysis Date: 2/25/2011 12:48 PM

Client ID: Run ID: ICS3K2_110225A SeqNo: 2295382 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.95	0.50	20	0	99.7	90-110	19.96	0.0601	20	
Sulfate	18.8	0.50	20	0	94	90-110	18.83	0.175	20	
Surr: Selenate (surr)	5.09	0.10	5	0	102	85-115	5.106	0.314	20	

MS Sample ID: 1102742-01DMS Units: mg/L Analysis Date: 2/25/2011 01:32 PM

Client ID: Run ID: ICS3K2_110225A SeqNo: 2295384 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3390	0.50	10	3462	-715	80-120	0			SEO
Sulfate	183	0.50	10	180.3	26.6	80-120	0			SEO
Surr: Selenate (surr)	5.55	0.10	5	0	111	85-115	0			

MS Sample ID: 1102725-01BMS Units: mg/L Analysis Date: 2/26/2011 02:11 AM

Client ID: Run ID: ICS3K2_110225A SeqNo: 2295419 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	366.4	0.50	10	365.1	13.4	80-120	0			SEO
Sulfate	1706	0.50	10	1733	-260	80-120	0			SEO
Surr: Selenate (surr)	5.403	0.10	5	0	108	85-115	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R106075 Instrument ID ICS3K2 Method: E300

MSD		Sample ID: 1102742-01DMSD				Units: mg/L		Analysis Date: 2/25/2011 01:54 PM		
Client ID:		Run ID: ICS3K2_110225A				SeqNo: 2295385		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	3382	0.50	10	3462	-803	80-120	3390	0.26	20	SEO
Sulfate	187.4	0.50	10	180.3	70.3	80-120	183	2.36	20	SEO
Surr: Selenate (surr)	5.459	0.10	5	0	109	85-115	5.55	1.65	20	

MSD		Sample ID: 1102725-01BMSD				Units: mg/L		Analysis Date: 2/26/2011 02:33 AM		
Client ID:		Run ID: ICS3K2_110225A				SeqNo: 2295420		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	365.8	0.50	10	365.1	7.41	80-120	366.4	0.165	20	SEO
Sulfate	1703	0.50	10	1733	-292	80-120	1706	0.185	20	SEO
Surr: Selenate (surr)	5.193	0.10	5	0	104	85-115	5.403	3.96	20	

MSD		Sample ID: 1102703-11AZMS				Units: mg/L		Analysis Date: 2/26/2011 07:15 AM		
Client ID:		Run ID: ICS3K2_110225A				SeqNo: 2295435		Prep Date:		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1472	50	1000	468	100	80-120	0			
Sulfate	1186	50	1000	160.5	103	80-120	0			
Surr: Selenate (surr)	477.4	10	500	0	95.5	85-115	0			

MSD		Sample ID: 1102703-11AZMSD				Units: mg/L		Analysis Date: 2/26/2011 01:00 PM		
Client ID:		Run ID: ICS3K2_110225A				SeqNo: 2295437		Prep Date:		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	1474	50	1000	468	101	80-120	1472	0.109	20	
Sulfate	1261	50	1000	160.5	110	80-120	1186	6.16	20	
Surr: Selenate (surr)	509.7	10	500	0	102	85-115	477.4	6.55	20	

The following samples were analyzed in this batch:

1102690-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1102690
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R106123 Instrument ID WetChem Method: E150.1

LCS Sample ID: WLCSW1-030211-R106123 Units: pH units Analysis Date: 3/2/2011 01:00 PM

Client ID: Run ID: WETCHEM_110302C SeqNo: 2296106 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.06	0.10	6	0	101	90-110	0			

DUP Sample ID: 1102682-01DDUP Units: pH units Analysis Date: 3/2/2011 01:00 PM

Client ID: Run ID: WETCHEM_110302C SeqNo: 2296134 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.8	0.10	0	0	0	0-0	7.75	0.643	20	H

The following samples were analyzed in this batch:

1102690-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1102690
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R106143** Instrument ID: **Balance1** Method: **M2540C**

MBLK Sample ID: **BLANK-R106143** Units: mg/L Analysis Date: **3/1/2011 03:00 PM**
 Client ID: Run ID: **BALANCE1_110301H** SeqNo: **2296281** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS-R106143** Units: mg/L Analysis Date: **3/1/2011 03:00 PM**
 Client ID: Run ID: **BALANCE1_110301H** SeqNo: **2296282** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1080	10	1000	0	108	85-115	0			

DUP Sample ID: **1102690-01EDUP** Units: mg/L Analysis Date: **3/1/2011 03:00 PM**
 Client ID: **Effluent** Run ID: **BALANCE1_110301H** SeqNo: **2296271** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	3592	10	0	0	0	0-0	3312	8.11	20	

The following samples were analyzed in this batch:

1102690-01E

Client: Navajo Refining Company
Work Order: 1102690
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R106268 Instrument ID WetChem Method: SW1010

LCS Sample ID: LCS-030411-R106268 Units: °F Analysis Date: 3/4/2011 10:00 AM

Client ID: Run ID: WETCHEM_110304A SeqNo: 2298963 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	0			

LCSD Sample ID: LCSD-030411-R106268 Units: °F Analysis Date: 3/4/2011 10:00 AM

Client ID: Run ID: WETCHEM_110304A SeqNo: 2298965 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	83	0	25	

DUP Sample ID: 1103077-01ADUP Units: °F Analysis Date: 3/4/2011 10:00 AM

Client ID: Run ID: WETCHEM_110304A SeqNo: 2298968 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	116	50	0	0	0	0-0	114	1.74	25	

The following samples were analyzed in this batch:

1102690-01D

Client: Navajo Refining Company
 Work Order: 1102690
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R106313 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-030411-R106313 Units: mg/L Analysis Date: 3/4/2011 09:30 AM

Client ID: Run ID: WETCHEM_110304G SeqNo: 2300322 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-030411-R106313 Units: mg/L Analysis Date: 3/4/2011 09:30 AM

Client ID: Run ID: WETCHEM_110304G SeqNo: 2300323 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1015	5.0	1000	0	102	80-120	0			
Alkalinity, Total (As CaCO3)	1015	5.0	1000	0	102	80-120	0			

DUP Sample ID: 1102638-10BDUP Units: mg/L Analysis Date: 3/4/2011 09:30 AM

Client ID: Run ID: WETCHEM_110304G SeqNo: 2300340 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	616.2	5.0	0	0	0	0-0	615.2	0.166	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	616.2	5.0	0	0	0	0-0	615.2	0.166	20	

The following samples were analyzed in this batch:

1102690-01E

Client: Navajo Refining Company
Work Order: 1102690
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R106351 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW1-030711-R106351 Units: $\mu\text{mhos/cm}$ Analysis Date: 3/7/2011 09:00 AM

Client ID: Run ID: WETCHEM_110307A SeqNo: 2300764 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: WLCSW1-030711-R106351 Units: $\mu\text{mhos/cm}$ Analysis Date: 3/7/2011 09:00 AM

Client ID: Run ID: WETCHEM_110307A SeqNo: 2300765 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1380	1.0	1413	0	97.7	80-120	0			

DUP Sample ID: 1102690-01EDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 3/7/2011 09:00 AM

Client ID: Effluent Run ID: WETCHEM_110307A SeqNo: 2300776 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	6260	1.0	0	0	0		6270	0.16	20	

The following samples were analyzed in this batch:

1102690-01E

Client: Navajo Refining Company

Project: Injection Well Quarterly

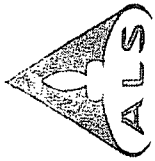
WorkOrder: 1102690

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



☒ **ALS Laboratory Group**
10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

Chain of Custody Form

☐ **ALS Laboratory Group**
3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Page 1 of 1

Customer Information				Project Information				ALS Work Order # 102690											
Project Name				Injection Well Quarterly				Parameter/Method Request for Analysis											
Project Number				Navajo Refining Company				VOC (8260) Select											
Bill To Company				Aaron Strange				SVOC (8270) Select											
Invoice Attn				PO Box 159				Total Metals (6020/7000) Select											
Address				Artesia, NM 88211				RCI Profile											
City/State/Zip				(575) 748-6733				Anions (300) Cl, SO4											
Phone				(575) 748-5421				Alkalinity											
Fax								pH											
e-Mail Address								Conductivity											
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	Effluent	2-23-10	0850	L	Y		X	X	X	X	X	X	X	X	X	X			
2	Trip Blank																		
3	Temp Blank																		
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Sampler(s) Please Print & Sign		Shipment Method		Required Turnaround Time (Check Box)		Results Due Date:	
Aaron Strange		Fed Ex		☒ 5 WK Days ☐ 10 WK Days ☐ 24 Hour		10 Day TAT.	
Relinquished by:	Date: 2-23-10	Time: 1615	Received by (Laboratory):	Notes: 24/11/10			
Relinquished by:	Date:	Time:	Checked by (Laboratory):	Cooler ID: 9-5035			
Logged by (Laboratory):	Date:	Time:	Preservative Key: 1-HCl, 2-HNO3, 3-H2SO4, 4-NAOH, 5-Na2S2O3, 6-NAHSO4, 7-Other	QC Package: (Check One Box Below)			
			☒ Level II Std QC ☐ Level III Std QC/RAW Data ☐ Level IV SW846/CLP ☐ Other / EDD				

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.
2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2008 by ALS Laboratory Group.

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **24-Feb-11 08:50**

Work Order: **1102690**

Received by: **RDH**

Checklist completed by Sakandar A. Viquez
eSignature

24-Feb-11
Date

Reviewed by: Lay Lynn F. Thibault
eSignature

24-Feb-11
Date

Matrices: **Water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	1.9c 002		
Cooler(s)/Kit(s):	1948		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	-		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

57
FED-AL-113
119888 300h
NIGHT

THU

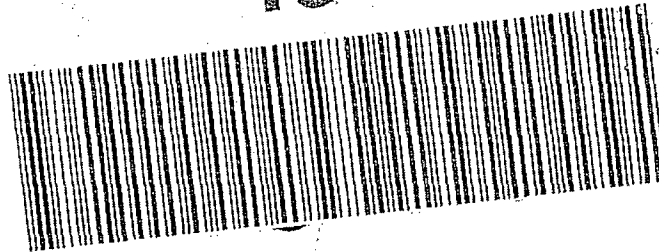
Emp# 768119 00:34 24FEB11

Emp# 768119 0034 24 FEB 71
TRK# 4347 1079 0011 FORM 0201

IAH

77099-TX-US

43 S GRA



10450 Stañcliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTOMER SEAL

Date: 2-23-11
Name: Aaron S.
Company: NAVAL

Time: 1615
 Training
 E. R. Training Co.

Seal Broken By:

2/26/11

Client: ALS Environmental
 Project: 1102690
 Work Order: 1102577

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1102577-01	1102690-01C	Water		2/23/2011 08:50	2/25/2011 14:45	☐

Client: ALS Environmental
Project: 1102690
WorkOrder: 1102577

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
TDL	Target Detection Limit

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: 01-Mar-11

Client: ALS Environmental
Project: 1102690
Sample ID: 1102690-01C
Collection Date: 2/23/2011 08:50 AM

Work Order: 1102577
Lab ID: 1102577-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE Cyanide, Reactive	ND		SW7.3.3.2 40.0	mg/Kg	1	Analyst: NZ 2/28/2011 10:00 AM
SULFIDE, REACTIVE Sulfide, Reactive	ND		SW7.3.4.2 40.0	mg/Kg	1	Analyst: NZ 2/28/2011 10:00 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 01-Mar-11

Client: ALS Environmental

QC BATCH REPORT

Work Order: 1102577

Project: 1102690

Batch ID: R87453

Instrument ID WETCHEM

Method: SW7.3.4.2

MBLK Sample ID: WBLKW1-110228-R87453 Units: mg/Kg Analysis Date: 2/28/2011 10:00 AM

Client ID: Run ID: WETCHEM_110228M SeqNo: 1566858 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1102577-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
 Work Order: 1102577
 Project: 1102690

QC BATCH REPORT

Batch ID: R87454 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK Sample ID: WBLKW1-110228-R87454 Units: mg/Kg Analysis Date: 2/28/2011 10:00 AM

Client ID: Run ID: WETCHEM_110228N SeqNo: 1566874 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: WLCBW1-110228-R87454 Units: mg/Kg Analysis Date: 2/28/2011 10:00 AM

Client ID: Run ID: WETCHEM_110228N SeqNo: 1566875 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	0			

LCSD Sample ID: WLCSDW1-110228-R87454 Units: mg/Kg Analysis Date: 2/28/2011 10:00 AM

Client ID: Run ID: WETCHEM_110228N SeqNo: 1566883 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	249.6	0	35	

MS Sample ID: 1102577-01A MS Units: mg/Kg Analysis Date: 2/28/2011 10:00 AM

Client ID: 1102690-01C Run ID: WETCHEM_110228N SeqNo: 1566881 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	0			

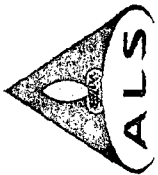
MSD Sample ID: 1102577-01A MSD Units: mg/Kg Analysis Date: 2/28/2011 10:00 AM

Client ID: 1102690-01C Run ID: WETCHEM_110228N SeqNo: 1566882 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	249.6	0	35	

The following samples were analyzed in this batch:

1102577-01A

**Subcontractor:**ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:**CHAIN-OF-CUSTODY RECORD**Date: 24-Feb-11
COC ID: 10101
Due Date 04-Mar-11

Page 1 of 1

Customer Information		Project Information		Parameter/Method Request for Analysis																
Purchase Order	10-2120271	Project Name	1102690	A	Reactive Cyanide (SW-846)															
Work Order		Project Number		B	Reactive Sulfide (SW-846)															
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C																
Send Report To	Jay Lynn F Thibault	Inv Attn	Accounts Payable	D																
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210	E																
				F																
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G																
Phone	(281) 530-5656	Phone	(281) 530-5656	H																
Fax	(281) 530-5887	Fax	(281) 530-5887	I																
eMail Address	jaylynn.thibault@alsenviro.com	eMail CC		J																
Sample ID		Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J						
1102690-01C (Effluent)		Water	23/Feb/2011 8:50	(1) 1LPNEAT	X	X														

Comments:

Please analyze for RCI. CC:glenda.ramos@alsglobal.com & mary.knowles@alsglobal.com

Relinquished by:

Date/Time

2/24/11 FedEx

Received by:

Date/Time

2/25/11 1445

Cooler IDs

Report/QC Level

Std

Relinquished by:

Date/Time

Received by:

Date/Time

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 25-Feb-11 14:45

Work Order: 1102577

Received by: KRW

Checklist completed by *Kath Wieringa*
eSignature

25-Feb-11
Date

Reviewed by: *Bill Carey*
eSignature

28-Feb-11
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.2 C</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

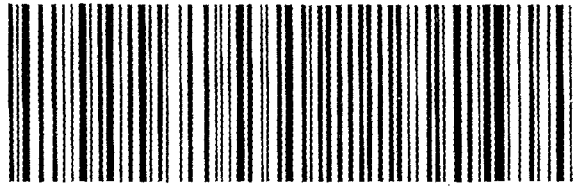
Regarding:

Comments:

CorrectiveAction:

Part # 156148-434 NMT V3 03-09 ::

505C1/B2C2/D447



NI GRR

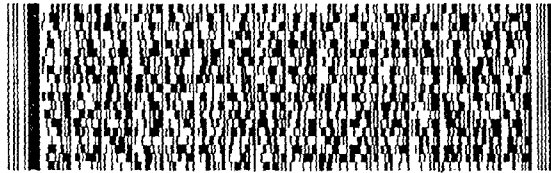
49424
MI-US
GRR

FRI - 25 FEB A4
4340 2163 6119
PRIORITY OVERNIGHT

TRK# 0201



FedEx
Express



REF: SUBCONTRACT

HOLLAND MI 49424

3352 128TH AVE.
ALS ENVIRONMENTAL
LES ARNOLD

ORIGIN ID: JG0A (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77059
UNITED STATES US

SHIP DATE: 24FEB11
ACTWGT: 23.8 LB
CAD: 300130/CAFE22472
BILL SENDER

FedEx

FedEx



REFINING COMPANY, LLC

RECEIVED OGD

FAX

(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET, P.O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

January 28, 2011

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2010 Fourth Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3 Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the fourth quarter of 2010 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We are closely monitoring the fluid level for these wells. A Mechanical Integrity Test (MIT) on all the wells was last done on August 12, 2010 and a quarterly Bradenhead for WDW-3 was last done on December 16, 2010. All of the wells passed. The quarterly Bradenhead on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table.

During the month of September 2010 the Mewbourne Well (WDW-1) experienced a lightning strike to the electrical service to the well. The lightning caused several electrical problems. The low annular pressure reading on WDW-1 from the beginning of October was related to the lightning strike in September and the subsequent electrical repairs.

In November the minimum annular pressure on WDW-1 unexpectedly went below 100 psig. Since then, the annular pressure in WDW-1 has returned to normal operating pressures and the antifreeze level did not drop. This indicates that there was not a leak in the well casing. Navajo will continue to monitor the annular pressure and will report to the NMOCD if any ongoing issues continue.

You will also notice that the minimum annular pressure for the Gains Well (WDW-3) appeared to be reading low at the beginning of October. Navajo investigated but found no cause for the low reading. The low reading was from September 30th to October 1st 2010. Since then, the annular pressure in WDW-3 has returned to normal operating pressures. This was also reported in the 2010 Third Quarterly Injection Report.

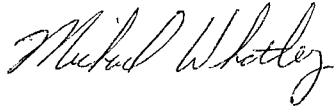
This report covers the period from Oct. 1, 2010 to Dec. 31, 2010. We have disposed a total of 52,065,213 barrels of fluid into the three wells as of December 31, 2010. The volume per well is:

- 29,272,663 barrels into WDW-1
- 15,872,314 barrels into WDW-2
- 6,920,236 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

NAVAJO REFINING COMPANY

A handwritten signature in cursive script, reading "Michael Whatley".

Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)

2010 FOURTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMULATIVE Volume (barrels)
WDW-1														
Oct-10	684	777	628	128	142	124	242	366	77	4,385	4,865	4,263	135,942	28,889,783
Nov-10	641	693	280	121	129	76	137	256	15	4,140	4,430	2,616	124,193	29,025,724
Dec-10	634	748	283	115	140	71	420	650	209	3,960	4,814	2,431	122,746	29,149,917
WDW-2														
Oct-10	639	713	150	136	141	98	482	780	175	4,650	4,843	3,368	144,147	15,450,315
Nov-10	628	707	279	133	138	96	291	576	130	4,565	4,733	3,300	136,954	15,594,462
Dec-10	591	683	293	133	142	105	503	728	267	4,545	4,852	3,601	140,898	15,731,416
WDW-3														
Oct-10	687	790	275	189	211	161	258	424	10	6,490	7,248	5,516	201,178	15,872,314
Nov-10	666	724	284	186	193	180	227	356	137	6,363	6,627	6,167	190,880	6,331,983
Dec-10	630	696	285	185	194	146	338	624	197	6,329	6,660	4,997	196,195	6,533,161
Total Injected fluids:														6,724,041
														6,920,236
														52,065,213

2010 FOURTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/4/10	10/14/10	10/18/10	10/28/10	11/1/10	11/8/10	11/15/10	11/22/10	11/29/10	12/7/10	12/13/10	12/21/10	12/27/10
WDW -1'	155	155	155	155	155	155	155	155	155	155	155	150	150
WDW-2'	150	155	155	155	155	155	150	150	150	150	150	150	150
WDW-3'	150	150	150	150	150	150	150	150	150	150	150	150	150
Comments: Added antifreeze to WDW-1 and to WDW-3 on 12/28/2010. WDW-1 was brought up to 190 gallons and WDW-3 was brought up to 180 gallons. The antifreeze was added as a maintenance procedure, not because of a leak or drop in the antifreeze level.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



09-Dec-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1011768

Dear Aaron,

ALS Environmental received 1 sample on 19-Nov-2010 09:10 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 40.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads 'JayLynn F Thibault'.

Electronically approved by: Mary K. Knowles

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1011768

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1011768-01	Effluent	Water		11/18/2010 13:45	11/19/2010 09:10	☐

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1011768

Case Narrative

Batch 48226 Metals (sample 1011646-04) MS/MSD unrelated sample.

Batch 48202, Semivolatiles, Sample 1011768-01B: Sample had low level surrogates added, it was spike at 5PPM.

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 11/18/2010 01:45 PM

Work Order: 1011768

Lab ID: 1011768-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY						
Mercury	ND		SW7470 0.000200	mg/L	Prep Date: 12/1/2010 1	Analyst: JCJ 12/1/2010 06:01 PM
METALS						
Aluminum	1.57		SW6020 0.0100	mg/L	Prep Date: 11/29/2010 1	Analyst: ALR 12/1/2010 05:56 AM
Arsenic	0.0365		0.00500	mg/L	1	12/1/2010 05:56 AM
Barium	0.0456		0.00500	mg/L	1	12/1/2010 05:56 AM
Beryllium	ND		0.00200	mg/L	1	12/1/2010 05:56 AM
Boron	0.248		0.0200	mg/L	1	12/1/2010 05:56 AM
Cadmium	ND		0.00200	mg/L	1	12/1/2010 05:56 AM
Calcium	136		0.500	mg/L	1	12/1/2010 05:56 AM
Chromium	ND		0.00500	mg/L	1	12/1/2010 05:56 AM
Cobalt	ND		0.00500	mg/L	1	12/1/2010 05:56 AM
Copper	0.00568		0.00500	mg/L	1	12/1/2010 05:56 AM
Iron	0.605		0.200	mg/L	1	12/1/2010 05:56 AM
Lead	ND		0.00500	mg/L	1	12/1/2010 05:56 AM
Magnesium	41.3		0.200	mg/L	1	12/1/2010 05:56 AM
Manganese	0.0250		0.00500	mg/L	1	12/1/2010 05:56 AM
Molybdenum	0.110		0.00500	mg/L	1	12/1/2010 05:56 AM
Nickel	0.00531		0.00500	mg/L	1	12/1/2010 05:56 AM
Potassium	20.6		0.200	mg/L	1	12/1/2010 05:56 AM
Selenium	0.645		0.00500	mg/L	1	12/1/2010 05:56 AM
Silver	ND		0.00500	mg/L	1	12/1/2010 05:56 AM
Sodium	965		20.0	mg/L	100	12/1/2010 08:47 PM
Vanadium	0.00639		0.00500	mg/L	1	12/1/2010 05:56 AM
Zinc	1.51		0.00500	mg/L	1	12/1/2010 05:56 AM
SEMIVOLATILES						
1,2,4-Trichlorobenzene	ND		SW8270 0.0050	mg/L	Prep Date: 11/23/2010 1	Analyst: ACN 11/30/2010 12:13 AM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
2-Methylnaphthalene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
2-Methylphenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
2-Nitroaniline	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
2-Nitrophenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
3&4-Methylphenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
3-Nitroaniline	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
4-Nitroaniline	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
4-Nitrophenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Acenaphthene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Acenaphthylene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 11/18/2010 01:45 PM

Work Order: 1011768

Lab ID: 1011768-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Anthracene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Benz(a)anthracene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Benzidine	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Hexachloroethane	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Isophorone	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Naphthalene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Nitrobenzene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Pentachlorophenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Phenanthrene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Phenol	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Pyrene	ND		0.0050	mg/L	1	11/30/2010 12:13 AM
Surr: 2,4,6-Tribromophenol	75.8		42-124	%REC	1	11/30/2010 12:13 AM
Surr: 2-Fluorobiphenyl	49.1		48-120	%REC	1	11/30/2010 12:13 AM
Surr: 2-Fluorophenol	28.9		20-120	%REC	1	11/30/2010 12:13 AM
Surr: 4-Terphenyl-d14	72.8		51-135	%REC	1	11/30/2010 12:13 AM
Surr: Nitrobenzene-d5	43.4		41-120	%REC	1	11/30/2010 12:13 AM
Surr: Phenol-d6	41.0		20-120	%REC	1	11/30/2010 12:13 AM
VOLATILES			SW8260		Analyst: PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,2,4-Trimethylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,2-Dibromoethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,2-Dichloropropane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
1,3,5-Trimethylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
2-Butanone	ND		0.010	mg/L	1	11/19/2010 11:06 PM
2-Hexanone	ND		0.010	mg/L	1	11/19/2010 11:06 PM
4-Isopropyltoluene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/19/2010 11:06 PM
Acetone	ND		0.010	mg/L	1	11/19/2010 11:06 PM
Benzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Bromodichloromethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 11/18/2010 01:45 PM

Work Order: 1011768

Lab ID: 1011768-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Bromoform	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Bromomethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Carbon disulfide	ND		0.010	mg/L	1	11/19/2010 11:06 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Chlorobenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Chloroethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Chloroform	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Chloromethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
cis-1,2-Dichloroethene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Dibromochloromethane	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Ethylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Isopropylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
m,p-Xylene	ND		0.010	mg/L	1	11/19/2010 11:06 PM
Methyl tert-butyl ether	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Methylene chloride	ND		0.010	mg/L	1	11/19/2010 11:06 PM
n-Butylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
n-Propylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Naphthalene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
o-Xylene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
sec-Butylbenzene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Styrene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Tetrachloroethene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Toluene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
trans-1,2-Dichloroethene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Trichloroethene	ND		0.0050	mg/L	1	11/19/2010 11:06 PM
Vinyl chloride	ND		0.0020	mg/L	1	11/19/2010 11:06 PM
Xylenes, Total	ND		0.015	mg/L	1	11/19/2010 11:06 PM
Surr: 1,2-Dichloroethane-d4	115		70-125	%REC	1	11/19/2010 11:06 PM
Surr: 4-Bromofluorobenzene	90.3		72-125	%REC	1	11/19/2010 11:06 PM
Surr: Dibromofluoromethane	104		71-125	%REC	1	11/19/2010 11:06 PM
Surr: Toluene-d8	89.4		75-125	%REC	1	11/19/2010 11:06 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	12/2/2010 12:00 PM
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	12/2/2010 12:00 PM
ANIONS			E300			Analyst: DM
Chloride	315		5.00	mg/L	10	12/2/2010 06:05 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Effluent

Collection Date: 11/18/2010 01:45 PM

Work Order: 1011768

Lab ID: 1011768-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Sulfate	1,870		50.0	mg/L	100	12/2/2010 06:26 PM
Surr: Selenate (surr)	108		85-115	%REC	10	12/2/2010 06:05 PM
Surr: Selenate (surr)	108		85-115	%REC	100	12/2/2010 06:26 PM
ALKALINITY			SM2320B			Analyst: TDW
Alkalinity, Bicarbonate (As CaCO3)	209		5.00	mg/L	1	12/1/2010 12:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	12/1/2010 12:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	12/1/2010 12:00 PM
Alkalinity, Total (As CaCO3)	209		5.00	mg/L	1	12/1/2010 12:00 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: TDW
Specific Conductivity	4,270		1.00	µmhos/cm	1	12/8/2010 05:00 PM
IGNITIBILITY			SW1010			Analyst: JLC
Ignitability	> 212		50.0	°F	1	12/2/2010 10:00 AM
PH			SW9040			Analyst: JLC
pH	6.86	H	0.100	pH units	1	12/2/2010 10:00 AM
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: JLC
Total Dissolved Solids (Residue, Filterable)	3,220		10.0	mg/L	1	11/22/2010 10:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 09-Dec-10

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48226 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW3-112910-48226 Units: mg/L Analysis Date: 12/1/2010 03:16 AM

Client ID: Run ID: ICPMS03_101129A SeqNo: 2194211 Prep Date: 11/29/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Lead	0.000411	0.0050								J
Molybdenum	ND	0.0050								
Potassium	ND	0.20								
Silver	ND	0.0050								
Sodium	ND	0.20								

MBLK Sample ID: MBLKW3-112910-48226 Units: mg/L Analysis Date: 12/1/2010 06:54 PM

Client ID: Run ID: ICPMS03_101201A SeqNo: 2194999 Prep Date: 11/29/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004626	0.010								J
Arsenic	ND	0.0050								
Beryllium	ND	0.0020								
Boron	0.006392	0.050								J
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

LCS Sample ID: MLCSW3-112910-48226 Units: mg/L Analysis Date: 12/1/2010 03:22 AM

Client ID: Run ID: ICPMS03_101129A SeqNo: 2194212 Prep Date: 11/29/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Barium	0.04767	0.0050	0.05	0	95.3	80-120	0			
Cadmium	0.04753	0.0020	0.05	0	95.1	80-120	0			
Lead	0.04766	0.0050	0.05	0	95.3	80-120	0			
Molybdenum	0.0463	0.0050	0.05	0	92.6	80-120	0			
Potassium	4.724	0.20	5	0	94.5	80-120	0			
Silver	0.04823	0.0050	0.05	0	96.5	80-120	0			
Sodium	4.697	0.20	5	0	93.9	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48226 Instrument ID ICPMS03 Method: SW6020

LCS		Sample ID: MLCSW3-112910-48226				Units: mg/L		Analysis Date: 12/1/2010 07:00 PM		
Client ID:		Run ID: ICPMS03_101201A				SeqNo: 2195000		Prep Date: 11/29/2010		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1076	0.010	0.1	0	108	80-120	0			
Arsenic	0.05247	0.0050	0.05	0	105	80-120	0			
Beryllium	0.05118	0.0020	0.05	0	102	80-120	0			
Boron	0.5231	0.050	0.5	0	105	80-120	0			
Calcium	5.42	0.50	5	0	108	80-120	0			
Chromium	0.05208	0.0050	0.05	0	104	80-120	0			
Cobalt	0.05202	0.0050	0.05	0	104	80-120	0			
Copper	0.05348	0.0050	0.05	0	107	80-120	0			
Iron	5.104	0.20	5	0	102	80-120	0			
Magnesium	5.139	0.20	5	0	103	80-120	0			
Manganese	0.05195	0.0050	0.05	0	104	80-120	0			
Nickel	0.05268	0.0050	0.05	0	105	80-120	0			
Selenium	0.05194	0.0050	0.05	0	104	80-120	0			
Vanadium	0.05119	0.0050	0.05	0	102	80-120	0			
Zinc	0.0567	0.0050	0.05	0	113	80-120	0			

MS		Sample ID: 1011646-04DMS				Units: mg/L		Analysis Date: 12/1/2010 07:48 PM		
Client ID:		Run ID: ICPMS03_101201A				SeqNo: 2195009		Prep Date: 11/29/2010		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.195	0.050	0.1	0.09505	100	80-120	0			
Arsenic	0.0706	0.025	0.05	0.01558	110	80-120	0			
Barium	0.2407	0.025	0.05	0.1904	101	80-120	0			
Beryllium	0.04758	0.010	0.05	0.0005875	94	80-120	0			
Boron	6.155	0.25	0.5	5.605	110	80-120	0			O
Cadmium	0.0501	0.010	0.05	-0.0001616	101	80-120	0			
Calcium	845.5	2.5	5	861	-310	80-120	0			SO
Chromium	0.0526	0.025	0.05	-0.0000512	105	80-120	0			
Cobalt	0.0533	0.025	0.05	0.003532	99.5	80-120	0			
Copper	0.04809	0.025	0.05	-0.001918	100	80-120	0			
Iron	6.19	1.0	5	1.05	103	80-120	0			
Lead	0.05295	0.025	0.05	0.001148	104	80-120	0			
Magnesium	296.8	1.0	5	289.2	150	80-120	0			SO
Manganese	1.964	0.025	0.05	1.947	33	80-120	0			SO
Molybdenum	0.05485	0.025	0.05	0.002885	104	80-120	0			
Nickel	0.0512	0.025	0.05	0.001844	98.7	80-120	0			
Potassium	34.36	1.0	5	29.04	106	80-120	0			O
Selenium	0.0531	0.025	0.05	0.002118	102	80-120	0			
Silver	0.04806	0.025	0.05	-0.001506	99.1	80-120	0			
Sodium	ND	1.0	5	2764	-55300	80-120	0			SO
Vanadium	0.05385	0.025	0.05	0.000912	106	80-120	0			
Zinc	0.0608	0.025	0.05	0.009745	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48226 Instrument ID ICPMS03 Method: SW6020

MSD		Sample ID: 1011646-04DMSD				Units: mg/L		Analysis Date: 12/1/2010 07:54 PM		
Client ID:		Run ID: ICPMS03_101201A				SeqNo: 2195010		Prep Date: 11/29/2010		DF: 5
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.196	0.050	0.1	0.09505	101	80-120	0.195	0.537	15	
Arsenic	0.06995	0.025	0.05	0.01558	109	80-120	0.0706	0.925	15	
Barium	0.2502	0.025	0.05	0.1904	120	80-120	0.2407	3.89	15	
Beryllium	0.04879	0.010	0.05	0.0005875	96.4	80-120	0.04758	2.51	15	
Boron	6.435	0.25	0.5	5.605	166	80-120	6.155	4.45	15	SO
Cadmium	0.05065	0.010	0.05	-0.0001616	102	80-120	0.0501	1.09	15	
Calcium	866	2.5	5	861	100	80-120	845.5	2.4	15	O
Chromium	0.0519	0.025	0.05	-0.0000512	104	80-120	0.0526	1.34	15	
Cobalt	0.05485	0.025	0.05	0.003532	103	80-120	0.0533	2.87	15	
Copper	0.04901	0.025	0.05	-0.001918	102	80-120	0.04809	1.89	15	
Iron	6.235	1.0	5	1.05	104	80-120	6.19	0.724	15	
Lead	0.05365	0.025	0.05	0.001148	105	80-120	0.05295	1.31	15	
Magnesium	298.6	1.0	5	289.2	188	80-120	296.8	0.638	15	SO
Manganese	2.004	0.025	0.05	1.947	113	80-120	1.964	2.02	15	O
Molybdenum	0.0554	0.025	0.05	0.002885	105	80-120	0.05485	0.998	15	
Nickel	0.05275	0.025	0.05	0.001844	102	80-120	0.0512	2.98	15	
Potassium	35	1.0	5	29.04	119	80-120	34.36	1.83	15	O
Selenium	0.06095	0.025	0.05	0.002118	118	80-120	0.0531	13.8	15	
Silver	0.04926	0.025	0.05	-0.001506	102	80-120	0.04806	2.49	15	
Sodium	ND	1.0	5	2764	-55300	80-120	0	0	15	SO
Vanadium	0.0539	0.025	0.05	0.000912	106	80-120	0.05385	0.0928	15	
Zinc	0.0585	0.025	0.05	0.009745	97.5	80-120	0.0608	3.86	15	

DUP		Sample ID: 1011646-04DDUP				Units: mg/L		Analysis Date: 12/1/2010 07:11 PM		
Client ID:		Run ID: ICPMS03_101201A				SeqNo: 2195002		Prep Date: 11/29/2010		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	5.808	5.0	0	0	0	-0 0	6.459	10.6	25	
Calcium	947.3	50	0	0	0	-0 0	913.1	3.68	25	
Magnesium	288.4	20	0	0	0	-0 0	279.2	3.24	25	
Sodium	2751	20	0	0	0	-0 0	2654	3.59	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48226 Instrument ID ICPMS03 Method: SW6020

DUP Sample ID: 1011646-04DDUP Units: mg/L Analysis Date: 12/1/2010 07:43 PM

Client ID: Run ID: ICPMS03_101201A SeqNo: 2195008 Prep Date: 11/29/2010 DF: 5

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.089	0.050	0	0	0	-0 0	0.09505	6.57	25	
Arsenic	0.01345	0.025	0	0	0	-0 0	0.01558	0	25	J
Barium	0.1912	0.025	0	0	0	-0 0	0.1904	0.419	25	
Beryllium	ND	0.010	0	0	0	-0 0	0.0005875	0	25	
Cadmium	ND	0.010	0	0	0	-0 0	-0.0001616	0	25	
Chromium	ND	0.025	0	0	0	-0 0	-0.0000512	0	25	
Cobalt	0.002645	0.025	0	0	0	-0 0	0.003532	0	25	J
Copper	ND	0.025	0	0	0	-0 0	-0.001918	0	25	
Iron	0.932	1.0	0	0	0	-0 0	1.05	0	25	J
Lead	ND	0.025	0	0	0	-0 0	0.001148	0	25	
Manganese	1.83	0.025	0	0	0	-0 0	1.947	6.22	25	
Molybdenum	ND	0.025	0	0	0	-0 0	0.002885	0	25	
Nickel	ND	0.025	0	0	0	-0 0	0.001844	0	25	
Potassium	29.63	1.0	0	0	0	-0 0	29.04	2.01	25	
Selenium	ND	0.025	0	0	0	-0 0	0.002118	0	25	
Silver	ND	0.025	0	0	0	-0 0	-0.001506	0	25	
Vanadium	ND	0.025	0	0	0	-0 0	0.000912	0	25	
Zinc	ND	0.025	0	0	0	-0 0	0.009745	0	25	

The following samples were analyzed in this batch:

1011768-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48286 Instrument ID Mercury Method: SW7470

MBLK	Sample ID: GBLKW4-120110-48286				Units: mg/L		Analysis Date: 12/1/2010 05:18 PM			
Client ID:	Run ID: MERCURY_101201A				SeqNo: 2195107		Prep Date: 12/1/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS	Sample ID: GLCSW4-120110-48286				Units: mg/L		Analysis Date: 12/1/2010 05:20 PM			
Client ID:	Run ID: MERCURY_101201A				SeqNo: 2195108		Prep Date: 12/1/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00494	0.00020	0.005	0	98.8	85-115	0			

MS	Sample ID: 1011732-12DMS				Units: mg/L		Analysis Date: 12/1/2010 05:26 PM			
Client ID:	Run ID: MERCURY_101201A				SeqNo: 2195111		Prep Date: 12/1/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00494	0.00020	0.005	0.000008	98.6	85-115	0			

MSD	Sample ID: 1011732-12DMSD				Units: mg/L		Analysis Date: 12/1/2010 05:28 PM			
Client ID:	Run ID: MERCURY_101201A				SeqNo: 2195112		Prep Date: 12/1/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00482	0.00020	0.005	0.000008	96.2	85-115	0.00494	2.46	20	

DUP	Sample ID: 1011732-12DDUP				Units: mg/L		Analysis Date: 12/1/2010 05:24 PM			
Client ID:	Run ID: MERCURY_101201A				SeqNo: 2195110		Prep Date: 12/1/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	-0 0	0.000008	0	20	

The following samples were analyzed in this batch:

1011768-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48202 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKW1-101123-48202 Units: µg/L Analysis Date: 11/30/2010 01:20 PM

Client ID: Run ID: SV-5_101129E SeqNo: 2192961 Prep Date: 11/23/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	75.2	5.0	100	0	75.2	42-124	0			
Surr: 2-Fluorobiphenyl	83.41	5.0	100	0	83.4	48-120	0			
Surr: 2-Fluorophenol	69.51	5.0	100	0	69.5	20-120	0			
Surr: 4-Terphenyl-d14	81.34	5.0	100	0	81.3	51-135	0			
Surr: Nitrobenzene-d5	81.6	5.0	100	0	81.6	41-120	0			
Surr: Phenol-d6	65.15	5.0	100	0	65.1	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48202 Instrument ID SV-5 Method: SW8270

LCS		Sample ID: SLCSW1-101123-48202		Units: µg/L		Analysis Date: 11/29/2010 06:49 PM				
Client ID:		Run ID: SV-5_101129E		SeqNo: 2192962		Prep Date: 11/23/2010		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.52	5.0	50	0	79	50-120	0			
2,4,5-Trichlorophenol	79.13	5.0	100	0	79.1	50-120	0			
2,4,6-Trichlorophenol	81.61	5.0	100	0	81.6	50-120	0			
2-Methylnaphthalene	39.02	5.0	50	0	78	55-120	0			
2-Methylphenol	80.67	5.0	100	0	80.7	50-120	0			
2-Nitroaniline	38.92	5.0	50	0	77.8	55-120	0			
2-Nitrophenol	78.68	5.0	100	0	78.7	55-120	0			
3&4-Methylphenol	119.9	5.0	150	0	79.9	55-120	0			
3-Nitroaniline	33.62	5.0	50	0	67.2	40-120	0			
4-Nitroaniline	38.09	5.0	50	0	76.2	50-120	0			
4-Nitrophenol	83.06	5.0	100	0	83.1	45-120	0			
Acenaphthene	41.06	5.0	50	0	82.1	55-120	0			
Acenaphthylene	41.01	5.0	50	0	82	55-120	0			
Aniline	32.43	5.0	50	0	64.9	30-120	0			
Anthracene	41.79	5.0	50	0	83.6	55-120	0			
Benz(a)anthracene	40.63	5.0	50	0	81.3	55-120	0			
Benzidine	10.97	5.0	50	0	21.9	10-120	0			
Hexachloroethane	38.94	5.0	50	0	77.9	55-120	0			
Indeno(1,2,3-cd)pyrene	41.26	5.0	50	0	82.5	55-120	0			
Isophorone	40.91	5.0	50	0	81.8	55-120	0			
N-Nitrosodi-n-propylamine	41.09	5.0	50	0	82.2	50-120	0			
N-Nitrosodimethylamine	34.5	5.0	50	0	69	45-120	0			
N-Nitrosodiphenylamine	42.57	5.0	50	0	85.1	55-120	0			
Naphthalene	41.08	5.0	50	0	82.2	55-120	0			
Nitrobenzene	40.05	5.0	50	0	80.1	55-120	0			
Pentachlorophenol	69.13	5.0	100	0	69.1	55-120	0			
Phenanthrene	40.84	5.0	50	0	81.7	55-120	0			
Phenol	83.5	5.0	100	0	83.5	50-120	0			
Pyrene	42.69	5.0	50	0	85.4	55-120	0			
Surr: 2,4,6-Tribromophenol	78.84	5.0	100	0	78.8	42-124	0			
Surr: 2-Fluorobiphenyl	79.43	5.0	100	0	79.4	48-120	0			
Surr: 2-Fluorophenol	82.23	5.0	100	0	82.2	20-120	0			
Surr: 4-Terphenyl-d14	77.71	5.0	100	0	77.7	51-135	0			
Surr: Nitrobenzene-d5	78.25	5.0	100	0	78.3	41-120	0			
Surr: Phenol-d6	81.38	5.0	100	0	81.4	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 48202 Instrument ID SV-5 Method: SW8270

LCSD Sample ID: SLCS DW1-101123-48202 Units: µg/L Analysis Date: 11/29/2010 07:11 PM

Client ID: Run ID: SV-5_101129E SeqNo: 2192963 Prep Date: 11/23/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.57	5.0	50	0	83.1	50-120	39.52	5.08	20	
2,4,5-Trichlorophenol	82.32	5.0	100	0	82.3	50-120	79.13	3.95	20	
2,4,6-Trichlorophenol	83.05	5.0	100	0	83.1	50-120	81.61	1.75	20	
2-Methylnaphthalene	39.87	5.0	50	0	79.7	55-120	39.02	2.15	20	
2-Methylphenol	80.77	5.0	100	0	80.8	50-120	80.67	0.115	20	
2-Nitroaniline	41.2	5.0	50	0	82.4	55-120	38.92	5.69	20	
2-Nitrophenol	82.78	5.0	100	0	82.8	55-120	78.68	5.08	20	
3&4-Methylphenol	119.4	5.0	150	0	79.6	55-120	119.9	0.413	20	
3-Nitroaniline	32.62	5.0	50	0	65.2	40-120	33.62	3.03	20	
4-Nitroaniline	38.59	5.0	50	0	77.2	50-120	38.09	1.3	20	
4-Nitrophenol	82.17	5.0	100	0	82.2	45-120	83.06	1.07	20	
Acenaphthene	43.41	5.0	50	0	86.8	55-120	41.06	5.58	20	
Acenaphthylene	42.22	5.0	50	0	84.4	55-120	41.01	2.91	20	
Aniline	33.23	5.0	50	0	66.5	30-120	32.43	2.45	20	
Anthracene	43.38	5.0	50	0	86.8	55-120	41.79	3.74	20	
Benz(a)anthracene	42.16	5.0	50	0	84.3	55-120	40.63	3.7	20	
Benzidine	11.21	5.0	50	0	22.4	10-120	10.97	2.17	20	
Hexachloroethane	41.26	5.0	50	0	82.5	55-120	38.94	5.79	20	
Indeno(1,2,3-cd)pyrene	45.85	5.0	50	0	91.7	55-120	41.26	10.5	20	
Isophorone	42.04	5.0	50	0	84.1	55-120	40.91	2.73	20	
N-Nitrosodi-n-propylamine	41.39	5.0	50	0	82.8	50-120	41.09	0.71	20	
N-Nitrosodimethylamine	36.61	5.0	50	0	73.2	45-120	34.5	5.93	20	
N-Nitrosodiphenylamine	45.12	5.0	50	0	90.2	55-120	42.57	5.82	20	
Naphthalene	42.26	5.0	50	0	84.5	55-120	41.08	2.84	20	
Nitrobenzene	41.63	5.0	50	0	83.3	55-120	40.05	3.89	20	
Pentachlorophenol	71.24	5.0	100	0	71.2	55-120	69.13	3.01	20	
Phenanthrene	41.67	5.0	50	0	83.3	55-120	40.84	2.02	20	
Phenol	83.36	5.0	100	0	83.4	50-120	83.5	0.169	20	
Pyrene	46.62	5.0	50	0	93.2	55-120	42.69	8.81	20	
Surr: 2,4,6-Tribromophenol	82.68	5.0	100	0	82.7	42-124	78.84	4.75	20	
Surr: 2-Fluorobiphenyl	85.13	5.0	100	0	85.1	48-120	79.43	6.93	20	
Surr: 2-Fluorophenol	83.97	5.0	100	0	84	20-120	82.23	2.09	20	
Surr: 4-Terphenyl-d14	85.28	5.0	100	0	85.3	51-135	77.71	9.28	20	
Surr: Nitrobenzene-d5	81.53	5.0	100	0	81.5	41-120	78.25	4.1	20	
Surr: Phenol-d6	80.68	5.0	100	0	80.7	20-120	81.38	0.863	20	

The following samples were analyzed in this batch:

1011768-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-111910-R101228 Units: µg/L Analysis Date: 11/19/2010 01:48 PM

Client ID: Run ID: VOA1_101119A SeqNo: 2180477 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2,4-Trimethylbenzene	ND	5.0								
1,2-Dibromoethane	ND	5.0								
1,2-Dichloroethane	ND	5.0								
1,2-Dichloropropane	ND	5.0								
1,3,5-Trimethylbenzene	ND	5.0								
2-Butanone	ND	10								
2-Hexanone	ND	10								
4-Isopropyltoluene	ND	5.0								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,2-Dichloroethene	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
Isopropylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methyl tert-butyl ether	ND	5.0								
Methylene chloride	ND	10								
n-Butylbenzene	ND	5.0								
n-Propylbenzene	ND	5.0								
Naphthalene	ND	5.0								
o-Xylene	ND	5.0								
sec-Butylbenzene	ND	5.0								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,2-Dichloroethene	ND	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228	Instrument ID VOA1	Method: SW8260						
trans-1,3-Dichloropropene	ND	5.0						
Trichloroethene	ND	5.0						
Vinyl chloride	ND	2.0						
Xylenes, Total	ND	15						
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>52.32</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>105</i>	<i>70-125</i>	<i>0</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>45.3</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>90.6</i>	<i>72-125</i>	<i>0</i>	
<i>Surr: Dibromofluoromethane</i>	<i>50.06</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>100</i>	<i>71-125</i>	<i>0</i>	
<i>Surr: Toluene-d8</i>	<i>47.65</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>95.3</i>	<i>75-125</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-111910-R101228 Units: µg/L Analysis Date: 11/19/2010 12:31 PM

Client ID: Run ID: VOA1_101119A SeqNo: 2180476 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	51.44	5.0	50	0	103	80-120	0			
1,1,2,2-Tetrachloroethane	48.17	5.0	50	0	96.3	72-120	0			
1,1,2-Trichloroethane	50.65	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	52.84	5.0	50	0	106	76-120	0			
1,1-Dichloroethene	49.9	5.0	50	0	99.8	73-124	0			
1,2,4-Trimethylbenzene	43.91	5.0	50	0	87.8	68-123	0			
1,2-Dibromoethane	50.93	5.0	50	0	102	80-120	0			
1,2-Dichloroethane	53.92	5.0	50	0	108	78-120	0			
1,2-Dichloropropane	53.41	5.0	50	0	107	80-120	0			
1,3,5-Trimethylbenzene	45.56	5.0	50	0	91.1	80-120	0			
2-Butanone	100.2	10	100	0	100	58-132	0			
2-Hexanone	105.8	10	100	0	106	61-130	0			
4-Isopropyltoluene	46.7	5.0	50	0	93.4	79-120	0			
4-Methyl-2-pentanone	101.9	10	100	0	102	65-127	0			
Acetone	95.44	10	100	0	95.4	59-137	0			
Benzene	51.29	5.0	50	0	103	73-121	0			
Bromodichloromethane	51.9	5.0	50	0	104	80-120	0			
Bromoform	52.58	5.0	50	0	105	79-120	0			
Bromomethane	61.16	5.0	50	0	122	66-137	0			
Carbon disulfide	101.7	10	100	0	102	68-141	0			
Carbon tetrachloride	47.91	5.0	50	0	95.8	75-124	0			
Chlorobenzene	48.72	5.0	50	0	97.4	80-120	0			
Chloroethane	54.97	5.0	50	0	110	76-121	0			
Chloroform	53.29	5.0	50	0	107	80-120	0			
Chloromethane	52.83	5.0	50	0	106	67-123	0			
cis-1,2-Dichloroethene	50.15	5.0	50	0	100	78-120	0			
cis-1,3-Dichloropropene	51.03	5.0	50	0	102	80-120	0			
Dibromochloromethane	51.58	5.0	50	0	103	80-120	0			
Ethylbenzene	47.52	5.0	50	0	95	80-120	0			
Isopropylbenzene	47.25	5.0	50	0	94.5	80-120	0			
m,p-Xylene	98	10	100	0	98	78-121	0			
Methyl tert-butyl ether	54.73	5.0	50	0	109	73-121	0			
Methylene chloride	51.74	10	50	0	103	65-133	0			
n-Butylbenzene	45.57	5.0	50	0	91.1	77-120	0			
n-Propylbenzene	46.77	5.0	50	0	93.5	78-120	0			
Naphthalene	47.99	5.0	50	0	96	65-127	0			
o-Xylene	47.53	5.0	50	0	95.1	80-120	0			
sec-Butylbenzene	46.79	5.0	50	0	93.6	78-120	0			
Styrene	47.69	5.0	50	0	95.4	80-120	0			
Tetrachloroethene	49.52	5.0	50	0	99	79-120	0			
Toluene	48.76	5.0	50	0	97.5	80-120	0			
trans-1,2-Dichloroethene	50.72	5.0	50	0	101	78-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228	Instrument ID VOA1		Method: SW8260				
trans-1,3-Dichloropropene	53.79	5.0	50	0	108	80-120	0
Trichloroethene	51.66	5.0	50	0	103	80-120	0
Vinyl chloride	51.85	2.0	50	0	104	70-127	0
Xylenes, Total	145.5	15	150	0	97	80-120	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>50.21</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>100</i>	<i>70-125</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>47.16</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>94.3</i>	<i>72-125</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>48.26</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>96.5</i>	<i>71-125</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>47.43</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>94.9</i>	<i>75-125</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1011667-03ZMS Units: µg/L Analysis Date: 11/19/2010 03:30 PM

Client ID: Run ID: VOA1_101119A SeqNo: 2180479 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.62	5.0	50	0	95.2	80-120	0			
1,1,2,2-Tetrachloroethane	49.17	5.0	50	0	98.3	72-120	0			
1,1,2-Trichloroethane	51.75	5.0	50	0	104	80-120	0			
1,1-Dichloroethane	55.24	5.0	50	0	110	76-120	0			
1,1-Dichloroethene	43.85	5.0	50	0	87.7	73-124	0			
1,2,4-Trimethylbenzene	41.88	5.0	50	0	83.8	68-123	0			
1,2-Dibromoethane	51.19	5.0	50	0	102	80-120	0			
1,2-Dichloroethane	59.64	5.0	50	0	119	78-120	0			
1,2-Dichloropropane	55.96	5.0	50	0	112	80-120	0			
1,3,5-Trimethylbenzene	44.47	5.0	50	0	88.9	80-120	0			
2-Butanone	99.49	10	100	0	99.5	58-132	0			
2-Hexanone	114.5	10	100	0	115	61-130	0			
4-Isopropyltoluene	40.22	5.0	50	0	80.4	79-120	0			
4-Methyl-2-pentanone	111.1	10	100	0	111	65-127	0			
Acetone	99.3	10	100	0	99.3	59-137	0			
Benzene	52.98	5.0	50	0	106	73-121	0			
Bromodichloromethane	52.66	5.0	50	0	105	80-120	0			
Bromoform	53.48	5.0	50	0	107	79-120	0			
Bromomethane	59.55	5.0	50	0	119	66-137	0			
Carbon disulfide	99.61	10	100	0	99.6	68-141	0			
Carbon tetrachloride	44.07	5.0	50	0	88.1	75-124	0			
Chlorobenzene	49.55	5.0	50	0	99.1	80-120	0			
Chloroethane	53.18	5.0	50	0	106	76-121	0			
Chloroform	54.79	5.0	50	0	110	80-120	0			
Chloromethane	51.21	5.0	50	0	102	67-123	0			
cis-1,2-Dichloroethene	50.92	5.0	50	0	102	78-120	0			
cis-1,3-Dichloropropene	56.6	5.0	50	0	113	80-120	0			
Dibromochloromethane	51.45	5.0	50	0	103	80-120	0			
Ethylbenzene	46.04	5.0	50	0	92.1	80-120	0			
Isopropylbenzene	44.73	5.0	50	0	89.5	80-120	0			
m,p-Xylene	94.15	10	100	0	94.2	78-121	0			
Methyl tert-butyl ether	56.37	5.0	50	0	113	73-121	0			
Methylene chloride	54.11	10	50	0	108	65-133	0			
n-Butylbenzene	39.86	5.0	50	0	79.7	77-120	0			
n-Propylbenzene	42.13	5.0	50	0	84.3	78-120	0			
Naphthalene	46.5	5.0	50	0	93	65-127	0			
o-Xylene	46.64	5.0	50	0	93.3	80-120	0			
sec-Butylbenzene	41.15	5.0	50	0	82.3	78-120	0			
Styrene	49.7	5.0	50	0	99.4	80-120	0			
Tetrachloroethene	44.69	5.0	50	0	89.4	79-120	0			
Toluene	48.22	5.0	50	0	96.4	80-120	0			
trans-1,2-Dichloroethene	49.3	5.0	50	0	98.6	78-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228	Instrument ID VOA1		Method: SW8260				
trans-1,3-Dichloropropene	58.81	5.0	50	0	118	80-120	0
Trichloroethene	51.9	5.0	50	0	104	80-120	0
Vinyl chloride	48.8	2.0	50	0	97.6	70-127	0
Xylenes, Total	140.8	15	150	0	93.9	80-120	0
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>52.55</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>105</i>	<i>70-125</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>45.88</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>91.8</i>	<i>72-125</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>51.44</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>103</i>	<i>71-125</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>48.27</i>	<i>5.0</i>	<i>50</i>	<i>0</i>	<i>96.5</i>	<i>75-125</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228 Instrument ID VOA1 Method: SW8260

MSD		Sample ID: 1011667-03ZMSD		Units: µg/L		Analysis Date: 11/19/2010 03:55 PM				
Client ID:		Run ID: VOA1_101119A		SeqNo: 2180480		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	53.86	5.0	50	0	108	80-120	47.62	12.3	20	
1,1,2,2-Tetrachloroethane	49.64	5.0	50	0	99.3	72-120	49.17	0.957	20	
1,1,2-Trichloroethane	54.17	5.0	50	0	108	80-120	51.75	4.57	20	
1,1-Dichloroethane	56.66	5.0	50	0	113	76-120	55.24	2.54	20	
1,1-Dichloroethene	48.59	5.0	50	0	97.2	73-124	43.85	10.2	20	
1,2,4-Trimethylbenzene	41.45	5.0	50	0	82.9	68-123	41.88	1.04	20	
1,2-Dibromoethane	53.48	5.0	50	0	107	80-120	51.19	4.37	20	
1,2-Dichloroethane	57.77	5.0	50	0	116	78-120	59.64	3.18	20	
1,2-Dichloropropane	56.13	5.0	50	0	112	80-120	55.96	0.308	20	
1,3,5-Trimethylbenzene	45.13	5.0	50	0	90.3	80-120	44.47	1.49	20	
2-Butanone	106	10	100	0	106	58-132	99.49	6.3	20	
2-Hexanone	114.2	10	100	0	114	61-130	114.5	0.297	20	
4-Isopropyltoluene	41.9	5.0	50	0	83.8	79-120	40.22	4.09	20	
4-Methyl-2-pentanone	118.3	10	100	0	118	65-127	111.1	6.26	20	
Acetone	98.5	10	100	0	98.5	59-137	99.3	0.803	20	
Benzene	51.34	5.0	50	0	103	73-121	52.98	3.14	20	
Bromodichloromethane	53.92	5.0	50	0	108	80-120	52.66	2.37	20	
Bromoform	54.95	5.0	50	0	110	79-120	53.48	2.72	20	
Bromomethane	69.02	5.0	50	0	138	66-137	59.55	14.7	20	S
Carbon disulfide	102.8	10	100	0	103	68-141	99.61	3.12	20	
Carbon tetrachloride	47.37	5.0	50	0	94.7	75-124	44.07	7.21	20	
Chlorobenzene	49.72	5.0	50	0	99.4	80-120	49.55	0.342	20	
Chloroethane	56.84	5.0	50	0	114	76-121	53.18	6.64	20	
Chloroform	54.92	5.0	50	0	110	80-120	54.79	0.23	20	
Chloromethane	55.66	5.0	50	0	111	67-123	51.21	8.32	20	
cis-1,2-Dichloroethene	52.84	5.0	50	0	106	78-120	50.92	3.71	20	
cis-1,3-Dichloropropene	54.69	5.0	50	0	109	80-120	56.6	3.44	20	
Dibromochloromethane	54.63	5.0	50	0	109	80-120	51.45	6.01	20	
Ethylbenzene	49.61	5.0	50	0	99.2	80-120	46.04	7.47	20	
Isopropylbenzene	48.08	5.0	50	0	96.2	80-120	44.73	7.22	20	
m,p-Xylene	103.3	10	100	0	103	78-121	94.15	9.24	20	
Methyl tert-butyl ether	57.02	5.0	50	0	114	73-121	56.37	1.15	20	
Methylene chloride	55.48	10	50	0	111	65-133	54.11	2.51	20	
n-Butylbenzene	43.86	5.0	50	0	87.7	77-120	39.86	9.55	20	
n-Propylbenzene	45.77	5.0	50	0	91.5	78-120	42.13	8.28	20	
Naphthalene	49.1	5.0	50	0	98.2	65-127	46.5	5.43	20	
o-Xylene	52.15	5.0	50	0	104	80-120	46.64	11.1	20	
sec-Butylbenzene	42.44	5.0	50	0	84.9	78-120	41.15	3.09	20	
Styrene	53.56	5.0	50	0	107	80-120	49.7	7.47	20	
Tetrachloroethene	52.02	5.0	50	0	104	79-120	44.69	15.2	20	
Toluene	52.12	5.0	50	0	104	80-120	48.22	7.78	20	
trans-1,2-Dichloroethene	49.95	5.0	50	0	99.9	78-120	49.3	1.32	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101228	Instrument ID VOA1		Method: SW8260						
trans-1,3-Dichloropropene	57.6	5.0	50	0	115	80-120	58.81	2.09	20
Trichloroethene	53.58	5.0	50	0	107	80-120	51.9	3.19	20
Vinyl chloride	54.85	2.0	50	0	110	70-127	48.8	11.7	20
Xylenes, Total	155.4	15	150	0	104	80-120	140.8	9.87	20
Surr: 1,2-Dichloroethane-d4	53.85	5.0	50	0	108	70-125	52.55	2.45	20
Surr: 4-Bromofluorobenzene	50.59	5.0	50	0	101	72-125	45.88	9.76	20
Surr: Dibromofluoromethane	52.57	5.0	50	0	105	71-125	51.44	2.19	20
Surr: Toluene-d8	50.57	5.0	50	0	101	75-125	48.27	4.64	20

The following samples were analyzed in this batch:

1011768-01A

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101446 Instrument ID Balance1 Method: M2540C

MBLK Sample ID: BLANK-R101446 Units: mg/L Analysis Date: 11/22/2010 10:00 AM

Client ID: Run ID: BALANCE1_101122P SeqNo: 2184816 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: LCS-R101446 Units: mg/L Analysis Date: 11/22/2010 10:00 AM

Client ID: Run ID: BALANCE1_101122P SeqNo: 2184817 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	986	10	1000	0	98.6	85-115	0			

DUP Sample ID: 1011766-02CDUP Units: mg/L Analysis Date: 11/22/2010 10:00 AM

Client ID: Run ID: BALANCE1_101122P SeqNo: 2184812 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	5950	10	0	0	0	0-0	5430	9.14	20	

The following samples were analyzed in this batch:

1011768-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101835 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-120110-R101835 Units: mg/L Analysis Date: 12/1/2010 12:00 PM

Client ID: Run ID: WETCHEM_101201F SeqNo: 2194508 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-120110-R101835 Units: mg/L Analysis Date: 12/1/2010 12:00 PM

Client ID: Run ID: WETCHEM_101201F SeqNo: 2194509 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	994.6	5.0	1000	0	99.5	80-120	0			
Alkalinity, Total (As CaCO3)	994.6	5.0	1000	0	99.5	80-120	0			

DUP Sample ID: 1011869-01FDUP Units: mg/L Analysis Date: 12/1/2010 12:00 PM

Client ID: Run ID: WETCHEM_101201F SeqNo: 2194532 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	258.6	5.0	0	0	0	0-0	258.6	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	258.6	5.0	0	0	0	0-0	258.6	0	20	

The following samples were analyzed in this batch:

1011768-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R101876** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCS-120210-R101876** Units: °F Analysis Date: **12/2/2010 10:00 AM**

Client ID: Run ID: **WETCHEM_101202A** SeqNo: **2195699** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	0			

DUP Sample ID: **1011734-01ADUP** Units: °F Analysis Date: **12/2/2010 10:00 AM**

Client ID: Run ID: **WETCHEM_101202A** SeqNo: **2195707** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	-0 0	0	0	25	

The following samples were analyzed in this batch:

1011768-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1011768
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101879 Instrument ID WetChem Method: SW9040

LCS Sample ID: WLCS-120210-R101879 Units: pH units Analysis Date: 12/2/2010 10:00 AM

Client ID: Run ID: WETCHEM_101202B SeqNo: 2195860 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6	0.10	6	0	100	90-110	0			

DUP Sample ID: 1011768-01EDUP Units: pH units Analysis Date: 12/2/2010 10:00 AM

Client ID: Effluent Run ID: WETCHEM_101202B SeqNo: 2195864 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.86	0.10	0	0	0	-0 0	6.86	0	20	H

The following samples were analyzed in this batch:

1011768-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R101909 Instrument ID ICS3K2 Method: E300

MBLK Sample ID: WBLKW2-120210-R101909 Units: mg/L Analysis Date: 12/2/2010 01:23 PM

Client ID: Run ID: ICS3K2_101202A SeqNo: 2196403 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.164	0.10	5	0	103	85-115	0			

LCS Sample ID: WLC SW2-120210-R101909 Units: mg/L Analysis Date: 12/2/2010 01:44 PM

Client ID: Run ID: ICS3K2_101202A SeqNo: 2196404 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.31	0.50	20	0	107	90-110	0			
Sulfate	19.62	0.50	20	0	98.1	90-110	0			
Surr: Selenate (surr)	5.161	0.10	5	0	103	85-115	0			

LCSD Sample ID: WLCSDW2-120210-R101909 Units: mg/L Analysis Date: 12/2/2010 02:06 PM

Client ID: Run ID: ICS3K2_101202A SeqNo: 2196405 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.28	0.50	20	0	106	90-110	21.31	0.169	20	
Sulfate	19.74	0.50	20	0	98.7	90-110	19.62	0.594	20	
Surr: Selenate (surr)	5.117	0.10	5	0	102	85-115	5.161	0.856	20	

MS Sample ID: 1011730-01EMS Units: mg/L Analysis Date: 12/2/2010 04:16 PM

Client ID: Run ID: ICS3K2_101202A SeqNo: 2196411 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	74.09	0.50	10	64.71	93.7	80-120	0			O
Sulfate	79.68	0.50	10	71.3	83.9	80-120	0			O
Surr: Selenate (surr)	5.495	0.10	5	0	110	85-115	0			

MSD Sample ID: 1011730-01EMSD Units: mg/L Analysis Date: 12/2/2010 04:38 PM

Client ID: Run ID: ICS3K2_101202A SeqNo: 2196412 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	74.15	0.50	10	64.71	94.4	80-120	74.09	0.0837	20	O
Sulfate	79.76	0.50	10	71.3	84.7	80-120	79.68	0.0991	20	O
Surr: Selenate (surr)	5.576	0.10	5	0	112	85-115	5.495	1.46	20	

The following samples were analyzed in this batch:

1011768-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1011768
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R102199 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW-120810-R102199 Units: μ mhos/cm Analysis Date: 12/8/2010 05:00 PM

Client ID: Run ID: WETCHEM_101208D SeqNo: 2203694 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: WLCSW-120810-R102199 Units: μ mhos/cm Analysis Date: 12/8/2010 05:00 PM

Client ID: Run ID: WETCHEM_101208D SeqNo: 2203695 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1420	1.0	1490	0	95.3	80-120	0			

LCSD Sample ID: WLCSDW-120810-R102199 Units: μ mhos/cm Analysis Date: 12/8/2010 05:00 PM

Client ID: Run ID: WETCHEM_101208D SeqNo: 2203704 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1410	1.0	1490	0	94.6	80-120	1420	0.707	20	

DUP Sample ID: 1011768-01EDUP Units: μ mhos/cm Analysis Date: 12/8/2010 05:00 PM

Client ID: Effluent Run ID: WETCHEM_101208D SeqNo: 2203702 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	4250	1.0	0	0	0		4270	0.469	20	

The following samples were analyzed in this batch: 1011768-01E

ALS Environmental

Date: 09-Dec-10

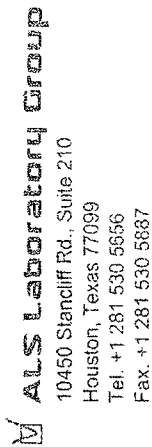
Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1011768

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



Chain of Custody Form

ALS Laboratory

3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Page of 7

Customer Information				Project Information				ALS Project Manager:				Parameter/Method Request for Analysis											
Purchase Order	Navajo Refining Company			Project Name	Injection Well Quarterly			A				VOC (8260) Select											
Work Order				Project Number				B				SVOC (8270) Select											
Company Name	Navajo Refining Company			Bill To Company	Navajo Refining Company			C				Total Metals (80307000) Select											
Send Report To	Aaron Strange			Invoice Attn	Aaron Strange			D				RCI Profile											
Address	PO Box 159			Address	PO Box 159			E				Anions (330) Cl, SO4											
City/State/Zip	Artesia, NM 88211			City/State/Zip	Artesia, NM 88211			F				Alkalinity											
Phone	(575) 748-6733 3311			Phone	(575) 748-6733 3311			G				pH											
Fax	(575) 748-6424 5451			Fax	(575) 748-6424 5451			H				Conductivity											
e-Mail Address				e-Mail Address				I				TDS											
No.	Sample Description			Date	Time	Matrix	Procs.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold				
1	Water Effluent			11-18-10	1345	L	Y	9	X	X	X	X	X	X	X	X	X	X					
2	Temp Blank																						
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Sampler(s) Please Print & Sign				Shipment Method		Required Turnaround Time: (Check Box)		Results Due Date:	
Aaron Strange				Fed Ex		1-2 Days ☐ 3-5 Days ☐ 6-10 Days ☐ 11-15 Days ☐ 16-20 Days ☐ 21-30 Days ☐ 31-45 Days ☐ 46-60 Days ☐ 61-75 Days ☐ 76-90 Days ☐ 91-105 Days ☐ 106-120 Days ☐ 121-135 Days ☐ 136-150 Days ☐ 151-165 Days ☐ 166-180 Days ☐ 181-195 Days ☐ 196-210 Days ☐ 211-225 Days ☐ 226-240 Days ☐ 241-255 Days ☐ 256-270 Days ☐ 271-285 Days ☐ 286-300 Days ☐ 301-315 Days ☐ 316-330 Days ☐ 331-345 Days ☐ 346-360 Days ☐ 361-375 Days ☐ 376-390 Days ☐ 391-405 Days ☐ 406-420 Days ☐ 421-435 Days ☐ 436-450 Days ☐ 451-465 Days ☐ 466-480 Days ☐ 481-495 Days ☐ 496-510 Days ☐ 511-525 Days ☐ 526-540 Days ☐ 541-555 Days ☐ 556-570 Days ☐ 571-585 Days ☐ 586-600 Days ☐ 601-615 Days ☐ 616-630 Days ☐ 631-645 Days ☐ 646-660 Days ☐ 661-675 Days ☐ 676-690 Days ☐ 691-705 Days ☐ 706-720 Days ☐ 721-735 Days ☐ 736-750 Days ☐ 751-765 Days ☐ 766-780 Days ☐ 781-795 Days ☐ 796-810 Days ☐ 811-825 Days ☐ 826-840 Days ☐ 841-855 Days ☐ 856-870 Days ☐ 871-885 Days ☐ 886-900 Days ☐ 901-915 Days ☐ 916-930 Days ☐ 931-945 Days ☐ 946-960 Days ☐ 961-975 Days ☐ 976-990 Days ☐ 991-1005 Days ☐ 1006-1020 Days ☐ 1021-1035 Days ☐ 1036-1050 Days ☐ 1051-1065 Days ☐ 1066-1080 Days ☐ 1081-1095 Days ☐ 1096-1110 Days ☐ 1111-1125 Days ☐ 1126-1140 Days ☐ 1141-1155 Days ☐ 1156-1170 Days ☐ 1171-1185 Days ☐ 1186-1200 Days ☐ 1201-1215 Days ☐ 1216-1230 Days ☐ 1231-1245 Days ☐ 1246-1260 Days ☐ 1261-1275 Days ☐ 1276-1290 Days ☐ 1291-1305 Days ☐ 1306-1320 Days ☐ 1321-1335 Days ☐ 1336-1350 Days ☐ 1351-1365 Days ☐ 1366-1380 Days ☐ 1381-1395 Days ☐ 1396-1410 Days ☐ 1411-1425 Days ☐ 1426-1440 Days ☐ 1441-1455 Days ☐ 1456-1470 Days ☐ 1471-1485 Days ☐ 1486-1500 Days ☐ 1501-1515 Days ☐ 1516-1530 Days ☐ 1531-1545 Days ☐ 1546-1560 Days ☐ 1561-1575 Days ☐ 1576-1590 Days ☐ 1591-1605 Days ☐ 1606-1620 Days ☐ 1621-1635 Days ☐ 1636-1650 Days ☐ 1651-1665 Days ☐ 1666-1680 Days ☐ 1681-1695 Days ☐ 1696-1710 Days ☐ 1711-1725 Days ☐ 1726-1740 Days ☐ 1741-1755 Days ☐ 1756-1770 Days ☐ 1771-1785 Days ☐ 1786-1800 Days ☐ 1801-1815 Days ☐ 1816-1830 Days ☐ 1831-1845 Days ☐ 1846-1860 Days ☐ 1861-1875 Days ☐ 1876-1890 Days ☐ 1891-1905 Days ☐ 1906-1920 Days ☐ 1921-1935 Days ☐ 1936-1950 Days ☐ 1951-1965 Days ☐ 1966-1980 Days ☐ 1981-1995 Days ☐ 1996-2010 Days ☐ 2011-2025 Days ☐ 2026-2040 Days ☐ 2041-2055 Days ☐ 2056-2070 Days ☐ 2071-2085 Days ☐ 2086-2100 Days ☐ 2101-2115 Days ☐ 2116-2130 Days ☐ 2131-2145 Days ☐ 2146-2160 Days ☐ 2161-2175 Days ☐ 2176-2190 Days ☐ 2191-2205 Days ☐ 2206-2220 Days ☐ 2221-2235 Days ☐ 2236-2250 Days ☐ 2251-2265 Days ☐ 2266-2280 Days ☐ 2281-2295 Days ☐ 2296-2310 Days ☐ 2311-2325 Days ☐ 2326-2340 Days ☐ 2341-2355 Days ☐ 2356-2370 Days ☐ 2371-2385 Days ☐ 2386-2400 Days ☐ 2401-2415 Days ☐ 2416-2430 Days ☐ 2431-2445 Days ☐ 2446-2460 Days ☐ 2461-2475 Days ☐ 2476-2490 Days ☐ 2491-2505 Days ☐ 2506-2520 Days ☐ 2521-2535 Days ☐ 2536-2550 Days ☐ 2551-2565 Days ☐ 2566-2580 Days ☐ 2581-2595 Days ☐ 2596-2610 Days ☐ 2611-2625 Days ☐ 2626-2640 Days ☐ 2641-2655 Days ☐ 2656-2670 Days ☐ 2671-2685 Days ☐ 2686-2700 Days ☐ 2701-2715 Days ☐ 2716-2730 Days ☐ 2731-2745 Days ☐ 2746-2760 Days ☐ 2761-2775 Days ☐ 2776-2790 Days ☐ 2791-2805 Days ☐ 2806-2820 Days ☐ 2821-2835 Days ☐ 2836-2850 Days ☐ 2851-2865 Days ☐ 2866-2880 Days ☐ 2881-2895 Days ☐ 2896-2910 Days ☐ 2911-2925 Days ☐ 2926-2940 Days ☐ 2941-2955 Days ☐ 2956-2970 Days ☐ 2971-2985 Days ☐ 2986-3000 Days ☐ 3001-3015 Days ☐ 3016-3030 Days ☐ 3031-3045 Days ☐ 3046-3060 Days ☐ 3061-3075 Days ☐ 3076-3090 Days ☐ 3091-3105 Days ☐ 3106-3120 Days ☐ 3121-3135 Days ☐ 3136-3150 Days ☐ 3151-3165 Days ☐ 3166-3180 Days ☐ 3181-3195 Days ☐ 3196-3210 Days ☐ 3211-3225 Days ☐ 3226-3240 Days ☐ 3241-3255 Days ☐ 3256-3270 Days ☐ 3271-3285 Days ☐ 3286-3300 Days ☐ 3301-3315 Days ☐ 3316-3330 Days ☐ 3331-3345 Days ☐ 3346-3360 Days ☐ 3361-3375 Days ☐ 3376-3390 Days ☐ 3391-3405 Days ☐ 3406-3420 Days ☐ 3421-3435 Days ☐ 3436-3450 Days ☐ 3451-3465 Days ☐ 3466-3480 Days ☐ 3481-3495 Days ☐ 3496-3510 Days ☐ 3511-3525 Days ☐ 3526-3540 Days ☐ 3541-3555 Days ☐ 3556-3570 Days ☐ 3571-3585 Days ☐ 3586-3600 Days ☐ 3601-3615 Days ☐ 3616-3630 Days ☐ 3631-3645 Days ☐ 3646-3660 Days ☐ 3661-3675 Days ☐ 3676-3690 Days ☐ 3691-3705 Days ☐ 3706-3720 Days ☐ 3721-3735 Days ☐ 3736-3750 Days ☐ 3751-3765 Days ☐ 3766-3780 Days ☐ 3781-3795 Days ☐ 3796-3810 Days ☐ 3811-3825 Days ☐ 3826-3840 Days ☐ 3841-3855 Days ☐ 3856-3870 Days ☐ 3871-3885 Days ☐ 3886-3900 Days ☐ 3901-3915 Days ☐ 3916-3930 Days ☐ 3931-3945 Days ☐ 3946-3960 Days ☐ 3961-3975 Days ☐ 3976-3990 Days ☐ 3991-4005 Days ☐ 4006-4020 Days ☐ 4021-4035 Days ☐ 4036-4050 Days ☐ 4051-4065 Days ☐ 4066-4080 Days ☐ 4081-4095 Days ☐ 4096-4110 Days ☐ 4111-4125 Days ☐ 4126-4140 Days ☐ 4141-4155 Days ☐ 4156-4170 Days ☐ 4171-4185 Days ☐ 4186-4200 Days ☐ 4201-4215 Days ☐ 4216-4230 Days ☐ 4231-4245 Days ☐ 4246-4260 Days ☐ 4261-4275 Days ☐ 4276-4290 Days ☐ 4291-4305 Days ☐ 4306-4320 Days ☐ 4321-4335 Days ☐ 4336-4350 Days ☐ 4351-4365 Days ☐ 4366-4380 Days ☐ 4381-4395 Days ☐ 4396-4410 Days ☐ 4411-4425 Days ☐ 4426-4440 Days ☐ 4441-4455 Days ☐ 4456-4470 Days ☐ 4471-4485 Days ☐ 4486-4500 Days ☐ 4501-4515 Days ☐ 4516-4530 Days ☐ 4531-4545 Days ☐ 4546-4560 Days ☐ 4561-4575 Days ☐ 4576-4590 Days ☐ 4591-4605 Days ☐ 4606-4620 Days ☐ 4621-4635 Days ☐ 4636-4650 Days ☐ 4651-4665 Days ☐ 4666-4680 Days ☐ 4681-4695 Days ☐ 4696-4710 Days ☐ 4711-4725 Days ☐ 4726-4740 Days ☐ 4741-4755 Days ☐ 4756-4770 Days ☐ 4771-4785 Days ☐ 4786-4800 Days ☐ 4801-4815 Days ☐ 4816-4830 Days ☐ 4831-4845 Days ☐ 4846-4860 Days ☐ 4861-4875 Days ☐ 4876-4890 Days ☐ 4891-4905 Days ☐ 4906-4920 Days ☐ 4921-4935 Days ☐ 4936-4950 Days ☐ 4951-4965 Days ☐ 4966-4980 Days ☐ 4981-4995 Days ☐ 4996-5010 Days ☐ 5011-5025 Days ☐ 5026-5040 Days ☐ 5041-5055 Days ☐ 5056-5070 Days ☐ 5071-5085 Days ☐ 5086-5100 Days ☐ 5101-5115 Days ☐ 5116-5130 Days ☐ 5131-5145 Days ☐ 5146-5160 Days ☐ 5161-5175 Days ☐ 5176-5190 Days ☐ 5191-5205 Days ☐ 5206-5220 Days ☐ 5221-5235 Days ☐ 5236-5250 Days ☐ 5251-5265 Days ☐ 5266-5280 Days ☐ 5281-5295 Days ☐ 5296-5310 Days ☐ 5311-5325 Days ☐ 5326-5340 Days ☐ 5341-5355 Days ☐ 5356-5370 Days ☐ 5371-5385 Days ☐ 5386-5400 Days ☐ 5401-5415 Days ☐ 5416-5430 Days ☐ 5431-5445 Days ☐ 5446-5460 Days ☐ 5461-5475 Days ☐ 5476-5490 Days ☐ 5491-5505 Days ☐ 5506-5520 Days ☐ 5521-5535 Days ☐ 5536-5550 Days ☐ 5551-5565 Days ☐ 5566-5580 Days ☐ 5581-5595 Days ☐ 5596-5610 Days ☐ 5611-5625 Days ☐ 5626-5640 Days ☐ 5641-5655 Days ☐ 5656-5670 Days ☐ 5671-5685 Days ☐ 5686-5700 Days ☐ 5701-5715 Days ☐ 5716-5730 Days ☐ 5731-5745 Days ☐ 5746-5760 Days ☐ 5761-5775 Days ☐ 5776-5790 Days ☐ 5791-5805 Days ☐ 5806-5820 Days ☐ 5821-5835 Days ☐ 5836-5850 Days ☐ 5851-5865 Days ☐ 5866-5880 Days ☐ 5881-5895 Days ☐ 5896-5910 Days ☐ 5911-5925 Days ☐ 5926-5940 Days ☐ 5941-5955 Days ☐ 5956-5970 Days ☐ 5971-5985 Days ☐ 5986-6000 Days ☐ 6001-6015 Days ☐ 6016-6030 Days ☐ 6031-6045 Days ☐ 6046-6060 Days ☐ 6061-6075 Days ☐ 6076-6090 Days ☐ 6091-6105 Days ☐ 6106-6120 Days ☐ 6121-6135 Days ☐ 6136-6150 Days ☐ 6151-6165 Days ☐ 6166-6180 Days ☐ 6181-6195 Days ☐ 6196-6210 Days ☐ 6211-6225 Days ☐ 6226-6240 Days ☐ 6241-6255 Days ☐ 6256-6270 Days ☐ 6271-6285 Days ☐ 6286-6300 Days ☐ 6301-6315 Days ☐ 6316-6330 Days ☐ 6331-6345 Days ☐ 6346-6360 Days ☐ 6361-6375 Days ☐ 6376-6390 Days ☐ 6391-6405 Days ☐ 6406-6420 Days ☐ 6421-6435 Days ☐ 6436-6450 Days ☐ 6451-6465 Days ☐ 6466-6480 Days ☐ 6481-6495 Days ☐ 6496-6510 Days ☐ 6511-6525 Days ☐ 6526-6540 Days ☐ 6541-6555 Days ☐ 6556-6570 Days ☐ 6571-6585 Days ☐ 6586-6600 Days ☐ 6601-6615 Days ☐ 6616-6630 Days ☐ 6631-6645 Days ☐ 6646-6660 Days ☐ 6661-6675 Days ☐ 6676-6690 Days ☐ 6691-6705 Days ☐ 6706-6720 Days ☐ 6721-6735 Days ☐ 6736-6750 Days ☐ 6751-6765 Days ☐ 6766-6780 Days ☐ 6781-6795 Days ☐ 6796-6810 Days ☐ 6811-6825 Days ☐ 6826-6840 Days ☐ 6841-6855 Days ☐ 6856-6870 Days ☐ 6871-6885 Days ☐ 6886-6900 Days ☐ 6901-6915 Days ☐ 6916-6930 Days ☐ 6931-6945 Days ☐ 6946-6960 Days ☐ 6961-6975 Days ☐ 6976-6990 Days ☐ 6991-7005 Days ☐ 7006-7020 Days ☐ 7021-7035 Days ☐ 7036-7050 Days ☐ 7051-7065 Days ☐ 7066-7080 Days ☐ 7081-7095 Days ☐ 7096-7110 Days ☐ 7111-7125 Days ☐ 7126-7140 Days ☐ 7141-7155 Days ☐ 7156-7170 Days ☐ 7171-7185 Days ☐ 7186-7200 Days ☐ 7201-7215 Days ☐ 7216-7230 Days ☐ 7231-7245 Days ☐ 7246-7260 Days ☐ 7261-7275 Days ☐ 7276-7290 Days ☐ 7291-7305 Days ☐ 7306-7320 Days ☐ 7321-7335 Days ☐ 7336-7350 Days ☐ 7351-7365 Days ☐ 7366-7380 Days ☐ 7381-7395 Days ☐ 7396-7410 Days ☐ 7411-7425 Days ☐ 7426-7440 Days ☐ 7441-7455 Days ☐ 7456-7470 Days ☐ 7471-7485 Days ☐ 7486-7500 Days ☐ 7501-7515 Days ☐ 7516-7530 Days ☐ 7531-7545 Days ☐ 7546-7560 Days ☐ 7561-7575 Days ☐ 7576-7590 Days ☐ 7591-7605 Days ☐ 7606-7620 Days ☐ 7621-7635 Days ☐ 7636-7650 Days ☐ 7651-7665 Days ☐ 7666-7680 Days ☐ 7681-7695 Days ☐ 7696-7710 Days ☐ 7711-7725 Days ☐ 7726-7740 Days ☐ 7741-7755 Days ☐ 7756-7770 Days ☐ 7771-7785 Days ☐ 7786-7800 Days ☐ 7801-7815 Days ☐ 7816-7830 Days ☐ 7831-7845 Days ☐ 7846-7860 Days ☐ 7861-7875 Days ☐ 7876-7890 Days ☐ 7891-7905 Days ☐ 7906-7920 Days ☐ 7921-7935 Days ☐ 7936-7950 Days ☐ 7951-7965 Days ☐ 7966-7980 Days ☐ 7981-7995 Days ☐ 7996-8010 Days ☐ 8011-8025 Days ☐ 8026-8040 Days ☐ 8041-8055 Days ☐ 8056-8070 Days ☐ 8071-8085 Days ☐ 8086-8100 Days ☐ 8101-8115 Days ☐ 8116-8130 Days ☐ 8131-8145 Days ☐ 8146-8160 Days ☐ 8161-8175 Days ☐ 8176-8190 Days ☐ 8191-8205 Days ☐ 8206-8220 Days ☐ 8221-8235 Days ☐ 8236-8250 Days ☐ 8251-8265 Days ☐ 8266-8280 Days ☐ 8281-8295 Days ☐ 8296-8310 Days ☐ 8311-8325 Days ☐ 8326-8340 Days ☐ 8341-8355 Days ☐ 8356-8370 Days ☐ 8371-8385 Days ☐ 8386-8400 Days ☐ 8401-8415 Days ☐ 8416-8430 Days ☐ 8431-8445 Days ☐ 8446-8460 Days ☐ 8461-8475 Days ☐ 8476-8490 Days ☐ 8491-8505 Days ☐ 8506-8520 Days ☐ 8521-8535 Days ☐ 8536-8550 Days ☐ 8551-8565 Days ☐ 8566-8580 Days ☐ 8581-8595 Days ☐ 8596-8610 Days ☐ 8611-8625 Days ☐ 8626-8640 Days ☐ 8641-8655 Days ☐ 8656-8670 Days ☐ 8671-8685 Days ☐ 8686-8700 Days ☐ 8701-8715 Days ☐ 8716-8730 Days ☐ 8731-8745 Days ☐ 8746-8760 Days ☐ 8761-8775 Days ☐ 8776-8790 Days ☐ 8791-8805 Days ☐ 8806-8820 Days ☐ 8821-8835 Days ☐ 8836-8850 Days ☐ 8851-8865 Days ☐ 8866-8880 Days ☐ 8881-8895 Days ☐ 8896-8910 Days ☐ 8911-8925 Days ☐ 8926-8940 Days ☐ 8941-8955 Days ☐ 8956-8970 Days ☐ 8971-8985 Days ☐ 8986-9000 Days ☐ 9001-9015 Days ☐ 9016-9030 Days ☐ 9031-9045 Days ☐ 9046-9060 Days ☐ 9061-9075 Days ☐ 9076-9090 Days ☐ 9091-9105 Days ☐ 9106-9120 Days ☐ 9121-9135 Days ☐ 9136-9150 Days ☐ 9151-9165 Days ☐ 9166-9180 Days ☐ 9181-9195 Days ☐ 9196-9210 Days ☐ 9211-9225 Days ☐ 9226-9240 Days ☐ 9241-9255 Days ☐ 9256-9270 Days ☐ 9271-9285 Days ☐ 9286-9300 Days ☐ 9301-9315 Days ☐ 9316-9330 Days ☐ 9331-9345 Days ☐ 9346-9360 Days ☐ 9361-9375 Days ☐ 9376-9390 Days ☐ 9391-9405 Days ☐ 9406-9420 Days ☐ 9421-9435 Days ☐ 9436-9450 Days ☐ 9451-9465 Days ☐ 9466-9480 Days ☐ 948			

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Environmental

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 19-Nov-10 09:10

Work Order: 1011768

Received by: RNG

Checklist completed by *Joe Credeur*
eSignature

19-Nov-10
Date

Reviewed by: *Lynne F. Thibault*
eSignature

21-Nov-10
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☒	No ☐	Not Present ☐
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	

Temperature(s)/Thermometer(s):

1.2 002

Cooler(s)/Kit(s):

3706

Water - VOA vials have zero headspace? Yes ☒ No ☐ No VOA vials submitted ☐

Water - pH acceptable upon receipt? Yes ☒ No ☐ N/A ☐

pH adjusted? Yes ☐ No ☐ N/A ☒

pH adjusted by: -

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

Corrective Action:

Client: ALS Environmental
Project: 1011768
Work Order: 1011690

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1011690-01	1011768-01D	Water		11/18/2010 13:45	11/30/2010 10:00	☐

Client: ALS Environmental
Project: 1011768
WorkOrder: 1011690

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Group USA, Corp

Date: 03-Dec-10

Client: ALS Environmental

Project: 1011768

Work Order: 1011690

Sample ID: 1011768-01D

Lab ID: 1011690-01

Collection Date: 11/18/2010 01:45 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	ND		40.0	mg/Kg	1	12/2/2010 12:00 PM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	ND		40.0	mg/Kg	1	12/2/2010 12:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 03-Dec-10

Client: ALS Environmental
Work Order: 1011690
Project: 1011768

QC BATCH REPORT

Batch ID: R84400 Instrument ID WETCHEM Method: SW7.3.4.2

MBLK Sample ID: WBLKW1-120210-R84400 Units: mg/Kg Analysis Date: 12/2/2010 12:00 PM

Client ID: Run ID: WETCHEM_101202A SeqNo: 1496062 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1011690-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Environmental
Work Order: 1011690
Project: 1011768

QC BATCH REPORT

Batch ID: R84401 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK Sample ID: WBLKW1-120210-R84401 Units: mg/Kg Analysis Date: 12/2/2010 12:00 PM

Client ID: Run ID: WETCHEM_101202B SeqNo: 1496063 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: WLCSW1-120210-R84401 Units: mg/Kg Analysis Date: 12/2/2010 12:00 PM

Client ID: Run ID: WETCHEM_101202B SeqNo: 1496064 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	0			

LCSD Sample ID: WLCSDW1-120210-R84401 Units: mg/Kg Analysis Date: 12/2/2010 12:00 PM

Client ID: Run ID: WETCHEM_101202B SeqNo: 1496072 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	234.9	6.06	35	

MS Sample ID: 1011690-01A MS Units: mg/Kg Analysis Date: 12/2/2010 12:00 PM

Client ID: 1011768-01D Run ID: WETCHEM_101202B SeqNo: 1496068 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	0			

MSD Sample ID: 1011690-01A MSD Units: mg/Kg Analysis Date: 12/2/2010 12:00 PM

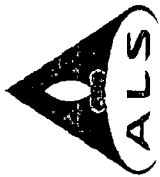
Client ID: 1011768-01D Run ID: WETCHEM_101202B SeqNo: 1496069 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	50-150	234.9	6.45	35	

The following samples were analyzed in this batch:

1011690-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 23-Nov-10
COC ID: 9726
Due Date 03-Dec-10

Customer Information		Project Information		Parameter/Method Request for Analysis												
Purchase Order	10-2119680	Project Name	1011768	A	Reactive Cyanide (SW-846)											
Work Order		Project Number		B	Reactive Sulfide (SW-846)											
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C												
Send Report To	JayLynn F Thibault	Inv Attn	Accounts Payable	D												
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210	E												
				F												
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G												
Phone	(281) 530-5636	Phone	(281) 530-5656	H												
Fax	(281) 530-5887	Fax	(281) 530-5887	I												
eMail Address	jaylynn.thibault@alsenviro.com	eMail CC	mary.knowles@alsglobal.com	J												
Sample ID		Matrix	Collection Date 24hr	Bottle	A	B	C	D	E	F	G	H	I	J		
1011768-01D (Effluent)		Water	18/Nov/2010 13:45	(2) 1LPNEAT	X	X										

Comments:

Please analyze for Reactive Cyanide and Reactive Sulfide. Report is due on 12/3/10. Send report to Jaylynn Thibault, jaylynn.thibault@alsglobal.com, and CC: results to Glenda Ramos, glenda.ramos@alsglobal.com and Mary Knowles, mary.knowles@alsglobal.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
	11/23/10 - Fedex		11/30/10 1000		Std
Relinquished by:	Date/Time	Received by:	Date/Time		

4.6 c

mc

ALS Group USA, Corp

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 30-Nov-10 10:00

Work Order: 1011690

Received by: DS

Checklist completed by Diane Shaw
eSignature

30-Nov-10
Date

Reviewed by: Bill Curry
eSignature

02-Dec-10
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>4.6 c</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

BILL SENDER

505C1/BCDA/DA47

Pad # 156148-434 NRIT V3 12-09

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, December 02, 2010 8:10 AM
To: 'Strange, Aaron'
Cc: 'Whatley, Michael'
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Aaron:

Analysis indicates that the effluent is not characteristically hazardous waste based on "Ignitability" analysis. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Strange, Aaron [<mailto:aaron.strange@hollycorp.com>]
Sent: Friday, November 12, 2010 1:08 PM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; Moore, Darrell
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Hello Carl,

Attached is the sample result that you requested in the email below.

Thank you,
Aaron

Aaron Strange
Environmental Technician, Senior
Off: (575) 746-5468
Cell: (575) 703-5057

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Tuesday, November 09, 2010 2:51 PM
To: Chavez, Carl J, EMNRD; Strange, Aaron
Cc: Whatley, Michael; Lackey, Johnny; VonGonten, Glenn, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Aaron:

Good afternoon.

I received the revised package today on the revised subject reports and it appears that the "Ignitability" sample and test was missed.

Please resample for "Ignitability" immediately and send the results to the OCD. Please have the lab notify the Navajo Refining Company immediately if the test is positive. Also, OCD should be notified immediately in this case.

Chavez, Carl J, EMNRD

From: Strange, Aaron [aaron.strange@hollycorp.com]
Sent: Friday, November 12, 2010 1:08 PM
To: Chavez, Carl J, EMNRD
Cc: Lackey, Johnny; Moore, Darrell
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports
Attachments: 1011354 Injection Well Quarterly Final.pdf

Hello Carl,

Attached is the sample result that you requested in the email below.

Thank you,
Aaron

Aaron Strange
Environmental Technician, Senior
Off: (575) 746-5468
Cell: (575) 703-5057

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, November 09, 2010 2:51 PM
To: Chavez, Carl J, EMNRD; Strange, Aaron
Cc: Whatley, Michael; Lackey, Johnny; VonGonten, Glenn, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Aaron:

Good afternoon.

I received the revised package today on the revised subject reports and it appears that the "Ignitability" sample and test was missed.

Please resample for "Ignitability" immediately and send the results to the OCD. Please have the lab notify the Navajo Refining Company immediately if the test is positive. Also, OCD should be notified immediately in this case.

In the future, any incomplete sampling and testing requires immediate resampling. In this case that the effluent sent to the UIC Class I (NH) Disposal Wells in NOT characteristically hazardous.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Friday, November 05, 2010 4:52 PM
To: 'Strange, Aaron'

Cc: Whatley, Michael; Lackey, Johnny
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Strange, Aaron [mailto:aaron.strange@hollycorp.com]
Sent: Friday, November 05, 2010 4:47 PM
To: Chavez, Carl J, EMNRD
Cc: Whatley, Michael; Lackey, Johnny
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Hello Carl,

Please see the attached revised report. The hard copy will be mailed out to you on Monday.

Thank you,
Aaron

Aaron Strange
Environmental Technician, Senior
Off: (575) 746-5468
Cell: (575) 703-5057

From: Strange, Aaron
Sent: Wednesday, November 03, 2010 2:28 PM
To: 'Chavez, Carl J, EMNRD'
Cc: Whatley, Michael; Lackey, Johnny
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

I have been speaking to the lab (ALS) about this report. They will be sending me a revised report tomorrow with a written response as to how the ignitability was missed and to confirm that the 'ND' in their report is equivalent to 'Negative'. I will send you the complete report after I receive the written response from ALS.

Thank you,
Aaron

Aaron Strange
Environmental Technician, Senior
Off: (575) 746-5468
Cell: (575) 703-5057

From: Whatley, Michael
Sent: Wednesday, November 03, 2010 2:01 PM

To: Lackey, Johnny; Strange, Aaron
Subject: FW: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Please see the trail below and let's be sure to get all of Carl's questions answered – thanks.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Wednesday, November 03, 2010 2:19 PM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Please let me know if the ignitability was found to be positive....

We'll look for it. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Wednesday, November 03, 2010 1:27 PM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

The Environmental staff is still working with ALS but I have received a couple updates so far. Apparently, the Ignitability parameter was missed. Also, ALS will update the report to show 'Negative' in place of 'ND'. We've asked them to provide a written response as to how the ignitability was missed and to confirm that the 'ND' in their report is equivalent to 'Negative'. In addition, we have added your latest request. We will forward the complete report and the ALS written responses as soon as we receive them.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Wednesday, November 03, 2010 11:09 AM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Please double check with your lab on its methods for characteristically hazardous reporting and see if you could send OCD the complete report based on the message below for our file.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Wednesday, November 03, 2010 10:19 AM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

Thank you for bringing this to our attention. I have forwarded to our Environmental staff for clarification and expect to be able to address your questions shortly.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Tuesday, November 02, 2010 9:55 AM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

In looking over the analytical data, I don't see a Ignitability parameter. Did this get missed? I see it on the Chain-of-Custody, but don't see the analytical result.

Also, for Characteristically Hazardous parameters: Reactivity: Cyanide and Sulfide and 40 mg/kg limit. I'm used to seeing a "Negative" designation by laboratories whenever there is no reactivity, but not soil media units. Please see below standard reporting.

IGNITABILITY: Negative

CORROSIVITY: Negative

pH = 6.37

REACTIVITY: Negative

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Sub (i.e. Sample ignition upon direct contact with flame or fi
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Sul (i.e. pH less than or equal to 2.0 or pH greater than or
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Sub (i.e. Violent reaction with water, strong base, strong ac of Sulfide or Cyanide gases at STP with pH betwe

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23,

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [mailto:Michael.Whatley@hollycorp.com]
Sent: Tuesday, November 02, 2010 8:48 AM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

Thank you for the confirmation. Please let us know if you have any questions or need additional information.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, November 02, 2010 6:15 AM
To: Whatley, Michael
Subject: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Good morning.

Received above subject reports. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

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10-Nov-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-3311
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1011354**

Dear Aaron,

ALS Environmental received 1 sample on 10-Nov-2010 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 7.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10150 Standish Rd, Suite 210 Houston, Texas 77069-4338 | PHONE (281) 530-5057 | FAX (281) 530-5887

COMPANY CONTACT INFORMATION: (575) 748-3311 (575) 746-5421 (575) 748-3311

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNERS

ALS Environmental

Date: 10-Nov-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1011354

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1011354-01	Injection Well	Water		11/9/2010 15:10	11/10/2010 09:00	☐

ALS Environmental

Date: 10-Nov-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1011354

Sample ID: Injection Well

Lab ID: 1011354-01

Collection Date: 11/9/2010 03:10 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
IGNITIBILITY			SW1010			Analyst: JLC
Ignitability	> 212		50.0	°F	1	11/10/2010 11:00 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 10-Nov-10

Client: Navajo Refining Company
Work Order: 1011354
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R100582** Instrument ID **WetChem** Method: **SW1010**

DUP Sample ID: **10101128-01ADUP** Units: **°F** Analysis Date: **11/10/2010 11:00 A**

Client ID: Run ID: **WETCHEM_101110A** SeqNo: **2165676** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	83	0	25	

The following samples were analyzed in this batch:

1011354-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1011354

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DCS	Detectability Check Study
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees

ALS Environmental

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **10-Nov-10 09:00**

Work Order: **1011354**

Received by: **LOT**

Checklist completed by David Hightower 10-Nov-10
eSignature Date

Reviewed by: Jay Lynn F Thibault 10-Nov-10
eSignature Date

Matrices: **water**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>0.7c</u> <u>002</u>		
Cooler(s)/Kit(s):	<u>3455</u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u></u>		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, November 09, 2010 2:51 PM
To: Chavez, Carl J, EMNRD; 'Strange, Aaron'
Cc: 'Whatley, Michael'; 'Lackey, Johnny'; VonGonten, Glenn, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Aaron:

Good afternoon.

I received the revised package today on the revised subject reports and it appears that the "Ignitability" sample and test was missed.

Please resample for "Ignitability" immediately and send the results to the OCD. Please have the lab notify the Navajo Refining Company immediately if the test is positive. Also, OCD should be notified immediately in this case.

In the future, any incomplete sampling and testing requires immediate resampling. In this case that the effluent sent to the UIC Class I (NH) Disposal Wells is NOT characteristically hazardous.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Chavez, Carl J, EMNRD
Sent: Friday, November 05, 2010 4:52 PM
To: 'Strange, Aaron'
Cc: Whatley, Michael; Lackey, Johnny
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/oed/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Strange, Aaron [<mailto:aaron.strange@hollycorp.com>]
Sent: Friday, November 05, 2010 4:47 PM
To: Chavez, Carl J, EMNRD
Cc: Whatley, Michael; Lackey, Johnny
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Hello Carl,

Please see the attached revised report. The hard copy will be mailed out to you on Monday.

Thank you,
Aaron

Aaron Strange
Environmental Technician, Senior

Off: (575) 746-5468

Cell: (575) 703-5057

From: Strange, Aaron
Sent: Wednesday, November 03, 2010 2:28 PM
To: 'Chavez, Carl J, EMNRD'
Cc: Whatley, Michael; Lackey, Johnny
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

I have been speaking to the lab (ALS) about this report. They will be sending me a revised report tomorrow with a written response as to how the ignitability was missed and to confirm that the 'ND' in their report is equivalent to 'Negative'. I will send you the complete report after I receive the written response from ALS.

Thank you,
Aaron

Aaron Strange
Environmental Technician, Senior

Off: (575) 746-5468

Cell: (575) 703-5057

From: Whatley, Michael
Sent: Wednesday, November 03, 2010 2:01 PM
To: Lackey, Johnny; Strange, Aaron
Subject: FW: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Please see the trail below and let's be sure to get all of Carl's questions answered – thanks.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, November 03, 2010 2:19 PM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Please let me know if the ignitability was found to be positive....

We'll look for it. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Wednesday, November 03, 2010 1:27 PM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

The Environmental staff is still working with ALS but I have received a couple updates so far. Apparently, the Ignitibility parameter was missed. Also, ALS will update the report to show 'Negative' in place of 'ND'. We've asked them to provide a written response as to how the ignitibility was missed and to confirm that the 'ND' in their report is equivalent to 'Negative'. In addition, we have added your latest request. We will forward the complete report and the ALS written responses as soon as we receive them.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Wednesday, November 03, 2010 11:09 AM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Please double check with your lab on its methods for characteristically hazardous reporting and see if you could send OCD the complete report based on the message below for our file.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Wednesday, November 03, 2010 10:19 AM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

Thank you for bringing this to our attention. I have forwarded to our Environmental staff for clarification and expect to be able to address your questions shortly.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, November 02, 2010 9:55 AM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

In looking over the analytical data, I don't see a Ignitability parameter. Did this get missed? I see it on the Chain-of-Custody, but don't see the analytical result.

Also, for Characteristically Hazardous parameters: Reactivity: Cyanide and Sulfide and 40 mg/kg limit. I'm used to seeing a "Negative" designation by laboratories whenever there is no reactivity, but not soil media units. Please see below standard reporting.

IGNITABILITY: Negative

CORROSIVITY: Negative pH = 6.37

REACTIVITY: Negative

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Sub (i.e. <i>Sample ignition upon direct contact with flame or f</i>
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Sul (i.e. <i>pH less than or equal to 2.0 or pH greater than or</i>
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Sub (i.e. <i>Violent reaction with water, strong base, strong ac of Sulfide or Cyanide gases at STP with pH betwe</i>
Reference:	40 CFR part 261 Subpart C sections 261.21 - 261.23,

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [mailto:Michael.Whatley@hollycorp.com]
Sent: Tuesday, November 02, 2010 8:48 AM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

Thank you for the confirmation. Please let us know if you have any questions or need additional information.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, November 02, 2010 6:15 AM
To: Whatley, Michael
Subject: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Good morning.

Received above subject reports. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

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REFINING COMPANY, LLC

FAX

(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

November 5, 2010

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RECEIVED OGD
2010 NOV - 9 P 2:01

RE: Revision of 2010 Third Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

On behalf of Navajo Refining Company, LLC (Navajo), I am submitting a revision of the 2010 Third Quarterly Injection Report. As requested in your emails from November 2nd and 3rd 2010, I have attached the revised copy of the sampling results for the third quarter of 2010. You will see in the Case Narrative that the lab (ALS) has written an explanation of the missing results for ignitability, and that any negative results for Reactive Cyanide and Reactive Sulfide will now be reported as NEG (negative) instead of ND (non-detect). This revision also includes a copy of the original letter and the original spread sheet showing the various volumes and pressures at the wells.

If you have any questions, please contact me at the above address or by phone at 575-748-3311.

Respectfully,

NAVAJO REFINING COMPANY

Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)



REFINING COMPANY, LLC

FAX

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(575) 746-5421 ENGINEERING

October 29, 2010

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

RE: 2010 Third Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.

Dear Mr. Chavez,

Enclosed, please find the sampling results for the third quarter of 2010 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and have found no change in the levels at each well during this quarter. We are closely monitoring the fluid level for these wells. A Mechanical Integrity Test (MIT) on WDW-1 and WDW-2 was last done in August 2010 and a quarterly MIT for WDW-3 was last done at the end September 2010. All of the wells passed. The quarterly MIT on WDW-3 is per your email of December 9, 2009 to Darrell Moore. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table.

During the month of September 2010 Navajo experienced intermittent data readings from the Mewbourne Well (WDW-1). The intermittent readings made it difficult to find the problem. Navajo investigated and replaced several parts; however, lightning struck the power pole before the problem was found. The lightning burnt several fuses and wiring. The wiring and fuses were replaced and the system has since been working correctly. These problems caused us to have very limited data readings on WDW-1 for the month of September.

You will also notice that the minimum annular pressure for the Gains Well (WDW-3) appears to be reading low in September. Navajo investigated but found no cause for the low reading. The low reading was from September 30th to October 1st 2010. Since then, the annular pressure in WDW-3 has returned to normal operating pressures.

This report covers the period from July 1, 2010 to September 30, 2010. We have disposed a total of 50,672,081 barrels of fluid into the three wells as of September 30, 2009. The volume per well is:

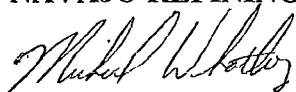
RECEIVED OOD
2010-10-29 P 2:01

- 28,889,783 barrels into WDW-1
- 15,450,315 barrels into WDW-2
- 6,331,983 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

NAVAJO REFINING COMPANY



Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)

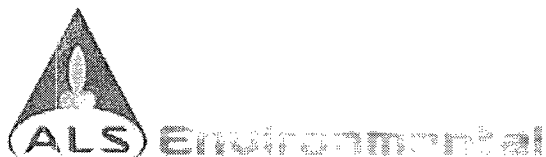
2010 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1														
Jul-10	615	765	367	129	136	98	349	585	182	4,412	4,668	3,348	136,768	28,481,528
Aug-10	644	766	352	130	133	125	313	376	255	4,442	4,554	4,293	137,695	28,618,296
Sep-10	691	691	691	130	130	130	425	425	425	4,460	4,460	4,460	133,791	28,755,991
WDW-2														
Jul-10	647	679	401	138	143	116	570	744	159	4,719	4,886	3,960	146,279	15,013,110
Aug-10	688	709	661	140	141	138	387	608	182	4,785	4,824	4,736	148,339	15,159,388
Sep-10	684	795	469	139	150	118	349	727	197	4,753	5,153	4,060	142,588	15,307,727
WDW-3														
Jul-10	657	705	366	179	189	159	323	460	104	6,126	6,490	5,464	189,917	15,450,315
Aug-10	694	712	678	179	182	174	304	412	194	6,144	6,253	5,953	190,453	5,766,994
Sep-10	663	727	279	179	189	168	284	427	9	6,154	6,497	5,764	184,619	5,956,911
													Total Injected fluids:	
													50,672,081	

2010 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/10	7/12/10	7/19/10	7/26/10	8/3/10	8/9/10	8/16/10	8/24/10	8/30/10	9/7/10	9/13/10	9/20/10	9/27/10
WDW -1 ¹	155	155	155	155	155	155	155	155	155	155	155	155	155
WDW-2 ¹	155	155	155	155	155	155	155	155	155	155	155	155	155
WDW-3 ¹	150	150	150	150	150	150	150	150	150	150	150	150	150
Comments: Added antifreeze to WDW-3 on 04/15/2010.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



25-Aug-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1008405**

Dear Aaron,

ALS Environmental received 1 sample on 12-Aug-2010 08:16 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 39.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

A handwritten signature in cursive script that reads "JayLynn F Thibault".

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1008405

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1008405-01	Inj Well	Water		8/11/2010 12:40	8/12/2010 08:16	☐

ALS Environmental

Date: 03-Nov-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1008405

Case Narrative

The RCI profile consists of Reactive Sulfide, Reactive Cyanide, pH (corrositivity) and Ignitability. All parameters were analyzed except for Ignitability which was due to an oversight on our part. Ignitability could not be analyzed due to the disposal of the sample prior to the time incident was found.

Reactive Cyanide and Reactive Sulfide was originally reported as ND (non-detect). Per request the result was changed to reflect a 'Neg' (Negative) result.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1008405

Case Narrative

Batch 45294 Metals (sample 1008401-15) MS/MSD unrelated sample.

Batch R96065 Volatiles (sample 1008613-30) MS/MSD unrelated sample.

Batch R965869 Chloride (sample 1008508-01) MS unrelated sample.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1008405

Sample ID: Inj Well

Lab ID: 1008405-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470		Prep Date: 8/19/2010	Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	8/19/2010 03:13 PM
METALS			SW6020		Prep Date: 8/13/2010	Analyst: ALR
Aluminum	0.158		0.0500	mg/L	5	8/14/2010 11:59 AM
Arsenic	0.0393		0.00500	mg/L	1	8/14/2010 05:12 AM
Barium	0.0218		0.00500	mg/L	1	8/14/2010 05:12 AM
Beryllium	ND		0.00200	mg/L	1	8/14/2010 05:12 AM
Boron	0.145		0.0200	mg/L	1	8/14/2010 05:12 AM
Cadmium	ND		0.00200	mg/L	1	8/14/2010 05:12 AM
Calcium	127		0.500	mg/L	1	8/14/2010 05:12 AM
Chromium	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Cobalt	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Copper	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Iron	0.387		0.200	mg/L	1	8/14/2010 05:12 AM
Lead	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Magnesium	39.0		0.200	mg/L	1	8/14/2010 05:12 AM
Manganese	0.0706		0.00500	mg/L	1	8/14/2010 05:12 AM
Molybdenum	0.120		0.00500	mg/L	1	8/14/2010 05:12 AM
Nickel	0.0106		0.00500	mg/L	1	8/14/2010 05:12 AM
Potassium	50.7		0.200	mg/L	1	8/14/2010 05:12 AM
Selenium	0.292		0.00500	mg/L	1	8/14/2010 05:12 AM
Silver	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Sodium	683		1.00	mg/L	5	8/14/2010 11:59 AM
Vanadium	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Zinc	1.30		0.00500	mg/L	1	8/14/2010 05:12 AM
SEMIVOLATILES			SW8270		Prep Date: 8/13/2010	Analyst: KMB
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Acenaphthene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1008405

Sample ID: Inj Well

Lab ID: 1008405-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Anthracene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Benzidine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Isophorone	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Naphthalene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Phenanthrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Phenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Pyrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Surr: 2,4,6-Tribromophenol	75.6		42-124	%REC	1	8/16/2010 03:00 PM
Surr: 2-Fluorobiphenyl	69.7		48-120	%REC	1	8/16/2010 03:00 PM
Surr: 2-Fluorophenol	53.7		20-120	%REC	1	8/16/2010 03:00 PM
Surr: 4-Terphenyl-d14	63.3		51-135	%REC	1	8/16/2010 03:00 PM
Surr: Nitrobenzene-d5	66.8		41-120	%REC	1	8/16/2010 03:00 PM
Surr: Phenol-d6	54.8		20-120	%REC	1	8/16/2010 03:00 PM
VOLATILES			SW8260			Analyst: PC
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
2-Butanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	8/22/2010 02:58 PM
2-Hexanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Acetone	0.016		0.010	mg/L	1	8/22/2010 02:58 PM
Benzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromodichloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromoform	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromomethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Carbon disulfide	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	8/22/2010 02:58 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1008405

Sample ID: Inj Well

Lab ID: 1008405-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloroform	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Dibromochloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Ethylbenzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
m,p-Xylene	0.011		0.010	mg/L	1	8/22/2010 02:58 PM
Methylene chloride	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Styrene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Tetrachloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Toluene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Trichloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Vinyl acetate	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Vinyl chloride	ND		0.0020	mg/L	1	8/22/2010 02:58 PM
Xylenes, Total	ND		0.015	mg/L	1	8/22/2010 02:58 PM
Surr: 1,2-Dichloroethane-d4	105		70-125	%REC	1	8/22/2010 02:58 PM
Surr: 4-Bromofluorobenzene	104		72-125	%REC	1	8/22/2010 02:58 PM
Surr: Dibromofluoromethane	106		71-125	%REC	1	8/22/2010 02:58 PM
Surr: Toluene-d8	112		75-125	%REC	1	8/22/2010 02:58 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	Neg		40.0	mg/Kg	1	8/19/2010 12:30 PM
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	Neg		40.0	mg/Kg	1	8/19/2010 12:30 PM
ANIONS			E300			Analyst: DM
Chloride	195		5.00	mg/L	10	8/18/2010 04:42 PM
Sulfate	1,580		50.0	mg/L	100	8/18/2010 04:57 PM
Surr: Selenate (surr)	104		85-115	%REC	1	8/12/2010 06:26 PM
Surr: Selenate (surr)	93.9		85-115	%REC	100	8/18/2010 04:57 PM
Surr: Selenate (surr)	98.2		85-115	%REC	10	8/18/2010 04:42 PM
ALKALINITY			SM2320B			Analyst: TDW
Alkalinity, Bicarbonate (As CaCO3)	219		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Total (As CaCO3)	219		5.00	mg/L	1	8/24/2010 02:00 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: TDW
Specific Conductivity	3,860		1.00	µmhos/cm	1	8/19/2010 01:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1008405

Sample ID: Inj Well

Lab ID: 1008405-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			SM4500H+ B			Analyst: JLC
pH	7.12	H	0.100	pH units	1	8/12/2010
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: JLC
Total Dissolved Solids (Residue, Filterable)	7,080		10.0	mg/L	1	8/12/2010

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW3-081310-45294 Units: mg/L Analysis Date: 8/14/2010 11:22 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061716 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004821	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	0.005306	0.050								J
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.002978	0.0050								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW3-081310-45294 Units: mg/L Analysis Date: 8/14/2010 03:22 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061644 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09599	0.010	0.1	0	96	80-120	0			
Arsenic	0.04807	0.0050	0.05	0	96.1	80-120	0			
Barium	0.04977	0.0050	0.05	0	99.5	80-120	0			
Beryllium	0.04866	0.0020	0.05	0	97.3	80-120	0			
Boron	0.4518	0.050	0.5	0	90.4	80-120	0			
Cadmium	0.04928	0.0020	0.05	0	98.6	80-120	0			
Calcium	4.877	0.50	5	0	97.5	80-120	0			
Chromium	0.04784	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.04874	0.0050	0.05	0	97.5	80-120	0			
Copper	0.04897	0.0050	0.05	0	97.9	80-120	0			
Iron	4.755	0.20	5	0	95.1	80-120	0			
Lead	0.04831	0.0050	0.05	0	96.6	80-120	0			
Magnesium	4.848	0.20	5	0	97	80-120	0			
Manganese	0.04823	0.0050	0.05	0	96.5	80-120	0			
Molybdenum	0.0471	0.0050	0.05	0	94.2	80-120	0			
Nickel	0.05004	0.0050	0.05	0	100	80-120	0			
Potassium	4.742	0.20	5	0	94.8	80-120	0			
Selenium	0.04953	0.0050	0.05	0	99.1	80-120	0			
Silver	0.04959	0.0050	0.05	0	99.2	80-120	0			
Sodium	4.807	0.20	5	0	96.1	80-120	0			
Vanadium	0.04727	0.0050	0.05	0	94.5	80-120	0			
Zinc	0.0529	0.0050	0.05	0	106	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

MS		Sample ID: 1008401-15CMS		Units: mg/L		Analysis Date: 8/14/2010 03:43 AM				
Client ID:		Run ID: ICPMS03_100813A		SeqNo: 2061648		Prep Date: 8/13/2010		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5743	0.010	0.1	0.4728	102	80-120	0			O
Arsenic	0.08485	0.0050	0.05	0.0361	97.5	80-120	0			
Barium	0.06486	0.0050	0.05	0.01611	97.5	80-120	0			
Beryllium	0.04754	0.0020	0.05	0.0003813	94.3	80-120	0			
Boron	0.7433	0.050	0.5	0.2716	94.3	80-120	0			
Cadmium	0.04778	0.0020	0.05	0.0002854	95	80-120	0			
Calcium	63.93	0.50	5	58.96	99.4	80-120	0			O
Chromium	0.04825	0.0050	0.05	0.0007848	94.9	80-120	0			
Cobalt	0.04755	0.0050	0.05	0.0003192	94.5	80-120	0			
Copper	0.04809	0.0050	0.05	0.001347	93.5	80-120	0			
Iron	4.686	0.20	5	0.1167	91.4	80-120	0			
Lead	0.0491	0.0050	0.05	0.001824	94.6	80-120	0			
Magnesium	13.33	0.20	5	8.817	90.3	80-120	0			
Manganese	0.08577	0.0050	0.05	0.03932	92.9	80-120	0			
Molybdenum	0.05006	0.0050	0.05	0.003368	93.4	80-120	0			
Nickel	0.04817	0.0050	0.05	0.001961	92.4	80-120	0			
Potassium	10.06	0.20	5	5.465	91.9	80-120	0			
Selenium	0.05139	0.0050	0.05	0.001186	100	80-120	0			
Silver	0.04626	0.0050	0.05	0.000173	92.2	80-120	0			
Sodium	131.2	0.20	5	128.1	62	80-120	0			SO
Vanadium	0.06417	0.0050	0.05	0.01699	94.4	80-120	0			
Zinc	0.06945	0.0050	0.05	0.02342	92.1	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

MSD Sample ID: 1008401-15CMSD Units: mg/L Analysis Date: 8/14/2010 03:48 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061649 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5766	0.010	0.1	0.4728	104	80-120	0.5743	0.4	15	O
Arsenic	0.08708	0.0050	0.05	0.0361	102	80-120	0.08485	2.59	15	
Barium	0.06457	0.0050	0.05	0.01611	96.9	80-120	0.06486	0.448	15	
Beryllium	0.0482	0.0020	0.05	0.0003813	95.6	80-120	0.04754	1.38	15	
Boron	0.7321	0.050	0.5	0.2716	92.1	80-120	0.7433	1.52	15	
Cadmium	0.0473	0.0020	0.05	0.0002854	94	80-120	0.04778	1.01	15	
Calcium	66.18	0.50	5	58.96	144	80-120	63.93	3.46	15	SO
Chromium	0.04936	0.0050	0.05	0.0007848	97.2	80-120	0.04825	2.27	15	
Cobalt	0.04859	0.0050	0.05	0.0003192	96.5	80-120	0.04755	2.16	15	
Copper	0.04888	0.0050	0.05	0.001347	95.1	80-120	0.04809	1.63	15	
Iron	4.748	0.20	5	0.1167	92.6	80-120	4.686	1.31	15	
Lead	0.04924	0.0050	0.05	0.001824	94.8	80-120	0.0491	0.285	15	
Magnesium	13.52	0.20	5	8.817	94.1	80-120	13.33	1.42	15	
Manganese	0.08794	0.0050	0.05	0.03932	97.2	80-120	0.08577	2.5	15	
Molybdenum	0.05141	0.0050	0.05	0.003368	96.1	80-120	0.05006	2.66	15	
Nickel	0.04816	0.0050	0.05	0.001961	92.4	80-120	0.04817	0.0208	15	
Potassium	10.17	0.20	5	5.465	94.1	80-120	10.06	1.09	15	
Selenium	0.05134	0.0050	0.05	0.001186	100	80-120	0.05139	0.0973	15	
Silver	0.04755	0.0050	0.05	0.000173	94.8	80-120	0.04626	2.75	15	
Sodium	133.6	0.20	5	128.1	110	80-120	131.2	1.81	15	O
Vanadium	0.06662	0.0050	0.05	0.01699	99.3	80-120	0.06417	3.75	15	
Zinc	0.07304	0.0050	0.05	0.02342	99.2	80-120	0.06945	5.04	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

DUP Sample ID: 1008401-15CDUP Units: mg/L Analysis Date: 8/14/2010 03:32 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061646 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4951	0.010	0	0	0	-0 0	0.4728	4.61	25	
Arsenic	0.03893	0.0050	0	0	0	-0 0	0.0361	7.54	25	
Barium	0.01569	0.0050	0	0	0	-0 0	0.01611	2.64	25	
Beryllium	0.0003103	0.0020	0	0	0	-0 0	0.0003813	0	25	J
Boron	0.2882	0.050	0	0	0	-0 0	0.2716	5.93	25	
Cadmium	ND	0.0020	0	0	0	-0 0	0.0002854	0	25	
Calcium	63.15	0.50	0	0	0	-0 0	58.96	6.86	25	
Chromium	0.000633	0.0050	0	0	0	-0 0	0.0007848	0	25	J
Cobalt	ND	0.0050	0	0	0	-0 0	0.0003192	0	25	
Copper	0.001327	0.0050	0	0	0	-0 0	0.001347	0	25	J
Iron	ND	0.20	0	0	0	-0 0	0.1167	0	25	
Lead	0.001843	0.0050	0	0	0	-0 0	0.001824	0	25	J
Magnesium	9.285	0.20	0	0	0	-0 0	8.817	5.17	25	
Manganese	0.04182	0.0050	0	0	0	-0 0	0.03932	6.16	25	
Molybdenum	0.003335	0.0050	0	0	0	-0 0	0.003368	0	25	J
Nickel	0.001997	0.0050	0	0	0	-0 0	0.001961	0	25	J
Potassium	5.762	0.20	0	0	0	-0 0	5.465	5.29	25	
Selenium	ND	0.0050	0	0	0	-0 0	0.001186	0	25	
Silver	ND	0.0050	0	0	0	-0 0	0.000173	0	25	
Sodium	133.6	0.20	0	0	0	-0 0	128.1	4.2	25	
Vanadium	0.01813	0.0050	0	0	0	-0 0	0.01699	6.49	25	
Zinc	0.02401	0.0050	0	0	0	-0 0	0.02342	2.49	25	

The following samples were analyzed in this batch:

1008405-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **45414** Instrument ID: **Mercury** Method: **SW7470**

MBLK Sample ID: **GBLKW1-081910-45414** Units: **mg/L** Analysis Date: **8/19/2010 02:36 PM**

Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066994** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **GLCSW1-081910-45414** Units: **mg/L** Analysis Date: **8/19/2010 02:38 PM**

Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066995** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00473	0.00020	0.005	0	94.6	85-115	0			

MS Sample ID: **1008604-01CMS** Units: **mg/L** Analysis Date: **8/19/2010 02:47 PM**

Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066998** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00542	0.00020	0.005	0.000023	108	85-115	0			

MSD Sample ID: **1008604-01CMSD** Units: **mg/L** Analysis Date: **8/19/2010 02:49 PM**

Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066999** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00541	0.00020	0.005	0.000023	108	85-115	0.00542	0.185	20	

DUP Sample ID: **1008604-01CDUP** Units: **mg/L** Analysis Date: **8/19/2010 02:45 PM**

Client ID: Run ID: **MERCURY_100819B** SeqNo: **2066997** Prep Date: **8/19/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	-0 0	0.000023	0	20	

The following samples were analyzed in this batch:

1008405-01B

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45299 Instrument ID SV-3 Method: SW8270

MBLK Sample ID: SBLKW2-100813-45299 Units: µg/L Analysis Date: 8/16/2010 12:23 PM

Client ID: Run ID: SV-3_100813D SeqNo: 2062945 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	73.51	5.0	100	0	73.5	42-124	0			
Surr: 2-Fluorobiphenyl	74.53	5.0	100	0	74.5	48-120	0			
Surr: 2-Fluorophenol	57.17	5.0	100	0	57.2	20-120	0			
Surr: 4-Terphenyl-d14	70.97	5.0	100	0	71	51-135	0			
Surr: Nitrobenzene-d5	70.15	5.0	100	0	70.2	41-120	0			
Surr: Phenol-d6	54.08	5.0	100	0	54.1	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45299 Instrument ID SV-3 Method: SW8270

LCS		Sample ID: SLCSW3-100813-45299				Units: µg/L		Analysis Date: 8/16/2010 12:45 PM			
Client ID:		Run ID: SV-3_100813D				SeqNo: 2062946		Prep Date: 8/13/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,2,4-Trichlorobenzene	43.08	5.0	50	0	86.2	50-120	0				
2,4,5-Trichlorophenol	79.89	5.0	100	0	79.9	50-120	0				
2,4,6-Trichlorophenol	79.12	5.0	100	0	79.1	50-120	0				
2-Methylnaphthalene	38.68	5.0	50	0	77.4	55-120	0				
2-Methylphenol	62.86	5.0	100	0	62.9	50-120	0				
2-Nitroaniline	49.51	5.0	50	0	99	55-120	0				
2-Nitrophenol	78.36	5.0	100	0	78.4	55-120	0				
3&4-Methylphenol	93.63	5.0	150	0	62.4	55-120	0				
3-Nitroaniline	34.07	5.0	50	0	68.1	40-120	0				
4-Nitroaniline	38.23	5.0	50	0	76.5	50-120	0				
4-Nitrophenol	84.84	5.0	100	0	84.8	45-120	0				
Acenaphthene	41.05	5.0	50	0	82.1	55-120	0				
Acenaphthylene	41.48	5.0	50	0	83	55-120	0				
Aniline	25.68	5.0	50	0	51.4	30-120	0				
Anthracene	43.56	5.0	50	0	87.1	55-120	0				
Benz(a)anthracene	44.87	5.0	50	0	89.7	55-120	0				
Benzidine	24.38	5.0	50	0	48.8	10-120	0				
Hexachloroethane	38.16	5.0	50	0	76.3	55-120	0				
Indeno(1,2,3-cd)pyrene	43.25	5.0	50	0	86.5	55-120	0				
Isophorone	37.48	5.0	50	0	75	55-120	0				
N-Nitrosodi-n-propylamine	32.41	5.0	50	0	64.8	50-120	0				
N-Nitrosodimethylamine	34.57	5.0	50	0	69.1	45-120	0				
N-Nitrosodiphenylamine	42.48	5.0	50	0	85	55-120	0				
Naphthalene	40.58	5.0	50	0	81.2	55-120	0				
Nitrobenzene	40.86	5.0	50	0	81.7	55-120	0				
Pentachlorophenol	89.43	5.0	100	0	89.4	55-120	0				
Phenanthrene	42.64	5.0	50	0	85.3	55-120	0				
Phenol	62.86	5.0	100	0	62.9	50-120	0				
Pyrene	43.02	5.0	50	0	86	55-120	0				
Surr: 2,4,6-Tribromophenol	84.85	5.0	100	0	84.9	42-124	0				
Surr: 2-Fluorobiphenyl	78.98	5.0	100	0	79	48-120	0				
Surr: 2-Fluorophenol	72.01	5.0	100	0	72	20-120	0				
Surr: 4-Terphenyl-d14	73.77	5.0	100	0	73.8	51-135	0				
Surr: Nitrobenzene-d5	79.98	5.0	100	0	80	41-120	0				
Surr: Phenol-d6	62.69	5.0	100	0	62.7	20-120	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45299 Instrument ID SV-3 Method: SW8270

LCSD		Sample ID: SLCS DW3-100813-45299		Units: µg/L		Analysis Date: 8/16/2010 01:08 PM				
Client ID:		Run ID: SV-3_100813D		SeqNo: 2062947		Prep Date: 8/13/2010		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.72	5.0	50	0	79.4	50-120	43.08	8.13	20	
2,4,5-Trichlorophenol	77.7	5.0	100	0	77.7	50-120	79.89	2.77	20	
2,4,6-Trichlorophenol	74.62	5.0	100	0	74.6	50-120	79.12	5.85	20	
2-Methylnaphthalene	36.52	5.0	50	0	73	55-120	38.68	5.75	20	
2-Methylphenol	58.11	5.0	100	0	58.1	50-120	62.86	7.85	20	
2-Nitroaniline	45.47	5.0	50	0	90.9	55-120	49.51	8.51	20	
2-Nitrophenol	73.33	5.0	100	0	73.3	55-120	78.36	6.64	20	
3&4-Methylphenol	87.19	5.0	150	0	58.1	55-120	93.63	7.12	20	
3-Nitroaniline	32.83	5.0	50	0	65.7	40-120	34.07	3.73	20	
4-Nitroaniline	38.57	5.0	50	0	77.1	50-120	38.23	0.889	20	
4-Nitrophenol	84.34	5.0	100	0	84.3	45-120	84.84	0.589	20	
Acenaphthene	38.43	5.0	50	0	76.9	55-120	41.05	6.58	20	
Acenaphthylene	39.08	5.0	50	0	78.2	55-120	41.48	5.96	20	
Aniline	26.13	5.0	50	0	52.3	30-120	25.68	1.74	20	
Anthracene	41.23	5.0	50	0	82.5	55-120	43.56	5.5	20	
Benz(a)anthracene	41.02	5.0	50	0	82	55-120	44.87	8.95	20	
Benzidine	25.83	5.0	50	0	51.7	10-120	24.38	5.75	20	
Hexachloroethane	35.51	5.0	50	0	71	55-120	38.16	7.19	20	
Indeno(1,2,3-cd)pyrene	40.97	5.0	50	0	81.9	55-120	43.25	5.42	20	
Isophorone	35.25	5.0	50	0	70.5	55-120	37.48	6.13	20	
N-Nitrosodi-n-propylamine	29.75	5.0	50	0	59.5	50-120	32.41	8.54	20	
N-Nitrosodimethylamine	33.74	5.0	50	0	67.5	45-120	34.57	2.43	20	
N-Nitrosodiphenylamine	38.36	5.0	50	0	76.7	55-120	42.48	10.2	20	
Naphthalene	38.15	5.0	50	0	76.3	55-120	40.58	6.18	20	
Nitrobenzene	37.65	5.0	50	0	75.3	55-120	40.86	8.18	20	
Pentachlorophenol	83.89	5.0	100	0	83.9	55-120	89.43	6.39	20	
Phenanthrene	40.75	5.0	50	0	81.5	55-120	42.64	4.54	20	
Phenol	58.95	5.0	100	0	58.9	50-120	62.86	6.42	20	
Pyrene	38.06	5.0	50	0	76.1	55-120	43.02	12.2	20	
Surr: 2,4,6-Tribromophenol	82.54	5.0	100	0	82.5	42-124	84.85	2.76	20	
Surr: 2-Fluorobiphenyl	76.75	5.0	100	0	76.7	48-120	78.98	2.87	20	
Surr: 2-Fluorophenol	66.49	5.0	100	0	66.5	20-120	72.01	7.98	20	
Surr: 4-Terphenyl-d14	68.54	5.0	100	0	68.5	51-135	73.77	7.34	20	
Surr: Nitrobenzene-d5	74.25	5.0	100	0	74.2	41-120	79.98	7.44	20	
Surr: Phenol-d6	58.13	5.0	100	0	58.1	20-120	62.69	7.56	20	

The following samples were analyzed in this batch:

1008405-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-082210-R96065 Units: µg/L Analysis Date: 8/22/2010 11:57 AM

Client ID: Run ID: VOA1_100822A SeqNo: 2069725 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46.5	5.0	50	0	93	70-125	0			
Surr: 4-Bromofluorobenzene	52.77	5.0	50	0	106	72-125	0			
Surr: Dibromofluoromethane	50.96	5.0	50	0	102	71-125	0			
Surr: Toluene-d8	57.02	5.0	50	0	114	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

LCS				Sample ID: VLCSW-082210-R96065		Units: µg/L		Analysis Date: 8/22/2010 11:06 AM		
Client ID:		Run ID: VOA1_100822A			SeqNo: 2069724		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.25	5.0	50	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	50.7	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	51.13	5.0	50	0	102	80-120	0			
1,1-Dichloroethane	49.82	5.0	50	0	99.6	76-120	0			
1,1-Dichloroethene	48.95	5.0	50	0	97.9	73-124	0			
1,2-Dichloroethane	51.58	5.0	50	0	103	78-120	0			
2-Butanone	108.1	10	100	0	108	58-132	0			
2-Chloroethyl vinyl ether	110	10	100	0	110	74-120	0			
2-Hexanone	100.1	10	100	0	100	61-130	0			
4-Methyl-2-pentanone	98.34	10	100	0	98.3	65-127	0			
Acetone	99.41	10	100	0	99.4	59-137	0			
Benzene	54.47	5.0	50	0	109	73-121	0			
Bromodichloromethane	52.82	5.0	50	0	106	80-120	0			
Bromoform	48.16	5.0	50	0	96.3	79-120	0			
Bromomethane	49.82	5.0	50	0	99.6	66-137	0			
Carbon disulfide	101.4	10	100	0	101	68-141	0			
Carbon tetrachloride	46.93	5.0	50	0	93.9	75-124	0			
Chlorobenzene	48.07	5.0	50	0	96.1	80-120	0			
Chloroethane	49.98	5.0	50	0	100	76-121	0			
Chloroform	50.92	5.0	50	0	102	80-120	0			
Chloromethane	49.28	5.0	50	0	98.6	67-123	0			
cis-1,3-Dichloropropene	55.26	5.0	50	0	111	80-120	0			
Dibromochloromethane	51.43	5.0	50	0	103	80-120	0			
Ethylbenzene	51.37	5.0	50	0	103	80-120	0			
m,p-Xylene	93.5	10	100	0	93.5	78-121	0			
Methylene chloride	51.5	10	50	0	103	65-133	0			
Styrene	50.23	5.0	50	0	100	80-120	0			
Tetrachloroethene	50.32	5.0	50	0	101	79-120	0			
Toluene	50.7	5.0	50	0	101	80-120	0			
trans-1,3-Dichloropropene	49.84	5.0	50	0	99.7	80-120	0			
Trichloroethene	54.84	5.0	50	0	110	80-120	0			
Vinyl acetate	107.5	10	100	0	108	67-139	0			
Vinyl chloride	48.69	2.0	50	0	97.4	70-127	0			
Xylenes, Total	143.6	15	150	0	95.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	49.13	5.0	50	0	98.3	70-125	0			
Surr: 4-Bromofluorobenzene	50.17	5.0	50	0	100	72-125	0			
Surr: Dibromofluoromethane	51.34	5.0	50	0	103	71-125	0			
Surr: Toluene-d8	56.69	5.0	50	0	113	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1008613-30AMS Units: µg/L Analysis Date: 8/22/2010 01:40 PM

Client ID: Run ID: VOA1_100822A SeqNo: 2069729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.89	5.0	50	0	95.8	80-120	0			
1,1,2,2-Tetrachloroethane	48.01	5.0	50	0	96	72-120	0			
1,1,2-Trichloroethane	50.43	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	50.63	5.0	50	0	101	76-120	0			
1,1-Dichloroethene	45.46	5.0	50	0	90.9	73-124	0			
1,2-Dichloroethane	52.26	5.0	50	0	105	78-120	0			
2-Butanone	99.21	10	100	0	99.2	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	98.14	10	100	0	98.1	61-130	0			
4-Methyl-2-pentanone	97.46	10	100	0	97.5	65-127	0			
Acetone	89.45	10	100	2.183	87.3	59-137	0			
Benzene	51.68	5.0	50	0	103	73-121	0			
Bromodichloromethane	52.27	5.0	50	0	105	80-120	0			
Bromoform	45.67	5.0	50	0	91.3	79-120	0			
Bromomethane	50.46	5.0	50	0	101	66-137	0			
Carbon disulfide	92.14	10	100	0	92.1	68-141	0			
Carbon tetrachloride	44.76	5.0	50	0	89.5	75-124	0			
Chlorobenzene	49.46	5.0	50	0	98.9	80-120	0			
Chloroethane	52.77	5.0	50	0	106	76-121	0			
Chloroform	50.45	5.0	50	0	101	80-120	0			
Chloromethane	50.16	5.0	50	0	100	67-123	0			
cis-1,3-Dichloropropene	52.49	5.0	50	0	105	80-120	0			
Dibromochloromethane	49.04	5.0	50	0	98.1	80-120	0			
Ethylbenzene	49.71	5.0	50	0	99.4	80-120	0			
m,p-Xylene	97.64	10	100	0	97.6	78-121	0			
Methylene chloride	50.2	10	50	0	100	65-133	0			
Styrene	49.94	5.0	50	0	99.9	80-120	0			
Tetrachloroethene	44.1	5.0	50	0	88.2	79-120	0			
Toluene	52.19	5.0	50	0	104	80-120	0			
trans-1,3-Dichloropropene	49.55	5.0	50	0	99.1	80-120	0			
Trichloroethene	50.41	5.0	50	0	101	80-120	0			
Vinyl acetate	101.2	10	100	0	101	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	70-127	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	47.32	5.0	50	0	94.6	70-125	0			
Surr: 4-Bromofluorobenzene	53.03	5.0	50	0	106	72-125	0			
Surr: Dibromofluoromethane	51.79	5.0	50	0	104	71-125	0			
Surr: Toluene-d8	56.22	5.0	50	0	112	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

MSD	Sample ID: 1008613-30AMSD	Units: µg/L				Analysis Date: 8/22/2010 02:06 PM				
Client ID:	Run ID: VOA1_100822A	SeqNo: 2069730				Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.02	5.0	50	0	96	80-120	47.89	0.269	20	
1,1,2,2-Tetrachloroethane	47.63	5.0	50	0	95.3	72-120	48.01	0.778	20	
1,1,2-Trichloroethane	51.12	5.0	50	0	102	80-120	50.43	1.36	20	
1,1-Dichloroethane	51.12	5.0	50	0	102	76-120	50.63	0.972	20	
1,1-Dichloroethene	48.08	5.0	50	0	96.2	73-124	45.46	5.59	20	
1,2-Dichloroethane	50.68	5.0	50	0	101	78-120	52.26	3.09	20	
2-Butanone	97.12	10	100	0	97.1	58-132	99.21	2.13	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	95.35	10	100	0	95.4	61-130	98.14	2.88	20	
4-Methyl-2-pentanone	95.54	10	100	0	95.5	65-127	97.46	1.99	20	
Acetone	82.69	10	100	2.183	80.5	59-137	89.45	7.86	20	
Benzene	53.73	5.0	50	0	107	73-121	51.68	3.89	20	
Bromodichloromethane	53.88	5.0	50	0	108	80-120	52.27	3.03	20	
Bromoform	46.06	5.0	50	0	92.1	79-120	45.67	0.867	20	
Bromomethane	51.65	5.0	50	0	103	66-137	50.46	2.33	20	
Carbon disulfide	94.91	10	100	0	94.9	68-141	92.14	2.96	20	
Carbon tetrachloride	44.85	5.0	50	0	89.7	75-124	44.76	0.198	20	
Chlorobenzene	49.03	5.0	50	0	98.1	80-120	49.46	0.874	20	
Chloroethane	49.21	5.0	50	0	98.4	76-121	52.77	6.97	20	
Chloroform	50.08	5.0	50	0	100	80-120	50.45	0.753	20	
Chloromethane	51.83	5.0	50	0	104	67-123	50.16	3.27	20	
cis-1,3-Dichloropropene	53.39	5.0	50	0	107	80-120	52.49	1.7	20	
Dibromochloromethane	50.95	5.0	50	0	102	80-120	49.04	3.84	20	
Ethylbenzene	52.67	5.0	50	0	105	80-120	49.71	5.77	20	
m,p-Xylene	103.6	10	100	0	104	78-121	97.64	5.95	20	
Methylene chloride	50.44	10	50	0	101	65-133	50.2	0.467	20	
Styrene	51.65	5.0	50	0	103	80-120	49.94	3.36	20	
Tetrachloroethene	46.9	5.0	50	0	93.8	79-120	44.1	6.15	20	
Toluene	50.95	5.0	50	0	102	80-120	52.19	2.41	20	
trans-1,3-Dichloropropene	48.6	5.0	50	0	97.2	80-120	49.55	1.93	20	
Trichloroethene	51.3	5.0	50	0	103	80-120	50.41	1.75	20	
Vinyl acetate	100.3	10	100	0	100	67-139	101.2	0.887	20	
Vinyl chloride	46.86	2.0	50	0	93.7	70-127	43.31	7.88	20	
Xylenes, Total	156.6	15	150	0	104	80-120	148.2	5.51	20	
Surr: 1,2-Dichloroethane-d4	48.98	5.0	50	0	98	70-125	47.32	3.45	20	
Surr: 4-Bromofluorobenzene	52.14	5.0	50	0	104	72-125	53.03	1.69	20	
Surr: Dibromofluoromethane	51.92	5.0	50	0	104	71-125	51.79	0.246	20	
Surr: Toluene-d8	56.22	5.0	50	0	112	75-125	56.22	0.00834	20	

The following samples were analyzed in this batch: 1008405-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95598** Instrument ID **WetChem** Method: **SM4500H+ B**

LCS	Sample ID: WLCS-081210-R95598	Units: pH units	Analysis Date: 8/12/2010							
Client ID:	Run ID: WETCHEM_100812E	SeqNo: 2060107	Prep Date: DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP	Sample ID: 1008377-01CDUP	Units: pH units	Analysis Date: 8/12/2010							
Client ID:	Run ID: WETCHEM_100812E	SeqNo: 2060115	Prep Date: DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7	0.10	0	0	0	-0 0	7.01	0.143	20	H

The following samples were analyzed in this batch:

1008405-01C

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95629 Instrument ID Balance1 Method: M2540C

MBLK	Sample ID: BLANK-R95629				Units: mg/L		Analysis Date: 8/12/2010			
Client ID:	Run ID: BALANCE1_100812D				SeqNo: 2060924		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS	Sample ID: LCS-R95629				Units: mg/L		Analysis Date: 8/12/2010			
Client ID:	Run ID: BALANCE1_100812D				SeqNo: 2060925		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	958	10	1000	0	95.8	85-115	0			

DUP	Sample ID: 1008300-02ADUP				Units: mg/L		Analysis Date: 8/12/2010			
Client ID:	Run ID: BALANCE1_100812D				SeqNo: 2060914		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	5094	10	0	0	0	0-0	5070	0.472	20	

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95869 Instrument ID ICS2100 Method: E300

MBLK	Sample ID: WBLKW3-081810-R95869				Units: mg/L		Analysis Date: 8/18/2010 09:24 AM			
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066137		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.254	0.10	5	0	105	85-115		0		

LCS	Sample ID: WLCSW3-081810-R95869					Units: mg/L		Analysis Date: 8/18/2010 09:39 AM		
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066138		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.49	0.50	20	0	92.4	90-110	0			
Sulfate	18.31	0.50	20	0	91.6	90-110	0			
Surr: Selenate (surr)	5.057	0.10	5	0	101	85-115	0			

LCSD	Sample ID: WLCSDW3-081810-R95869					Units: mg/L		Analysis Date: 8/18/2010 09:53 AM		
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066139		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.05	0.50	20	0	100	90-110	18.49	8.13	20	
Sulfate	19.54	0.50	20	0	97.7	90-110	18.31	6.48	20	
Surr: Selenate (surr)	5.034	0.10	5	0	101	85-115	5.057	0.456	20	

MS	Sample ID: 1008508-01BMS					Units: mg/L	Analysis Date: 8/18/2010 10:55 AM			
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066143	Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	90.43	0.50	10	91.62	-12	80-120		0		SO
Sulfate	15.95	0.50	10	7.871	80.8	80-120		0		
Surr: Selenate (surr)	4.753	0.10	5	0	95.1	85-115		0		

MS	Sample ID: 1008390-02CMS				Units: mg/L		Analysis Date: 8/18/2010 01:19 PM			
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066150		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.72	0.50	10	4.689	100	80-120		0		
Sulfate	9.731	0.50	10	0.414	93.2	80-120		0		
Surr: Selenate (surr)	4.836	0.10	5	0	96.7	85-115		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R95869** Instrument ID **ICS2100** Method: **E300**

MSD Sample ID: **1008508-01BMSD** Units: mg/L Analysis Date: **8/18/2010 11:10 AM**

Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066144** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	100.3	0.50	10	91.62	86.5	80-120	90.43	10.3	20	EO
Sulfate	17.86	0.50	10	7.871	99.8	80-120	15.95	11.3	20	
Surr: Selenate (surr)	5.308	0.10	5	0	106	85-115	4.753	11	20	

MSD Sample ID: **1008390-02CMSD** Units: mg/L Analysis Date: **8/18/2010 01:33 PM**

Client ID: Run ID: **ICS2100_100818A** SeqNo: **2066152** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.58	0.50	10	4.689	98.9	80-120	14.72	0.908	20	
Sulfate	9.64	0.50	10	0.414	92.3	80-120	9.731	0.94	20	
Surr: Selenate (surr)	4.791	0.10	5	0	95.8	85-115	4.836	0.935	20	

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95895 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW1-081910-R95895 Units: $\mu\text{mhos/cm}$ Analysis Date: 8/19/2010 01:00 PM

Client ID: Run ID: WETCHEM_100819C SeqNo: 2066728 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: WLCSW1-081910-R95895 Units: $\mu\text{mhos/cm}$ Analysis Date: 8/19/2010 01:00 PM

Client ID: Run ID: WETCHEM_100819C SeqNo: 2066729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1410	1.0	1413	0	99.8	80-120	0			

DUP Sample ID: 1008405-01CDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 8/19/2010 01:00 PM

Client ID: Inj Well Run ID: WETCHEM_100819C SeqNo: 2066733 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	3890	1.0	0	0	0		3860	0.774	20	

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96128 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-082410-R96128 Units: mg/L Analysis Date: 8/24/2010 02:00 PM

Client ID: Run ID: WETCHEM_100824H SeqNo: 2070984 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-082410-R96128 Units: mg/L Analysis Date: 8/24/2010 02:00 PM

Client ID: Run ID: WETCHEM_100824H SeqNo: 2070985 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	994.4	5.0	1000	0	99.4	80-120	0			

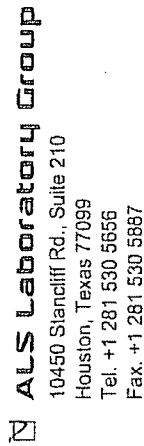
DUP Sample ID: 1008445-01BDUP Units: mg/L Analysis Date: 8/24/2010 02:00 PM

Client ID: Run ID: WETCHEM_100824H SeqNo: 2070992 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	273.5	5.0	0	0	0	0-0	268.5	1.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	273.5	5.0	0	0	0	0-0	268.5	1.83	20	

The following samples were analyzed in this batch: 1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



☐ ALS Laboratory Group

3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Page 1 of 1[illegible]

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

W04 1008405

	ALS Environmental	CUSTODY SEAL		Seal Broken By:
	10450 Standcliff Rd., Suite 210	Date: 8-11-0	Time: 4:15	
	Houston, Texas 77099	Name: Adam Standcliff		Dater:
	Tel. +1 281 530 5656 Fax. +1 281 530 5887	Company: Adams Resin Co.		

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1008405

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group

Project: 1008405

Work Order: 1008331

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1008331-01	1008405-01E	Water		8/11/2010 12:40	8/13/2010 12:00	☐

Client: ALS Laboratory Group
Project: 1008405
WorkOrder: 1008331

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group

Project: 1008405

Work Order: 1008331

Sample ID: 1008405-01E

Lab ID: 1008331-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	Neg		40.0	mg/Kg	1	8/19/2010 12:30 PM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	Neg		40.0	mg/Kg	1	8/19/2010 12:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group
Work Order: 1008331
Project: 1008405

QC BATCH REPORT

Batch ID: **R80217** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK	Sample ID: WBLKW1-081910-R80217	Units: mg/Kg	Analysis Date: 8/19/2010 12:30 PM
Client ID:	Run ID: WETCHEM_100819F	SeqNo: 1391118	Prep Date: DF: 1
Analyte	Result	PQL	SPK Val
			SPK Ref Value
			%REC
			Control Limit
			RPD Ref Value
			%RPD
			RPD Limit
			Qual
Sulfide, Reactive	ND	40	

The following samples were analyzed in this batch:

1008331-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Laboratory Group
 Work Order: 1008331
 Project: 1008405

QC BATCH REPORT

Batch ID: R80218 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK Sample ID: WBLKW1-081910-R80218 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391142 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: WLCSW1-081910-R80218 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391143 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	0			

LCSD Sample ID: WLCSDW1-081910-R80218 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391149 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	249.6	6.06	35	

MS Sample ID: 1008432-01A MS Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391147 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	0			

MSD Sample ID: 1008432-01A MSD Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391148 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	234.9	0	35	

The following samples were analyzed in this batch: 1008331-01A

WQ# 1008331



Subcontractor:

ALS Laboratory Group
3352 128th Ave.

Holland, MI 49424

TEL: (616) 399-6070

FAX: (616) 399-6185

Acct #:

CHAIN-OF-CUSTODY RECORD

Date: 12-Aug-10

COC ID: 9208

Due Date 23-Aug-10

Page 1 of 1

Customer Information		Project Information		Parameter/Method Request for Analysis																			
Purchase Order	10-2118974	Project Name	1008405	A	Reactive Cyanide (SW-846)																		
Work Order		Project Number		B	Reactive Sulfide (SW-846)																		
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C																			
Send Report To	JayLynn F Thibault	Inv Altn	Accounts Payable	D																			
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210	E																			
				F																			
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G																			
Phone	(281) 530-5656	Phone	(281) 530-5656	H																			
Fax	(281) 530-5887	Fax	(281) 530-5887	I																			
eMail Address	jaylynn.thibault@alsenviro.com	eMail CC	glenda.ramos@alsglobal.com	J																			
Sample ID	1008405-01E (Inj Well)	Matrix	Water	A		B		C		D		E		F		G		H		I		J	
		Collection Date	8/11/2010 12:40	X		X																	
		Bottle	(1) 1LPNEAT																				

Comments:

Please analyze for Reactive Cyanide and Reactive Sulfide. Report is due on 8/23/10. Please send report to Hector Coronado, hector.coronado@alsglobal.com, and CC: results to Glenda Ramos, glenda.ramos@alsglobal.com

Relinquished by:	Date/Time	Received by:	Date/Time	Cooler IDs	Report/QC Level
<i>[Signature]</i>	8/12/10	<i>[Signature]</i>	8/13/10 12:00		Stn <i>[Signature]</i>
Relinquished by:	Date/Time	Received by:	Date/Time		

ALS Environmental

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 13-Aug-10 12:00

Work Order: 1008331

Received by: KRW

Checklist completed by *Keith W. Warren* 13-Aug-10
eSignature Date

Reviewed by: *Dan Preston* 14-Aug-10
eSignature Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.2 C</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			
Login Notes:			

=====

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

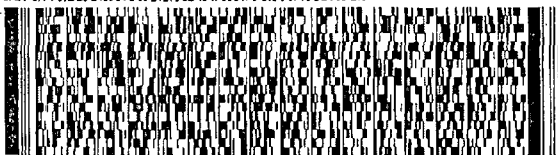
Comments:

CorrectiveAction:

SHIP DATE: 12AUG10
ACTWGT: 36.8 LB
CAD: 300130/CAFE2453

TO RECEIVING
ALS LABORATORY
3352 128TH AVE.

(616) 399-6070
DEPT: SUB



109200911 102223

FRI - 13AUG A4
PRIORITY OVERNIGHT

NI GRRA

49424
MI-US
GRR



U.S. PATENT OFFICE

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, November 03, 2010 2:19 PM
To: 'Whatley, Michael'
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Please let me know if the ignitability was found to be positive....

We'll look for it. Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Wednesday, November 03, 2010 1:27 PM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

The Environmental staff is still working with ALS but I have received a couple updates so far. Apparently, the Ignitability parameter was missed. Also, ALS will update the report to show 'Negative' in place of 'ND'. We've asked them to provide a written response as to how the ignitability was missed and to confirm that the 'ND' in their report is equivalent to 'Negative'. In addition, we have added your latest request. We will forward the complete report and the ALS written responses as soon as we receive them.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Wednesday, November 03, 2010 11:09 AM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Please double check with your lab on its methods for characteristically hazardous reporting and see if you could send OCD the complete report based on the message below for our file.

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau

1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Wednesday, November 03, 2010 10:19 AM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

Thank you for bringing this to our attention. I have forwarded to our Environmental staff for clarification and expect to be able to address your questions shortly.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [<mailto:CarlJ.Chavez@state.nm.us>]
Sent: Tuesday, November 02, 2010 9:55 AM
To: Whatley, Michael
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

In looking over the analytical data, I don't see a Ignitability parameter. Did this get missed? I see it on the Chain-of-Custody, but don't see the analytical result.

Also, for Characteristically Hazardous parameters: Reactivity: Cyanide and Sulfide and 40 mg/kg limit. I'm used to seeing a "Negative" designation by laboratories whenever there is no reactivity, but not soil media units. Please see below standard reporting.

IGNITABILITY: Negative

CORROSIVITY: Negative

pH = 6.37

REACTIVITY: Negative

RCRA Hazardous Waste Criteria

Parameter	Hazardous Waste Criterion
IGNITABILITY:	Characteristic of Ignitability as defined by 40 CFR, Sub (i.e. <i>Sample ignition upon direct contact with flame or fi</i>
CORROSIVITY:	Characteristic of Corrosivity as defined by 40 CFR, Sul (i.e. <i>pH less than or equal to 2.0 or pH greater than or</i>
REACTIVITY:	Characteristic of Reactivity as defined by 40 CFR, Sub (i.e. <i>Violent reaction with water, strong base, strong ac of Sulfide or Cyanide gases at STP with pH betwe</i>

Reference: 40 CFR part 261 Subpart C sections 261.21 - 261.23,

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Whatley, Michael [<mailto:Michael.Whatley@hollycorp.com>]
Sent: Tuesday, November 02, 2010 8:48 AM
To: Chavez, Carl J, EMNRD
Subject: RE: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Carl,

Thank you for the confirmation. Please let us know if you have any questions or need additional information.

MICHAEL WHATLEY
Navajo Refining Company LLC
Phone: 575-748-6743
Fax: 575-746-5421
michael.whatley@hollycorp.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, November 02, 2010 6:15 AM
To: Whatley, Michael
Subject: UICI-008 WDWs 1, 2 & 3 Quarterly Monitor Reports

Michael:

Good morning.

Received above subject reports. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

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REFINING COMPANY, LLC

RECEIVED OOD

FAX

(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

2010 NOV 1 159:10
501 EAST MAIN STREET • P.O. BOX 15910
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

October 29, 2010

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2010 Third Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the third quarter of 2010 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and have found no change in the levels at each well during this quarter. We are closely monitoring the fluid level for these wells. A Mechanical Integrity Test (MIT) on WDW-1 and WDW-2 was last done in August 2010 and a quarterly MIT for WDW-3 was last done at the end September 2010. All of the wells passed. The quarterly MIT on WDW-3 is per your email of December 9, 2009 to Darrell Moore. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table.

During the month of September 2010 Navajo experienced intermittent data readings from the Mewbourne Well (WDW-1). The intermittent readings made it difficult to find the problem. Navajo investigated and replaced several parts; however, lightning struck the power pole before the problem was found. The lightning burnt several fuses and wiring. The wiring and fuses were replaced and the system has since been working correctly. These problems caused us to have very limited data readings on WDW-1 for the month of September.

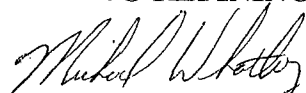
You will also notice that the minimum annular pressure for the Gains Well (WDW-3) appears to be reading low in September. Navajo investigated but found no cause for the low reading. The low reading was from September 30th to October 1st 2010. Since then, the annular pressure in WDW-3 has returned to normal operating pressures.

This report covers the period from July 1, 2010 to September 30, 2010. We have disposed a total of 50,672,081 barrels of fluid into the three wells as of September 30, 2009. The volume per well is:

- 28,889,783 barrels into WDW-1
- 15,450,315 barrels into WDW-2
- 6,331,983 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

A handwritten signature in black ink, appearing to read "Michael Whatley", written in a cursive style.

Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)

2010 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1														
Jul-10	615	765	367	129	136	98	349	585	182	4,412	4,668	3,348	136,768	28,481,528
Aug-10	644	766	352	130	133	125	313	376	255	4,442	4,554	4,293	137,695	28,618,296
Sep-10	691	691	691	130	130	130	425	425	425	4,460	4,460	4,460	133,791	28,755,991
WDW-2														
Jul-10	647	679	401	138	143	116	570	744	159	4,719	4,886	3,960	146,279	15,013,110
Aug-10	688	709	661	140	141	138	387	608	182	4,785	4,824	4,736	148,339	15,159,388
Sep-10	684	795	469	139	150	118	349	727	197	4,753	5,153	4,060	142,588	15,307,727
WDW-3														
Jul-10	657	705	366	179	189	159	323	460	104	6,126	6,490	5,464	189,917	5,766,994
Aug-10	694	712	678	179	182	174	304	412	194	6,144	6,253	5,953	190,453	5,956,911
Sep-10	663	727	279	179	189	168	284	427	9	6,154	6,497	5,764	184,619	6,147,365
													Total Injected fluids:	
													50,672,081	

2010 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/6/10	7/12/10	7/19/10	7/26/10	8/3/10	8/9/10	8/16/10	8/24/10	8/30/10	9/7/10	9/13/10	9/20/10	9/27/10
WDW -1'	155	155	155	155	155	155	155	155	155	155	155	155	155
WDW-2'	155	155	155	155	155	155	155	155	155	155	155	155	155
WDW-3'	150	150	150	150	150	150	150	150	150	150	150	150	150
Comments: Added antifreeze to WDW-3 on 04/15/2010.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.



25-Aug-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: **1008405**

Dear Aaron,

ALS Environmental received 1 sample on 12-Aug-2010 08:16 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ADDRESS 10150 Standish Rd, Suite 110 Houston, Texas 77036-4320 | PHONE (281) 530-5555 | FAX (281) 530-5897
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RIGHT SOLUTIONS. RIGHT PARTNER.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1008405

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1008405-01	Inj Well	Water		8/11/2010 12:40	8/12/2010 08:16	☐

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1008405

Case Narrative

Batch 45294 Metals (sample 1008401-15) MS/MSD unrelated sample.

Batch R96065 Volatiles (sample 1008613-30) MS/MSD unrelated sample.

Batch R965869 Chloride (sample 1008508-01) MS unrelated sample.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Inj Well

Collection Date: 8/11/2010 12:40 PM

Work Order: 1008405

Lab ID: 1008405-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY						
Mercury	ND		SW7470 0.000200	mg/L	Prep Date: 8/19/2010 1	Analyst: JCJ 8/19/2010 03:13 PM
METALS						
Aluminum	0.158		SW6020 0.0500	mg/L	Prep Date: 8/13/2010 5	Analyst: ALR 8/14/2010 11:59 AM
Arsenic	0.0393		0.00500	mg/L	1	8/14/2010 05:12 AM
Barium	0.0218		0.00500	mg/L	1	8/14/2010 05:12 AM
Beryllium	ND		0.00200	mg/L	1	8/14/2010 05:12 AM
Boron	0.145		0.0200	mg/L	1	8/14/2010 05:12 AM
Cadmium	ND		0.00200	mg/L	1	8/14/2010 05:12 AM
Calcium	127		0.500	mg/L	1	8/14/2010 05:12 AM
Chromium	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Cobalt	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Copper	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Iron	0.387		0.200	mg/L	1	8/14/2010 05:12 AM
Lead	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Magnesium	39.0		0.200	mg/L	1	8/14/2010 05:12 AM
Manganese	0.0706		0.00500	mg/L	1	8/14/2010 05:12 AM
Molybdenum	0.120		0.00500	mg/L	1	8/14/2010 05:12 AM
Nickel	0.0106		0.00500	mg/L	1	8/14/2010 05:12 AM
Potassium	50.7		0.200	mg/L	1	8/14/2010 05:12 AM
Selenium	0.292		0.00500	mg/L	1	8/14/2010 05:12 AM
Silver	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Sodium	683		1.00	mg/L	5	8/14/2010 11:59 AM
Vanadium	ND		0.00500	mg/L	1	8/14/2010 05:12 AM
Zinc	1.30		0.00500	mg/L	1	8/14/2010 05:12 AM
SEMIVOLATILES						
1,2,4-Trichlorobenzene	ND		SW8270 0.0050	mg/L	Prep Date: 8/13/2010 1	Analyst: KMB 8/16/2010 03:00 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Methylphenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
2-Nitrophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
3-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
4-Nitroaniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
4-Nitrophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Acenaphthene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Acenaphthylene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1008405

Sample ID: Inj Well

Lab ID: 1008405-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Anthracene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Benzidine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Hexachloroethane	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Isophorone	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Naphthalene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Nitrobenzene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Pentachlorophenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Phenanthrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Phenol	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Pyrene	ND		0.0050	mg/L	1	8/16/2010 03:00 PM
Surr: 2,4,6-Tribromophenol	75.6		42-124	%REC	1	8/16/2010 03:00 PM
Surr: 2-Fluorobiphenyl	69.7		48-120	%REC	1	8/16/2010 03:00 PM
Surr: 2-Fluorophenol	53.7		20-120	%REC	1	8/16/2010 03:00 PM
Surr: 4-Terphenyl-d14	63.3		51-135	%REC	1	8/16/2010 03:00 PM
Surr: Nitrobenzene-d5	66.8		41-120	%REC	1	8/16/2010 03:00 PM
Surr: Phenol-d6	54.8		20-120	%REC	1	8/16/2010 03:00 PM
VOLATILES			SW8260		Analyst: PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
2-Butanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	8/22/2010 02:58 PM
2-Hexanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Acetone	0.016		0.010	mg/L	1	8/22/2010 02:58 PM
Benzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromodichloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromoform	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Bromomethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Carbon disulfide	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	8/22/2010 02:58 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Inj Well

Collection Date: 8/11/2010 12:40 PM

Work Order: 1008405

Lab ID: 1008405-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloroethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloroform	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Chloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Dibromochloromethane	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Ethylbenzene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
m,p-Xylene	0.011		0.010	mg/L	1	8/22/2010 02:58 PM
Methylene chloride	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Styrene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Tetrachloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Toluene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Trichloroethene	ND		0.0050	mg/L	1	8/22/2010 02:58 PM
Vinyl acetate	ND		0.010	mg/L	1	8/22/2010 02:58 PM
Vinyl chloride	ND		0.0020	mg/L	1	8/22/2010 02:58 PM
Xylenes, Total	ND		0.015	mg/L	1	8/22/2010 02:58 PM
Surr: 1,2-Dichloroethane-d4	105		70-125	%REC	1	8/22/2010 02:58 PM
Surr: 4-Bromofluorobenzene	104		72-125	%REC	1	8/22/2010 02:58 PM
Surr: Dibromofluoromethane	106		71-125	%REC	1	8/22/2010 02:58 PM
Surr: Toluene-d8	112		75-125	%REC	1	8/22/2010 02:58 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM
ANIONS			E300			Analyst: DM
Chloride	195		5.00	mg/L	10	8/18/2010 04:42 PM
Sulfate	1,580		50.0	mg/L	100	8/18/2010 04:57 PM
Surr: Selenate (surr)	104		85-115	%REC	1	8/12/2010 06:26 PM
Surr: Selenate (surr)	93.9		85-115	%REC	100	8/18/2010 04:57 PM
Surr: Selenate (surr)	98.2		85-115	%REC	10	8/18/2010 04:42 PM
ALKALINITY			SM2320B			Analyst: TDW
Alkalinity, Bicarbonate (As CaCO3)	219		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	8/24/2010 02:00 PM
Alkalinity, Total (As CaCO3)	219		5.00	mg/L	1	8/24/2010 02:00 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: TDW
Specific Conductivity	3,860		1.00	µmhos/cm	1	8/19/2010 01:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Sample ID: Inj Well

Collection Date: 8/11/2010 12:40 PM

Work Order: 1008405

Lab ID: 1008405-01

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PH			SM4500H+ B			Analyst: JLC
pH	7.12	H	0.100	pH units	1	8/12/2010
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: JLC
Total Dissolved Solids (Residue, Filterable)	7,080		10.0	mg/L	1	8/12/2010

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW3-081310-45294 Units: mg/L Analysis Date: 8/14/2010 11:22 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061716 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004821	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	0.005306	0.050								J
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	0.002978	0.0050								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW3-081310-45294 Units: mg/L Analysis Date: 8/14/2010 03:22 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061644 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09599	0.010	0.1	0	96	80-120	0			
Arsenic	0.04807	0.0050	0.05	0	96.1	80-120	0			
Barium	0.04977	0.0050	0.05	0	99.5	80-120	0			
Beryllium	0.04866	0.0020	0.05	0	97.3	80-120	0			
Boron	0.4518	0.050	0.5	0	90.4	80-120	0			
Cadmium	0.04928	0.0020	0.05	0	98.6	80-120	0			
Calcium	4.877	0.50	5	0	97.5	80-120	0			
Chromium	0.04784	0.0050	0.05	0	95.7	80-120	0			
Cobalt	0.04874	0.0050	0.05	0	97.5	80-120	0			
Copper	0.04897	0.0050	0.05	0	97.9	80-120	0			
Iron	4.755	0.20	5	0	95.1	80-120	0			
Lead	0.04831	0.0050	0.05	0	96.6	80-120	0			
Magnesium	4.848	0.20	5	0	97	80-120	0			
Manganese	0.04823	0.0050	0.05	0	96.5	80-120	0			
Molybdenum	0.0471	0.0050	0.05	0	94.2	80-120	0			
Nickel	0.05004	0.0050	0.05	0	100	80-120	0			
Potassium	4.742	0.20	5	0	94.8	80-120	0			
Selenium	0.04953	0.0050	0.05	0	99.1	80-120	0			
Silver	0.04959	0.0050	0.05	0	99.2	80-120	0			
Sodium	4.807	0.20	5	0	96.1	80-120	0			
Vanadium	0.04727	0.0050	0.05	0	94.5	80-120	0			
Zinc	0.0529	0.0050	0.05	0	106	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

MS Sample ID: 1008401-15CMS Units: mg/L Analysis Date: 8/14/2010 03:43 AM

Client ID: Run ID: ICPMS03_100813A SeqNo: 2061648 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5743	0.010	0.1	0.4728	102	80-120	0			O
Arsenic	0.08485	0.0050	0.05	0.0361	97.5	80-120	0			
Barium	0.06486	0.0050	0.05	0.01611	97.5	80-120	0			
Beryllium	0.04754	0.0020	0.05	0.0003813	94.3	80-120	0			
Boron	0.7433	0.050	0.5	0.2716	94.3	80-120	0			
Cadmium	0.04778	0.0020	0.05	0.0002854	95	80-120	0			
Calcium	63.93	0.50	5	58.96	99.4	80-120	0			O
Chromium	0.04825	0.0050	0.05	0.0007848	94.9	80-120	0			
Cobalt	0.04755	0.0050	0.05	0.0003192	94.5	80-120	0			
Copper	0.04809	0.0050	0.05	0.001347	93.5	80-120	0			
Iron	4.686	0.20	5	0.1167	91.4	80-120	0			
Lead	0.0491	0.0050	0.05	0.001824	94.6	80-120	0			
Magnesium	13.33	0.20	5	8.817	90.3	80-120	0			
Manganese	0.08577	0.0050	0.05	0.03932	92.9	80-120	0			
Molybdenum	0.05006	0.0050	0.05	0.003368	93.4	80-120	0			
Nickel	0.04817	0.0050	0.05	0.001961	92.4	80-120	0			
Potassium	10.06	0.20	5	5.465	91.9	80-120	0			
Selenium	0.05139	0.0050	0.05	0.001186	100	80-120	0			
Silver	0.04626	0.0050	0.05	0.000173	92.2	80-120	0			
Sodium	131.2	0.20	5	128.1	62	80-120	0			SO
Vanadium	0.06417	0.0050	0.05	0.01699	94.4	80-120	0			
Zinc	0.06945	0.0050	0.05	0.02342	92.1	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

MSD		Sample ID: 1008401-15CMSD				Units: mg/L		Analysis Date: 8/14/2010 03:48 AM		
Client ID:		Run ID: ICPMS03_100813A				SeqNo: 2061649		Prep Date: 8/13/2010		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.5766	0.010	0.1	0.4728	104	80-120	0.5743	0.4	15	O
Arsenic	0.08708	0.0050	0.05	0.0361	102	80-120	0.08485	2.59	15	
Barium	0.06457	0.0050	0.05	0.01611	96.9	80-120	0.06486	0.448	15	
Beryllium	0.0482	0.0020	0.05	0.0003813	95.6	80-120	0.04754	1.38	15	
Boron	0.7321	0.050	0.5	0.2716	92.1	80-120	0.7433	1.52	15	
Cadmium	0.0473	0.0020	0.05	0.0002854	94	80-120	0.04778	1.01	15	
Calcium	66.18	0.50	5	58.96	144	80-120	63.93	3.46	15	SO
Chromium	0.04936	0.0050	0.05	0.0007848	97.2	80-120	0.04825	2.27	15	
Cobalt	0.04859	0.0050	0.05	0.0003192	96.5	80-120	0.04755	2.16	15	
Copper	0.04888	0.0050	0.05	0.001347	95.1	80-120	0.04809	1.63	15	
Iron	4.748	0.20	5	0.1167	92.6	80-120	4.686	1.31	15	
Lead	0.04924	0.0050	0.05	0.001824	94.8	80-120	0.0491	0.285	15	
Magnesium	13.52	0.20	5	8.817	94.1	80-120	13.33	1.42	15	
Manganese	0.08794	0.0050	0.05	0.03932	97.2	80-120	0.08577	2.5	15	
Molybdenum	0.05141	0.0050	0.05	0.003368	96.1	80-120	0.05006	2.66	15	
Nickel	0.04816	0.0050	0.05	0.001961	92.4	80-120	0.04817	0.0208	15	
Potassium	10.17	0.20	5	5.465	94.1	80-120	10.06	1.09	15	
Selenium	0.05134	0.0050	0.05	0.001186	100	80-120	0.05139	0.0973	15	
Silver	0.04755	0.0050	0.05	0.000173	94.8	80-120	0.04626	2.75	15	
Sodium	133.6	0.20	5	128.1	110	80-120	131.2	1.81	15	O
Vanadium	0.06662	0.0050	0.05	0.01699	99.3	80-120	0.06417	3.75	15	
Zinc	0.07304	0.0050	0.05	0.02342	99.2	80-120	0.06945	5.04	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45294 Instrument ID ICPMS03 Method: SW6020

DUP	Sample ID: 1008401-15CDUP	Units: mg/L		Analysis Date: 8/14/2010 03:32 AM						
Client ID:	Run ID: ICPMS03_100813A	SeqNo: 2061646		Prep Date: 8/13/2010		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.4951	0.010	0	0	0	-0 0	0.4728	4.61	25	
Arsenic	0.03893	0.0050	0	0	0	-0 0	0.0361	7.54	25	
Barium	0.01569	0.0050	0	0	0	-0 0	0.01611	2.64	25	
Beryllium	0.0003103	0.0020	0	0	0	-0 0	0.0003813	0	25	J
Boron	0.2882	0.050	0	0	0	-0 0	0.2716	5.93	25	
Cadmium	ND	0.0020	0	0	0	-0 0	0.0002854	0	25	
Calcium	63.15	0.50	0	0	0	-0 0	58.96	6.86	25	
Chromium	0.000633	0.0050	0	0	0	-0 0	0.0007848	0	25	J
Cobalt	ND	0.0050	0	0	0	-0 0	0.0003192	0	25	
Copper	0.001327	0.0050	0	0	0	-0 0	0.001347	0	25	J
Iron	ND	0.20	0	0	0	-0 0	0.1167	0	25	
Lead	0.001843	0.0050	0	0	0	-0 0	0.001824	0	25	J
Magnesium	9.285	0.20	0	0	0	-0 0	8.817	5.17	25	
Manganese	0.04182	0.0050	0	0	0	-0 0	0.03932	6.16	25	
Molybdenum	0.003335	0.0050	0	0	0	-0 0	0.003368	0	25	J
Nickel	0.001997	0.0050	0	0	0	-0 0	0.001961	0	25	J
Potassium	5.762	0.20	0	0	0	-0 0	5.465	5.29	25	
Selenium	ND	0.0050	0	0	0	-0 0	0.001186	0	25	
Silver	ND	0.0050	0	0	0	-0 0	0.000173	0	25	
Sodium	133.6	0.20	0	0	0	-0 0	128.1	4.2	25	
Vanadium	0.01813	0.0050	0	0	0	-0 0	0.01699	6.49	25	
Zinc	0.02401	0.0050	0	0	0	-0 0	0.02342	2.49	25	

The following samples were analyzed in this batch:

1008405-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45414 Instrument ID Mercury Method: SW7470

MBLK Sample ID: GBLKW1-081910-45414 Units: mg/L Analysis Date: 8/19/2010 02:36 PM

Client ID: Run ID: MERCURY_100819B SeqNo: 2066994 Prep Date: 8/19/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW1-081910-45414 Units: mg/L Analysis Date: 8/19/2010 02:38 PM

Client ID: Run ID: MERCURY_100819B SeqNo: 2066995 Prep Date: 8/19/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00473	0.00020	0.005	0	94.6	85-115	0			

MS Sample ID: 1008604-01CMS Units: mg/L Analysis Date: 8/19/2010 02:47 PM

Client ID: Run ID: MERCURY_100819B SeqNo: 2066998 Prep Date: 8/19/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00542	0.00020	0.005	0.000023	108	85-115	0			

MSD Sample ID: 1008604-01CMSD Units: mg/L Analysis Date: 8/19/2010 02:49 PM

Client ID: Run ID: MERCURY_100819B SeqNo: 2066999 Prep Date: 8/19/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00541	0.00020	0.005	0.000023	108	85-115	0.00542	0.185	20	

DUP Sample ID: 1008604-01CDUP Units: mg/L Analysis Date: 8/19/2010 02:45 PM

Client ID: Run ID: MERCURY_100819B SeqNo: 2066997 Prep Date: 8/19/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	-0 0	0.000023	0	20	

The following samples were analyzed in this batch:

1008405-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45299 Instrument ID SV-3 Method: SW8270

MBLK Sample ID: SBLKW2-100813-45299 Units: µg/L Analysis Date: 8/16/2010 12:23 PM
 Client ID: Run ID: SV-3_100813D SeqNo: 2062945 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	73.51	5.0	100	0	73.5	42-124	0			
Surr: 2-Fluorobiphenyl	74.53	5.0	100	0	74.5	48-120	0			
Surr: 2-Fluorophenol	57.17	5.0	100	0	57.2	20-120	0			
Surr: 4-Terphenyl-d14	70.97	5.0	100	0	71	51-135	0			
Surr: Nitrobenzene-d5	70.15	5.0	100	0	70.2	41-120	0			
Surr: Phenol-d6	54.08	5.0	100	0	54.1	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45299 Instrument ID SV-3 Method: SW8270

LCS Sample ID: SLCSW3-100813-45299 Units: µg/L Analysis Date: 8/16/2010 12:45 PM

Client ID: Run ID: SV-3_100813D SeqNo: 2062946 Prep Date: 8/13/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.08	5.0	50	0	86.2	50-120	0			
2,4,5-Trichlorophenol	79.89	5.0	100	0	79.9	50-120	0			
2,4,6-Trichlorophenol	79.12	5.0	100	0	79.1	50-120	0			
2-Methylnaphthalene	38.68	5.0	50	0	77.4	55-120	0			
2-Methylphenol	62.86	5.0	100	0	62.9	50-120	0			
2-Nitroaniline	49.51	5.0	50	0	99	55-120	0			
2-Nitrophenol	78.36	5.0	100	0	78.4	55-120	0			
3&4-Methylphenol	93.63	5.0	150	0	62.4	55-120	0			
3-Nitroaniline	34.07	5.0	50	0	68.1	40-120	0			
4-Nitroaniline	38.23	5.0	50	0	76.5	50-120	0			
4-Nitrophenol	84.84	5.0	100	0	84.8	45-120	0			
Acenaphthene	41.05	5.0	50	0	82.1	55-120	0			
Acenaphthylene	41.48	5.0	50	0	83	55-120	0			
Aniline	25.68	5.0	50	0	51.4	30-120	0			
Anthracene	43.56	5.0	50	0	87.1	55-120	0			
Benz(a)anthracene	44.87	5.0	50	0	89.7	55-120	0			
Benzidine	24.38	5.0	50	0	48.8	10-120	0			
Hexachloroethane	38.16	5.0	50	0	76.3	55-120	0			
Indeno(1,2,3-cd)pyrene	43.25	5.0	50	0	86.5	55-120	0			
Isophorone	37.48	5.0	50	0	75	55-120	0			
N-Nitrosodi-n-propylamine	32.41	5.0	50	0	64.8	50-120	0			
N-Nitrosodimethylamine	34.57	5.0	50	0	69.1	45-120	0			
N-Nitrosodiphenylamine	42.48	5.0	50	0	85	55-120	0			
Naphthalene	40.58	5.0	50	0	81.2	55-120	0			
Nitrobenzene	40.86	5.0	50	0	81.7	55-120	0			
Pentachlorophenol	89.43	5.0	100	0	89.4	55-120	0			
Phenanthrene	42.64	5.0	50	0	85.3	55-120	0			
Phenol	62.86	5.0	100	0	62.9	50-120	0			
Pyrene	43.02	5.0	50	0	86	55-120	0			
Surr: 2,4,6-Tribromophenol	84.85	5.0	100	0	84.9	42-124	0			
Surr: 2-Fluorobiphenyl	78.98	5.0	100	0	79	48-120	0			
Surr: 2-Fluorophenol	72.01	5.0	100	0	72	20-120	0			
Surr: 4-Terphenyl-d14	73.77	5.0	100	0	73.8	51-135	0			
Surr: Nitrobenzene-d5	79.98	5.0	100	0	80	41-120	0			
Surr: Phenol-d6	62.69	5.0	100	0	62.7	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 45299 Instrument ID SV-3 Method: SW8270

LCSD		Sample ID: SLCSW3-100813-45299				Units: µg/L		Analysis Date: 8/16/2010 01:08 PM		
Client ID:		Run ID: SV-3_100813D				SeqNo: 2062947		Prep Date: 8/13/2010		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.72	5.0	50	0	79.4	50-120	43.08	8.13	20	
2,4,5-Trichlorophenol	77.7	5.0	100	0	77.7	50-120	79.89	2.77	20	
2,4,6-Trichlorophenol	74.62	5.0	100	0	74.6	50-120	79.12	5.85	20	
2-Methylnaphthalene	36.52	5.0	50	0	73	55-120	38.68	5.75	20	
2-Methylphenol	58.11	5.0	100	0	58.1	50-120	62.86	7.85	20	
2-Nitroaniline	45.47	5.0	50	0	90.9	55-120	49.51	8.51	20	
2-Nitrophenol	73.33	5.0	100	0	73.3	55-120	78.36	6.64	20	
3&4-Methylphenol	87.19	5.0	150	0	58.1	55-120	93.63	7.12	20	
3-Nitroaniline	32.83	5.0	50	0	65.7	40-120	34.07	3.73	20	
4-Nitroaniline	38.57	5.0	50	0	77.1	50-120	38.23	0.889	20	
4-Nitrophenol	84.34	5.0	100	0	84.3	45-120	84.84	0.589	20	
Acenaphthene	38.43	5.0	50	0	76.9	55-120	41.05	6.58	20	
Acenaphthylene	39.08	5.0	50	0	78.2	55-120	41.48	5.96	20	
Aniline	26.13	5.0	50	0	52.3	30-120	25.68	1.74	20	
Anthracene	41.23	5.0	50	0	82.5	55-120	43.56	5.5	20	
Benz(a)anthracene	41.02	5.0	50	0	82	55-120	44.87	8.95	20	
Benzidine	25.83	5.0	50	0	51.7	10-120	24.38	5.75	20	
Hexachloroethane	35.51	5.0	50	0	71	55-120	38.16	7.19	20	
Indeno(1,2,3-cd)pyrene	40.97	5.0	50	0	81.9	55-120	43.25	5.42	20	
Isophorone	35.25	5.0	50	0	70.5	55-120	37.48	6.13	20	
N-Nitrosodi-n-propylamine	29.75	5.0	50	0	59.5	50-120	32.41	8.54	20	
N-Nitrosodimethylamine	33.74	5.0	50	0	67.5	45-120	34.57	2.43	20	
N-Nitrosodiphenylamine	38.36	5.0	50	0	76.7	55-120	42.48	10.2	20	
Naphthalene	38.15	5.0	50	0	76.3	55-120	40.58	6.18	20	
Nitrobenzene	37.65	5.0	50	0	75.3	55-120	40.86	8.18	20	
Pentachlorophenol	83.89	5.0	100	0	83.9	55-120	89.43	6.39	20	
Phenanthrene	40.75	5.0	50	0	81.5	55-120	42.64	4.54	20	
Phenol	58.95	5.0	100	0	58.9	50-120	62.86	6.42	20	
Pyrene	38.06	5.0	50	0	76.1	55-120	43.02	12.2	20	
Surr: 2,4,6-Tribromophenol	82.54	5.0	100	0	82.5	42-124	84.85	2.76	20	
Surr: 2-Fluorobiphenyl	76.75	5.0	100	0	76.7	48-120	78.98	2.87	20	
Surr: 2-Fluorophenol	66.49	5.0	100	0	66.5	20-120	72.01	7.98	20	
Surr: 4-Terphenyl-d14	68.54	5.0	100	0	68.5	51-135	73.77	7.34	20	
Surr: Nitrobenzene-d5	74.25	5.0	100	0	74.2	41-120	79.98	7.44	20	
Surr: Phenol-d6	58.13	5.0	100	0	58.1	20-120	62.69	7.56	20	

The following samples were analyzed in this batch:

1008405-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-082210-R96065 Units: µg/L Analysis Date: 8/22/2010 11:57 AM

Client ID: Run ID: VOA1_100822A SeqNo: 2069725 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	46.5	5.0	50	0	93	70-125	0			
Surr: 4-Bromofluorobenzene	52.77	5.0	50	0	106	72-125	0			
Surr: Dibromofluoromethane	50.96	5.0	50	0	102	71-125	0			
Surr: Toluene-d8	57.02	5.0	50	0	114	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-082210-R96065 Units: µg/L Analysis Date: 8/22/2010 11:06 AM

Client ID: Run ID: VOA1_100822A SeqNo: 2069724 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	50.25	5.0	50	0	101	80-120	0			
1,1,2,2-Tetrachloroethane	50.7	5.0	50	0	101	72-120	0			
1,1,2-Trichloroethane	51.13	5.0	50	0	102	80-120	0			
1,1-Dichloroethane	49.82	5.0	50	0	99.6	76-120	0			
1,1-Dichloroethene	48.95	5.0	50	0	97.9	73-124	0			
1,2-Dichloroethane	51.58	5.0	50	0	103	78-120	0			
2-Butanone	108.1	10	100	0	108	58-132	0			
2-Chloroethyl vinyl ether	110	10	100	0	110	74-120	0			
2-Hexanone	100.1	10	100	0	100	61-130	0			
4-Methyl-2-pentanone	98.34	10	100	0	98.3	65-127	0			
Acetone	99.41	10	100	0	99.4	59-137	0			
Benzene	54.47	5.0	50	0	109	73-121	0			
Bromodichloromethane	52.82	5.0	50	0	106	80-120	0			
Bromoform	48.16	5.0	50	0	96.3	79-120	0			
Bromomethane	49.82	5.0	50	0	99.6	66-137	0			
Carbon disulfide	101.4	10	100	0	101	68-141	0			
Carbon tetrachloride	46.93	5.0	50	0	93.9	75-124	0			
Chlorobenzene	48.07	5.0	50	0	96.1	80-120	0			
Chloroethane	49.98	5.0	50	0	100	76-121	0			
Chloroform	50.92	5.0	50	0	102	80-120	0			
Chloromethane	49.28	5.0	50	0	98.6	67-123	0			
cis-1,3-Dichloropropene	55.26	5.0	50	0	111	80-120	0			
Dibromochloromethane	51.43	5.0	50	0	103	80-120	0			
Ethylbenzene	51.37	5.0	50	0	103	80-120	0			
m,p-Xylene	93.5	10	100	0	93.5	78-121	0			
Methylene chloride	51.5	10	50	0	103	65-133	0			
Styrene	50.23	5.0	50	0	100	80-120	0			
Tetrachloroethene	50.32	5.0	50	0	101	79-120	0			
Toluene	50.7	5.0	50	0	101	80-120	0			
trans-1,3-Dichloropropene	49.84	5.0	50	0	99.7	80-120	0			
Trichloroethene	54.84	5.0	50	0	110	80-120	0			
Vinyl acetate	107.5	10	100	0	108	67-139	0			
Vinyl chloride	48.69	2.0	50	0	97.4	70-127	0			
Xylenes, Total	143.6	15	150	0	95.7	80-120	0			
Surr: 1,2-Dichloroethane-d4	49.13	5.0	50	0	98.3	70-125	0			
Surr: 4-Bromofluorobenzene	50.17	5.0	50	0	100	72-125	0			
Surr: Dibromofluoromethane	51.34	5.0	50	0	103	71-125	0			
Surr: Toluene-d8	56.69	5.0	50	0	113	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1008613-30AMS Units: µg/L Analysis Date: 8/22/2010 01:40 PM

Client ID: Run ID: VOA1_100822A SeqNo: 2069729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.89	5.0	50	0	95.8	80-120	0			
1,1,2,2-Tetrachloroethane	48.01	5.0	50	0	96	72-120	0			
1,1,2-Trichloroethane	50.43	5.0	50	0	101	80-120	0			
1,1-Dichloroethane	50.63	5.0	50	0	101	76-120	0			
1,1-Dichloroethene	45.46	5.0	50	0	90.9	73-124	0			
1,2-Dichloroethane	52.26	5.0	50	0	105	78-120	0			
2-Butanone	99.21	10	100	0	99.2	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	98.14	10	100	0	98.1	61-130	0			
4-Methyl-2-pentanone	97.46	10	100	0	97.5	65-127	0			
Acetone	89.45	10	100	2.183	87.3	59-137	0			
Benzene	51.68	5.0	50	0	103	73-121	0			
Bromodichloromethane	52.27	5.0	50	0	105	80-120	0			
Bromoform	45.67	5.0	50	0	91.3	79-120	0			
Bromomethane	50.46	5.0	50	0	101	66-137	0			
Carbon disulfide	92.14	10	100	0	92.1	68-141	0			
Carbon tetrachloride	44.76	5.0	50	0	89.5	75-124	0			
Chlorobenzene	49.46	5.0	50	0	98.9	80-120	0			
Chloroethane	52.77	5.0	50	0	106	76-121	0			
Chloroform	50.45	5.0	50	0	101	80-120	0			
Chloromethane	50.16	5.0	50	0	100	67-123	0			
cis-1,3-Dichloropropene	52.49	5.0	50	0	105	80-120	0			
Dibromochloromethane	49.04	5.0	50	0	98.1	80-120	0			
Ethylbenzene	49.71	5.0	50	0	99.4	80-120	0			
m,p-Xylene	97.64	10	100	0	97.6	78-121	0			
Methylene chloride	50.2	10	50	0	100	65-133	0			
Styrene	49.94	5.0	50	0	99.9	80-120	0			
Tetrachloroethene	44.1	5.0	50	0	88.2	79-120	0			
Toluene	52.19	5.0	50	0	104	80-120	0			
trans-1,3-Dichloropropene	49.55	5.0	50	0	99.1	80-120	0			
Trichloroethene	50.41	5.0	50	0	101	80-120	0			
Vinyl acetate	101.2	10	100	0	101	67-139	0			
Vinyl chloride	43.31	2.0	50	0	86.6	70-127	0			
Xylenes, Total	148.2	15	150	0	98.8	80-120	0			
Surr: 1,2-Dichloroethane-d4	47.32	5.0	50	0	94.6	70-125	0			
Surr: 4-Bromofluorobenzene	53.03	5.0	50	0	106	72-125	0			
Surr: Dibromofluoromethane	51.79	5.0	50	0	104	71-125	0			
Surr: Toluene-d8	56.22	5.0	50	0	112	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96065 Instrument ID VOA1 Method: SW8260

MSD Sample ID: 1008613-30AMSD Units: µg/L Analysis Date: 8/22/2010 02:06 PM

Client ID: Run ID: VOA1_100822A SeqNo: 2069730 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.02	5.0	50	0	96	80-120	47.89	0.269	20	
1,1,2,2-Tetrachloroethane	47.63	5.0	50	0	95.3	72-120	48.01	0.778	20	
1,1,2-Trichloroethane	51.12	5.0	50	0	102	80-120	50.43	1.36	20	
1,1-Dichloroethane	51.12	5.0	50	0	102	76-120	50.63	0.972	20	
1,1-Dichloroethene	48.08	5.0	50	0	96.2	73-124	45.46	5.59	20	
1,2-Dichloroethane	50.68	5.0	50	0	101	78-120	52.26	3.09	20	
2-Butanone	97.12	10	100	0	97.1	58-132	99.21	2.13	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	95.35	10	100	0	95.4	61-130	98.14	2.88	20	
4-Methyl-2-pentanone	95.54	10	100	0	95.5	65-127	97.46	1.99	20	
Acetone	82.69	10	100	2.183	80.5	59-137	89.45	7.86	20	
Benzene	53.73	5.0	50	0	107	73-121	51.68	3.89	20	
Bromodichloromethane	53.88	5.0	50	0	108	80-120	52.27	3.03	20	
Bromoform	46.06	5.0	50	0	92.1	79-120	45.67	0.867	20	
Bromomethane	51.65	5.0	50	0	103	66-137	50.46	2.33	20	
Carbon disulfide	94.91	10	100	0	94.9	68-141	92.14	2.96	20	
Carbon tetrachloride	44.85	5.0	50	0	89.7	75-124	44.76	0.198	20	
Chlorobenzene	49.03	5.0	50	0	98.1	80-120	49.46	0.874	20	
Chloroethane	49.21	5.0	50	0	98.4	76-121	52.77	6.97	20	
Chloroform	50.08	5.0	50	0	100	80-120	50.45	0.753	20	
Chloromethane	51.83	5.0	50	0	104	67-123	50.16	3.27	20	
cis-1,3-Dichloropropene	53.39	5.0	50	0	107	80-120	52.49	1.7	20	
Dibromochloromethane	50.95	5.0	50	0	102	80-120	49.04	3.84	20	
Ethylbenzene	52.67	5.0	50	0	105	80-120	49.71	5.77	20	
m,p-Xylene	103.6	10	100	0	104	78-121	97.64	5.95	20	
Methylene chloride	50.44	10	50	0	101	65-133	50.2	0.467	20	
Styrene	51.65	5.0	50	0	103	80-120	49.94	3.36	20	
Tetrachloroethene	46.9	5.0	50	0	93.8	79-120	44.1	6.15	20	
Toluene	50.95	5.0	50	0	102	80-120	52.19	2.41	20	
trans-1,3-Dichloropropene	48.6	5.0	50	0	97.2	80-120	49.55	1.93	20	
Trichloroethene	51.3	5.0	50	0	103	80-120	50.41	1.75	20	
Vinyl acetate	100.3	10	100	0	100	67-139	101.2	0.887	20	
Vinyl chloride	46.86	2.0	50	0	93.7	70-127	43.31	7.88	20	
Xylenes, Total	156.6	15	150	0	104	80-120	148.2	5.51	20	
Surr: 1,2-Dichloroethane-d4	48.98	5.0	50	0	98	70-125	47.32	3.45	20	
Surr: 4-Bromofluorobenzene	52.14	5.0	50	0	104	72-125	53.03	1.69	20	
Surr: Dibromofluoromethane	51.92	5.0	50	0	104	71-125	51.79	0.246	20	
Surr: Toluene-d8	56.22	5.0	50	0	112	75-125	56.22	0.00834	20	

The following samples were analyzed in this batch:

1008405-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95598 Instrument ID WetChem Method: SM4500H+ B

LCS Sample ID: WLCS-081210-R95598 Units: pH units Analysis Date: 8/12/2010

Client ID: Run ID: WETCHEM_100812E SeqNo: 2060107 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: 1008377-01CDUP Units: pH units Analysis Date: 8/12/2010

Client ID: Run ID: WETCHEM_100812E SeqNo: 2060115 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7	0.10	0	0	0	-0 0	7.01	0.143	20	H

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95629 Instrument ID Balance1 Method: M2540C

MBLK	Sample ID: BLANK-R95629				Units: mg/L		Analysis Date: 8/12/2010			
Client ID:	Run ID: BALANCE1_100812D				SeqNo: 2060924		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS	Sample ID: LCS-R95629				Units: mg/L		Analysis Date: 8/12/2010			
Client ID:	Run ID: BALANCE1_100812D				SeqNo: 2060925		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	958	10	1000	0	95.8	85-115	0			

DUP	Sample ID: 1008300-02ADUP					Units: mg/L		Analysis Date: 8/12/2010		
Client ID:	Run ID: BALANCE1_100812D				SeqNo: 2060914		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	5094	10	0	0	0	0-0	5070	0.472	20	

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95869 Instrument ID ICS2100 Method: E300

MBLK Sample ID: WBLKW3-081810-R95869 Units: mg/L Analysis Date: 8/18/2010 09:24 AM

Client ID: Run ID: ICS2100_100818A SeqNo: 2066137 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.254	0.10	5	0	105	85-115		0		

LCS Sample ID: WLCSW3-081810-R95869 Units: mg/L Analysis Date: 8/18/2010 09:39 AM

Client ID: Run ID: ICS2100_100818A SeqNo: 2066138 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	18.49	0.50	20	0	92.4	90-110		0		
Sulfate	18.31	0.50	20	0	91.6	90-110		0		
Surr: Selenate (surr)	5.057	0.10	5	0	101	85-115		0		

LCSD Sample ID: WLCSDW3-081810-R95869 Units: mg/L Analysis Date: 8/18/2010 09:53 AM

Client ID: Run ID: ICS2100_100818A SeqNo: 2066139 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	20.05	0.50	20	0	100	90-110	18.49	8.13	20	
Sulfate	19.54	0.50	20	0	97.7	90-110	18.31	6.48	20	
Surr: Selenate (surr)	5.034	0.10	5	0	101	85-115	5.057	0.456	20	

MS Sample ID: 1008508-01BMS Units: mg/L Analysis Date: 8/18/2010 10:55 AM

Client ID: Run ID: ICS2100_100818A SeqNo: 2066143 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	90.43	0.50	10	91.62	-12	80-120		0		SO
Sulfate	15.95	0.50	10	7.871	80.8	80-120		0		
Surr: Selenate (surr)	4.753	0.10	5	0	95.1	85-115		0		

MS Sample ID: 1008390-02CMS Units: mg/L Analysis Date: 8/18/2010 01:19 PM

Client ID: Run ID: ICS2100_100818A SeqNo: 2066150 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.72	0.50	10	4.689	100	80-120		0		
Sulfate	9.731	0.50	10	0.414	93.2	80-120		0		
Surr: Selenate (surr)	4.836	0.10	5	0	96.7	85-115		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95869 Instrument ID ICS2100 Method: E300

MSD	Sample ID: 1008508-01BMSD				Units: mg/L		Analysis Date: 8/18/2010 11:10 AM			
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066144		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	100.3	0.50	10	91.62	86.5	80-120	90.43	10.3	20	EO
Sulfate	17.86	0.50	10	7.871	99.8	80-120	15.95	11.3	20	
Surr: Selenate (surr)	5.308	0.10	5	0	106	85-115	4.753	11	20	

MSD	Sample ID: 1008390-02CMSD				Units: mg/L		Analysis Date: 8/18/2010 01:33 PM			
Client ID:	Run ID: ICS2100_100818A				SeqNo: 2066152		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	14.58	0.50	10	4.689	98.9	80-120	14.72	0.908	20	
Sulfate	9.64	0.50	10	0.414	92.3	80-120	9.731	0.94	20	
Surr: Selenate (surr)	4.791	0.10	5	0	95.8	85-115	4.836	0.935	20	

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1008405
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R95895 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW1-081910-R95895 Units: μ mhos/cm Analysis Date: 8/19/2010 01:00 PM

Client ID: Run ID: WETCHEM_100819C SeqNo: 2066728 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: WLCSW1-081910-R95895 Units: μ mhos/cm Analysis Date: 8/19/2010 01:00 PM

Client ID: Run ID: WETCHEM_100819C SeqNo: 2066729 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1410	1.0	1413	0	99.8	80-120	0			

DUP Sample ID: 1008405-01CDUP Units: μ mhos/cm Analysis Date: 8/19/2010 01:00 PM

Client ID: Inj Well Run ID: WETCHEM_100819C SeqNo: 2066733 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	3890	1.0	0	0	0		3860	0.774	20	

The following samples were analyzed in this batch:

1008405-01C

Client: Navajo Refining Company
 Work Order: 1008405
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R96128 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-082410-R96128 Units: mg/L Analysis Date: 8/24/2010 02:00 PM

Client ID: Run ID: WETCHEM_100824H SeqNo: 2070984 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-082410-R96128 Units: mg/L Analysis Date: 8/24/2010 02:00 PM

Client ID: Run ID: WETCHEM_100824H SeqNo: 2070985 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Total (As CaCO3)	994.4	5.0	1000		0	99.4	80-120	0		

DUP Sample ID: 1008445-01BDUP Units: mg/L Analysis Date: 8/24/2010 02:00 PM

Client ID: Run ID: WETCHEM_100824H SeqNo: 2070992 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	273.5	5.0	0	0	0	0-0	268.5	1.83	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	273.5	5.0	0	0	0	0-0	268.5	1.83	20	

The following samples were analyzed in this batch:

1008405-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Date: 25-Aug-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1008405

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	

Customer Information				Project Information				ALS Project Manager:				ALS Work Order #:				Parameter/Method Request for Analysis																	
Purchase Order	Company Name	Send Report To	Address	City/State/Zip	Phone	Fax	e-Mail Address	Project Name	Project Number	Bill To Company	Invoice Attn	Address	City/State/Zip	Phone	Fax	e-Mail Address	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Hold
CHEM CARE - HS	CHEVRON - CENAR BAYOU	VIVAR USA INC	KATHRYN HORTON	HOUSTON, TX 77061	713-641-9443	713-641-5423	KATHRYN.HORTON@VIVARUSA.COM																										
Work Order																																	
Company Name																																	
Send Report To																																	
Address																																	
City/State/Zip																																	
Phone																																	
Fax																																	
e-Mail Address																																	
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Hold										
1	1592 LEADING RACE C.P. 191	08-09-10	0830	LIQUID	NEAT	4	X																24hr T/A										
2	PAO SPILL C.P. 192	08-09-10	1000	LIQUID	NEAT	1		X	X	X	X	X											24hr T/A										
3																																	
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	

Relinquished by: JOHANNA HORTON Date: 8-11-10 Time: 1000

Relinquished by: JOHANNA HORTON Date: 8-11-10 Time: 1105

Logged by (Laboratory): JOHANNA HORTON Date: 8-11-10 Time: 1105

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₈ 6-NaHSO₄ 7-Other: 8-4°C 9-5035

QC Package: (Check One Box Below)

☐ Level II Std OC ☐ TRAP Checklist

☐ Level III Std OC/Raw Date ☐ TRAP Level IV

☐ Level IV SW846/CLP ☐ Other

Notes: 8-11-10

Required Turnaround Time: (Check Box)

☐ STD 10 Wk Days ☐ 5 Wk Days ☒ 2 Wk Days ☐ 24 Hour

Results Due Date: 8-11-10

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

2. Any changes must be made in writing once samples and COC form have been submitted to ALS Laboratory Group.
2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately. Changes must be agreed in a formal contract, services provided by this Laboratory Group.

Copyright 2008 by ALS Laboratory Group.

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group
Project: 1008405
Work Order: 1008331

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1008331-01	1008405-01E	Water		8/11/2010 12:40	8/13/2010 12:00	☐

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group
Project: 1008405
WorkOrder: 1008331

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group

Project: 1008405

Work Order: 1008331

Sample ID: 1008405-01E

Lab ID: 1008331-01

Collection Date: 8/11/2010 12:40 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	ND		40.0	mg/Kg	1	8/19/2010 12:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Environmental

Date: 23-Aug-10

Client: ALS Laboratory Group

QC BATCH REPORT

Work Order: 1008331

Project: 1008405

Batch ID: R80217 Instrument ID WETCHEM Method: SW7.3.4.2

MBLK Sample ID: WBLKW1-081910-R80217 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819F SeqNo: 1391118 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1008331-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Laboratory Group
 Work Order: 1008331
 Project: 1008405

QC BATCH REPORT

Batch ID: R80218 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK Sample ID: WBLKW1-081910-R80218 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391142 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: WLCSW1-081910-R80218 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391143 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	0			

LCSD Sample ID: WLCSDW1-081910-R80218 Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391149 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	249.6	6.06	35	

MS Sample ID: 1008432-01A MS Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391147 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	0			

MSD Sample ID: 1008432-01A MSD Units: mg/Kg Analysis Date: 8/19/2010 12:30 PM

Client ID: Run ID: WETCHEM_100819G SeqNo: 1391148 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	234.9	0	35	

The following samples were analyzed in this batch:

1008331-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 399-6070
FAX: (616) 399-6185
Accl #:

Date: 12-Aug-10
COC ID: 9208
Due Date 23-Aug-10

STREET

Page 1 of 1

Customer Information			Project Information			Parameter/Method Request for Analysis										
Purchase Order	10-2118974		Project Name	1008405		A	Reactive Cyanide (SW-846)									
Work Order			Project Number			B	Reactive Sulfide (SW-846)									
Company Name	ALS Group USA, Corp.		Bill To Company	ALS Group USA, Corp.		C										
Send Report To	JayLynn F Thibault		Inv Attn	Accounts Payable		D										
Address	10450 Stanciliff Rd, Suite 210		Address	10450 Stanciliff Rd, Suite 210		E										
						F										
City/State/Zip	Houston, Texas 77099-4338		City/State/Zip	Houston, Texas 77099-4338		G										
Phone	(281) 530-5656		Phone	(281) 530-5656		H										
Fax	(281) 530-5887		Fax	(281) 530-5887		I										
eMail Address	jaylynn.thibault@alsenviro.com		eMail CC	glenda.ramos@alsglobal.com		J										
Sample ID	1008405-01E (Inj Well)	Matrix	Water	Collection Date	24hr	Bottle	A	B	C	D	E	F	G	H	I	J
				8/11/2010 12:40		(1) 1LPNEAT	X	X								

Comments:

Please analyze for Reactive Cyanide and Reactive Sulfide. Report is due on 8/23/10. Please send report to Hector Coronado, hector.coronado@alsglobal.com, and CC: results@alsglobal.com

Relinquished by: 	Date/Time 3/12/10 12:15 PM	Received by: 
Relinquished by: 	Date/Time	Received by: 

Std. _____

ALS Environmental

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 13-Aug-10 12:00

Work Order: 1008331

Received by: KRW

Checklist completed by *Leitha Wierenga* 13-Aug-10
eSignature Date

Reviewed by: *Dann Stanton* 14-Aug-10
eSignature Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.2 C</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

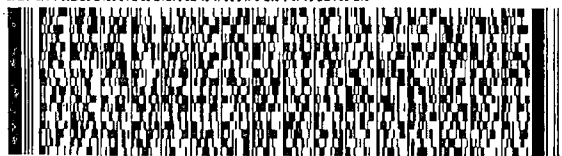
ORIGIN ID: JGQA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 12AUG10
ACTWGT: 36.8 LB
CAD: 300130/CAFE2453

BILL SENDER

TO RECEIVING
ALS LABORATORY
3352 128TH AVE.

HOLLAND MI 49424
(616) 399-6070
DEPT: SUB



FedEx
Express



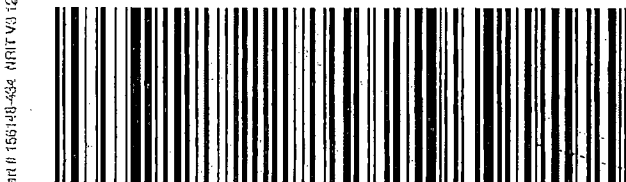
J0920091130223

TRK# 4340 2160 7190
0201

FRI - 13AUG A4
PRIORITY OVERNIGHT

NI GRR

49424
MI-US
GRR



Form 0 155148-434 HPLT V3 12/09

ALS Environmental

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 12-Aug-10 08:16

Work Order: 1008405

Received by: RNG

Checklist completed by Raymond M Gamba 12-Aug-10
eSignature Date

Reviewed by: Lynne F Thibault 12-Aug-10
eSignature Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.9c</u> <u>002</u>		
Cooler(s)/Kit(s):	<u>7128</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u>-</u>		
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



REFINING COMPANY, LLC

RECEIVED OGD

FAX

(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

July 29, 2010

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2010 Second Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2010 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for these wells. A Mechanical Integrity Test (MIT) on all the wells was last done in October 2009 and a quarterly MIT for WDW-3 was last done in June 2010. All of the wells passed. The quarterly MIT on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table.

This report covers the period from April 1, 2010 to June 30, 2010. We have disposed a total of 49,261,631 barrels of fluid into the three wells as of December 31, 2009. The volume per well is:

- 28,481,528 barrels into WDW-1
- 15,013,110 barrels into WDW-2
- 5,766,994 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,

NAVAJO REFINING COMPANY

Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.):
Environmental File:

DGM, JEL, AMS
Navajo: (ART: REF - 4 A 02 D)

2010 SECOND QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1														
Apr-10	605	653	517	127	135	112	343	535	203	4,364	4,611	3,846	135,279	28,072,838
May-10	548	659	366	130	139	111	462	592	245	4,472	4,749	3,792	138,633	28,208,117
Jun-09	532	622	297	131	136	126	315	456	214	4,493	4,661	4,303	134,777	28,346,751
WDW-2														
Apr-10	624	672	502	142	145	128	442	652	251	4,854	4,988	4,404	150,481	14,577,051
May-10	660	926	523	135	142	123	396	551	252	4,630	4,866	4,227	143,524	14,727,532
Jun-09	648	668	583	138	143	135	322	537	124	4,735	4,889	4,625	142,053	14,871,056
WDW-3														
Apr-10	635	668	507	204	217	184	371	538	263	7,004	7,452	6,314	217,122	5,185,671
May-10	620	688	460	169	195	128	324	448	253	5,807	6,678	4,374	180,017	5,402,793
Jun-09	655	679	596	179	187	154	338	435	251	6,139	6,402	5,287	184,185	5,582,809
Total Injected fluids:													49,261,631	5,766,994

2010 FIRST QUARTER WEEKLY WAMS LEVEL TABLE

	4/5/10	4/12/10	4/20/10	4/26/10	5/3/10	5/10/10	5/17/10	5/25/10	6/1/10	6/7/10	6/14/10	6/21/10	6/28/10
WDW -1 ¹	155	155	155	155	155	155	155	155	155	155	155	155	155
WDW-2 ¹	185	185	185	185	185	185	185	180	170	170	165	165	155
WDW-3 ¹	145	145	165	165	165	160	160	155	155	155	155	155	155
Comments: Added antifreeze to WDW-3 on 04/15/2010.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

07-Jun-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1005694

Dear Aaron,

ALS Laboratory Group received 1 sample on 20-May-2010 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 37.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

Jay Lynn F Thibault

Electronically approved by: Tiffany Van

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ALS Group USA, Corp.

Part of the **ALS Laboratory Group**

10450 Standliff Rd, Suite 210 Houston, Texas 77099-4338

Phone: (281) 530-5656 Fax: (281) 530-5887

www.alsglobal.com www.elabi.com

A Campbell Brothers Limited Company

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1005694

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1005694-01	Inj. Well	Liquid		5/19/2010 08:16	5/20/2010 10:00	☐

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1005694

Case Narrative

Batch 43309 Mercury (sample 1005615-01) MS/MSD unrelated sample.

Batch 43419 Metals (sample 1005872-02) MS/MSD unrelated sample.

Batch R91922 Chloride (sample 1005932-02) MS/MSD unrelated sample.

ALS Laboratory Group

Date: 07-Jun-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 5/19/2010 08:16 AM

Work Order: 1005694
Lab ID: 1005694-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470			
Mercury	ND		0.000200	mg/L	1	Prep Date: 5/28/2010 Analyst: JCJ 5/28/2010 02:09 PM
METALS			SW6020			
Aluminum	0.132		0.0200	mg/L	2	Prep Date: 6/3/2010 Analyst: ALR 6/5/2010 02:42 PM
Arsenic	0.0700		0.00500	mg/L	1	6/5/2010 02:31 AM
Barium	0.0235		0.0100	mg/L	2	6/5/2010 02:42 PM
Beryllium	ND		0.00200	mg/L	1	6/5/2010 02:31 AM
Boron	0.164		0.0400	mg/L	2	6/7/2010 02:38 PM
Cadmium	ND		0.00400	mg/L	2	6/5/2010 02:42 PM
Calcium	175		10.0	mg/L	20	6/5/2010 02:25 AM
Chromium	ND		0.00500	mg/L	1	6/5/2010 02:31 AM
Cobalt	ND		0.00500	mg/L	1	6/5/2010 02:31 AM
Copper	ND		0.00500	mg/L	1	6/5/2010 02:31 AM
Iron	0.545		0.400	mg/L	2	6/5/2010 02:42 PM
Lead	ND		0.0100	mg/L	2	6/5/2010 02:42 PM
Magnesium	53.6		4.00	mg/L	20	6/5/2010 02:25 AM
Manganese	0.0446		0.00500	mg/L	1	6/5/2010 02:31 AM
Molybdenum	0.114		0.0100	mg/L	2	6/5/2010 02:42 PM
Nickel	0.0136		0.0100	mg/L	2	6/5/2010 02:42 PM
Potassium	9.45		0.400	mg/L	2	6/5/2010 02:42 PM
Selenium	0.407		0.00500	mg/L	1	6/5/2010 02:31 AM
Silver	ND		0.0100	mg/L	2	6/5/2010 02:42 PM
Sodium	1,210		4.00	mg/L	20	6/5/2010 02:25 AM
Vanadium	0.0196		0.00500	mg/L	1	6/5/2010 02:31 AM
Zinc	1.92		0.100	mg/L	20	6/5/2010 02:25 AM
SEMIVOLATILES			SW8270			
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	Prep Date: 5/24/2010 Analyst: ACN 6/3/2010 09:50 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
2-Methylphenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
2-Nitroaniline	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
2-Nitrophenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
3-Nitroaniline	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
4-Nitroaniline	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
4-Nitrophenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Acenaphthene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Acenaphthylene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 07-Jun-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 5/19/2010 08:16 AM

Work Order: 1005694
Lab ID: 1005694-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Anthracene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Benzidine	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Hexachloroethane	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Isophorone	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Naphthalene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Nitrobenzene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Pentachlorophenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Phenanthrene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Phenol	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Pyrene	ND		0.0050	mg/L	1	6/3/2010 09:50 PM
Surr: 2,4,6-Tribromophenol	81.7		42-124	%REC	1	6/3/2010 09:50 PM
Surr: 2-Fluorobiphenyl	77.6		48-120	%REC	1	6/3/2010 09:50 PM
Surr: 2-Fluorophenol	63.6		20-120	%REC	1	6/3/2010 09:50 PM
Surr: 4-Terphenyl-d14	77.8		51-135	%REC	1	6/3/2010 09:50 PM
Surr: Nitrobenzene-d5	65.7		41-120	%REC	1	6/3/2010 09:50 PM
Surr: Phenol-d6	61.1		20-120	%REC	1	6/3/2010 09:50 PM
VOLATILES			SW8260		Analyst: PC	
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
2-Butanone	ND		0.010	mg/L	1	5/29/2010 04:39 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	5/29/2010 04:39 PM
2-Hexanone	ND		0.010	mg/L	1	5/29/2010 04:39 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	5/29/2010 04:39 PM
Acetone	0.031		0.010	mg/L	1	5/29/2010 04:39 PM
Benzene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Bromodichloromethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Bromoform	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Bromomethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Carbon disulfide	ND		0.010	mg/L	1	5/29/2010 04:39 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	5/29/2010 04:39 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 07-Jun-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 5/19/2010 08:16 AM

Work Order: 1005694
Lab ID: 1005694-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Chloroethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Chloroform	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Chloromethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Dibromochloromethane	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Ethylbenzene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
m,p-Xylene	ND		0.010	mg/L	1	5/29/2010 04:39 PM
Methylene chloride	ND		0.010	mg/L	1	5/29/2010 04:39 PM
Styrene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Tetrachloroethene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Toluene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Trichloroethene	ND		0.0050	mg/L	1	5/29/2010 04:39 PM
Vinyl acetate	ND		0.010	mg/L	1	5/29/2010 04:39 PM
Vinyl chloride	ND		0.0020	mg/L	1	5/29/2010 04:39 PM
Xylenes, Total	ND		0.015	mg/L	1	5/29/2010 04:39 PM
Surr: 1,2-Dichloroethane-d4	82.5		70-125	%REC	1	5/29/2010 04:39 PM
Surr: 4-Bromofluorobenzene	86.0		72-125	%REC	1	5/29/2010 04:39 PM
Surr: Dibromofluoromethane	89.7		71-125	%REC	1	5/29/2010 04:39 PM
Surr: Toluene-d8	91.7		75-125	%REC	1	5/29/2010 04:39 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	5/27/2010
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	5/27/2010
ANIONS			E300			Analyst: IGF
Chloride	308		25.0	mg/L	50	6/2/2010 10:16 AM
Sulfate	3,510		25.0	mg/L	50	6/2/2010 10:16 AM
Surr: Selenate (surr)	87.0		85-115	%REC	50	6/2/2010 10:16 AM
ALKALINITY			SM2320B			Analyst: TDW
Alkalinity, Bicarbonate (As CaCO3)	312		5.00	mg/L	1	5/24/2010 06:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	5/24/2010 06:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	5/24/2010 06:00 PM
Alkalinity, Total (As CaCO3)	312		5.00	mg/L	1	5/24/2010 06:00 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: IGF
Specific Conductivity	7,240		1.00	µmhos/cm	1	6/2/2010 06:40 PM
IGNITIBILITY			SW1010			Analyst: JLC

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 07-Jun-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Sample ID: Inj. Well
Collection Date: 5/19/2010 08:16 AM

Work Order: 1005694
Lab ID: 1005694-01
Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Ignitability	> 212		50.0	°F	1	5/26/2010 11:00 AM
PH			SM4500H+ B			Analyst: JLC
pH	7.29	H	0.100	pH units	1	5/21/2010
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: TDW
Total Dissolved Solids (Residue, Filterable)	5,900		10.0	mg/L	1	5/25/2010 05:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 07-Jun-10

Client: Navajo Refining Company
Work Order: 1005694
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43309 Instrument ID HG02 Method: SW7470

MBLK Sample ID: GBLKW1-052810-43309 Units: mg/L Analysis Date: 5/28/2010 01:31 PM
Client ID: Run ID: HG02_100528A SeqNo: 1976041 Prep Date: 5/28/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW1-052810-43309 Units: mg/L Analysis Date: 5/28/2010 01:38 PM
Client ID: Run ID: HG02_100528A SeqNo: 1976045 Prep Date: 5/28/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00533	0.00020	0.005	0	107	85-115	0			

MS Sample ID: 1005615-01BMS Units: mg/L Analysis Date: 5/28/2010 01:53 PM
Client ID: Run ID: HG02_100528A SeqNo: 1976055 Prep Date: 5/28/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00329	0.00020	0.005	0	65.8	85-115	0			S

MSD Sample ID: 1005615-01BMSD Units: mg/L Analysis Date: 5/28/2010 01:56 PM
Client ID: Run ID: HG02_100528A SeqNo: 1976060 Prep Date: 5/28/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00341	0.00020	0.005	0	68.2	85-115	0.00329	3.58	20	S

DUP Sample ID: 1005615-01BDUP Units: mg/L Analysis Date: 5/28/2010 01:46 PM
Client ID: Run ID: HG02_100528A SeqNo: 1976052 Prep Date: 5/28/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	0	0	20	

The following samples were analyzed in this batch:

1005694-01B

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43419 Instrument ID ICPMS03 Method: SW6020

MBLK Sample ID: MBLKW1-060310-43419 Units: mg/L Analysis Date: 6/4/2010 02:37 AM
 Client ID: Run ID: ICPMS03_100603A SeqNo: 1982064 Prep Date: 6/3/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Boron	0.007883	0.050								J
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Sodium	ND	0.20								
Zinc	ND	0.0050								

LCS Sample ID: MLCSW1-060310-43419 Units: mg/L Analysis Date: 6/4/2010 02:43 AM
 Client ID: Run ID: ICPMS03_100603A SeqNo: 1982065 Prep Date: 6/3/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1067	0.010	0.1	0	107	80-120	0			
Arsenic	0.05184	0.0050	0.05	0	104	80-120	0			
Barium	0.05029	0.0050	0.05	0	101	80-120	0			
Boron	0.471	0.050	0.5	0	94.2	80-120	0			
Cadmium	0.05197	0.0020	0.05	0	104	80-120	0			
Calcium	5.068	0.50	5	0	101	80-120	0			
Chromium	0.05	0.0050	0.05	0	100	80-120	0			
Cobalt	0.05051	0.0050	0.05	0	101	80-120	0			
Copper	0.05117	0.0050	0.05	0	102	80-120	0			
Iron	4.873	0.20	5	0	97.5	80-120	0			
Lead	0.04874	0.0050	0.05	0	97.5	80-120	0			
Magnesium	4.967	0.20	5	0	99.3	80-120	0			
Nickel	0.05086	0.0050	0.05	0	102	80-120	0			
Potassium	4.87	0.20	5	0	97.4	80-120	0			
Sodium	4.927	0.20	5	0	98.5	80-120	0			
Zinc	0.05879	0.0050	0.05	0	118	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43419 Instrument ID ICPMS03 Method: SW6020

MS	Sample ID: 1005872-02DMS				Units: mg/L		Analysis Date: 6/4/2010 03:04 AM			
Client ID:	Run ID: ICPMS03_100603A				SeqNo: 1982069		Prep Date: 6/3/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1563	0.010	0.1	0.04208	114	80-120	0			
Arsenic	0.05782	0.0050	0.05	0.003511	109	80-120	0			
Barium	0.08013	0.0050	0.05	0.02596	108	80-120	0			
Boron	0.5589	0.050	0.5	0.05727	100	80-120	0			
Cadmium	0.04786	0.0020	0.05	-0.0002037	96.1	80-120	0			
Calcium	40.42	0.50	5	33.97	129	80-120	0			SO
Chromium	0.05349	0.0050	0.05	0.0008945	105	80-120	0			
Cobalt	0.05227	0.0050	0.05	0.0007399	103	80-120	0			
Copper	0.05205	0.0050	0.05	0.001567	101	80-120	0			
Iron	5.355	0.20	5	0.3718	99.7	80-120	0			
Magnesium	41.01	0.20	5	35.19	116	80-120	0			O
Nickel	0.05848	0.0050	0.05	0.006901	103	80-120	0			
Potassium	24.57	0.20	5	19.08	110	80-120	0			
Sodium	443.9	0.20	5	437.2	134	80-120	0			SEO
Zinc	0.08962	0.0050	0.05	0.03829	103	80-120	0			

MS	Sample ID: 1005872-02DMS					Units: mg/L		Analysis Date: 6/4/2010 04:00 PM		
Client ID:	Run ID: ICPMS03_100604A				SeqNo: 1982893		Prep Date: 6/3/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05298	0.0050	0.05	0.0003457	105	80-120	0			

MSD	Sample ID: 1005872-02DMSD				Units: mg/L		Analysis Date: 6/4/2010 03:14 AM			
Client ID:	Run ID: ICPMS03_100603A				SeqNo: 1982070		Prep Date: 6/3/2010		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1581	0.010	0.1	0.04208	116	80-120	0.1563	1.15	15	
Arsenic	0.05536	0.0050	0.05	0.003511	104	80-120	0.05782	4.35	15	
Barium	0.07986	0.0050	0.05	0.02596	108	80-120	0.08013	0.338	15	
Boron	0.5562	0.050	0.5	0.05727	99.8	80-120	0.5589	0.484	15	
Cadmium	0.04841	0.0020	0.05	-0.0002037	97.2	80-120	0.04786	1.14	15	
Calcium	40.08	0.50	5	33.97	122	80-120	40.42	0.845	15	SO
Chromium	0.05187	0.0050	0.05	0.0008945	102	80-120	0.05349	3.08	15	
Cobalt	0.05081	0.0050	0.05	0.0007399	100	80-120	0.05227	2.83	15	
Copper	0.05041	0.0050	0.05	0.001567	97.7	80-120	0.05205	3.2	15	
Iron	5.366	0.20	5	0.3718	99.9	80-120	5.355	0.205	15	
Magnesium	41.94	0.20	5	35.19	135	80-120	41.01	2.24	15	SO
Nickel	0.05859	0.0050	0.05	0.006901	103	80-120	0.05848	0.188	15	
Potassium	25.35	0.20	5	19.08	125	80-120	24.57	3.12	15	S
Sodium	461.3	0.20	5	437.2	482	80-120	443.9	3.84	15	SEO
Zinc	0.09181	0.0050	0.05	0.03829	107	80-120	0.08962	2.41	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43419 Instrument ID ICPMS03 Method: SW6020

MSD Sample ID: 1005872-02DMSD Units: mg/L Analysis Date: 6/4/2010 04:10 PM

Client ID: Run ID: ICPMS03_100604A SeqNo: 1982948 Prep Date: 6/3/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	0.05395	0.0050	0.05	0.0003457	107	80-120	0.05298	1.81	15	

DUP Sample ID: 1005872-02DDUP Units: mg/L Analysis Date: 6/4/2010 02:53 AM

Client ID: Run ID: ICPMS03_100603A SeqNo: 1982067 Prep Date: 6/3/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.04385	0.010	0	0	0	0-0	0.04208	4.12	25	
Arsenic	0.003367	0.0050	0	0	0	0-0	0.003511	0	25	J
Barium	0.02611	0.0050	0	0	0	0-0	0.02596	0.576	25	
Boron	0.05626	0.050	0	0	0	0-0	0.05727	1.78	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0002037	0	25	
Calcium	35.01	0.50	0	0	0	0-0	33.97	3.02	25	
Chromium	0.00117	0.0050	0	0	0	0-0	0.0008945	0	25	J
Cobalt	0.0007027	0.0050	0	0	0	0-0	0.0007399	0	25	J
Copper	0.001599	0.0050	0	0	0	0-0	0.001567	0	25	J
Iron	0.3721	0.20	0	0	0	0-0	0.3718	0.0807	25	
Magnesium	36.33	0.20	0	0	0	0-0	35.19	3.19	25	
Nickel	0.006782	0.0050	0	0	0	0-0	0.006901	1.74	25	
Potassium	19.3	0.20	0	0	0	0-0	19.08	1.15	25	
Zinc	0.03724	0.0050	0	0	0	0-0	0.03829	2.78	25	

DUP Sample ID: 1005872-02DDUP Units: mg/L Analysis Date: 6/4/2010 03:02 PM

Client ID: Run ID: ICPMS03_100604A SeqNo: 1982880 Prep Date: 6/3/2010 DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	489.1	20	0	0	0	0-0	491.1	0.408	25	

DUP Sample ID: 1005872-02DDUP Units: mg/L Analysis Date: 6/4/2010 03:39 PM

Client ID: Run ID: ICPMS03_100604A SeqNo: 1982888 Prep Date: 6/3/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Lead	ND	0.0050	0	0	0	0-0	0.0003457	0	25	

The following samples were analyzed in this batch:

1005694-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43178 Instrument ID SV-5 Method: SW8270

MBLK Sample ID: SBLKW3-100524-43178 Units: µg/L Analysis Date: 6/1/2010 05:21 PM
 Client ID: Run ID: SV-5_100601A SeqNo: 1982573 Prep Date: 5/24/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	67.77	5.0	100	0	67.8	42-124	0			
Surr: 2-Fluorobiphenyl	72.69	5.0	100	0	72.7	48-120	0			
Surr: 2-Fluorophenol	67.9	5.0	100	0	67.9	20-120	0			
Surr: 4-Terphenyl-d14	68.97	5.0	100	0	69	51-135	0			
Surr: Nitrobenzene-d5	72.6	5.0	100	0	72.6	41-120	0			
Surr: Phenol-d6	63.97	5.0	100	0	64	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43178 Instrument ID SV-5 Method: SW8270

LCS Sample ID: SLCSW3-100524-43178 Units: µg/L Analysis Date: 6/1/2010 04:23 PM

Client ID: Run ID: SV-5_100601A SeqNo: 1982414 Prep Date: 5/24/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.26	5.0	50	0	76.5	50-120	0			
2,4,5-Trichlorophenol	86.1	5.0	100	0	86.1	50-120	0			
2,4,6-Trichlorophenol	79.74	5.0	100	0	79.7	50-120	0			
2-Methylnaphthalene	41.29	5.0	50	0	82.6	55-120	0			
2-Methylphenol	81.08	5.0	100	0	81.1	50-120	0			
2-Nitroaniline	42.28	5.0	50	0	84.6	55-120	0			
2-Nitrophenol	79.44	5.0	100	0	79.4	55-120	0			
3&4-Methylphenol	123.7	5.0	150	0	82.5	55-120	0			
3-Nitroaniline	41.31	5.0	50	0	82.6	40-120	0			
4-Nitroaniline	34.07	5.0	50	0	68.1	50-120	0			
4-Nitrophenol	88.77	5.0	100	0	88.8	45-120	0			
Acenaphthene	40.75	5.0	50	0	81.5	55-120	0			
Acenaphthylene	40.05	5.0	50	0	80.1	55-120	0			
Aniline	34.48	5.0	50	0	69	30-120	0			
Anthracene	41.66	5.0	50	0	83.3	55-120	0			
Benz(a)anthracene	41.17	5.0	50	0	82.3	55-120	0			
Benzidine	11.73	5.0	50	0	23.5	10-120	0			
Hexachloroethane	32.79	5.0	50	0	65.6	55-120	0			
Indeno(1,2,3-cd)pyrene	36.38	5.0	50	0	72.8	55-120	0			
Isophorone	39.28	5.0	50	0	78.6	55-120	0			
N-Nitrosodi-n-propylamine	38.62	5.0	50	0	77.2	50-120	0			
N-Nitrosodimethylamine	35.82	5.0	50	0	71.6	45-120	0			
N-Nitrosodiphenylamine	40.61	5.0	50	0	81.2	55-120	0			
Naphthalene	38.76	5.0	50	0	77.5	55-120	0			
Nitrobenzene	39.41	5.0	50	0	78.8	55-120	0			
Pentachlorophenol	84	5.0	100	0	84	55-120	0			
Phenanthrene	40.31	5.0	50	0	80.6	55-120	0			
Phenol	82.31	5.0	100	0	82.3	50-120	0			
Pyrene	39.36	5.0	50	0	78.7	55-120	0			
Surr: 2,4,6-Tribromophenol	74.31	5.0	100	0	74.3	42-124	0			
Surr: 2-Fluorobiphenyl	76.21	5.0	100	0	76.2	48-120	0			
Surr: 2-Fluorophenol	82.91	5.0	100	0	82.9	20-120	0			
Surr: 4-Terphenyl-d14	71.22	5.0	100	0	71.2	51-135	0			
Surr: Nitrobenzene-d5	74.92	5.0	100	0	74.9	41-120	0			
Surr: Phenol-d6	80.6	5.0	100	0	80.6	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 43178 Instrument ID SV-5 Method: SW8270

LCSD Sample ID: SLCS DW3-100524-43178 Units: µg/L Analysis Date: 6/1/2010 04:45 PM

Client ID: Run ID: SV-5_100601A SeqNo: 1982418 Prep Date: 5/24/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	41.44	5.0	50	0	82.9	50-120	38.26	7.98	20	
2,4,5-Trichlorophenol	94.19	5.0	100	0	94.2	50-120	86.1	8.98	20	
2,4,6-Trichlorophenol	90.68	5.0	100	0	90.7	50-120	79.74	12.8	20	
2-Methylnaphthalene	42.52	5.0	50	0	85	55-120	41.29	2.93	20	
2-Methylphenol	88.34	5.0	100	0	88.3	50-120	81.08	8.57	20	
2-Nitroaniline	45.34	5.0	50	0	90.7	55-120	42.28	6.98	20	
2-Nitrophenol	86.99	5.0	100	0	87	55-120	79.44	9.07	20	
3&4-Methylphenol	136.5	5.0	150	0	91	55-120	123.7	9.79	20	
3-Nitroaniline	44.4	5.0	50	0	88.8	40-120	41.31	7.22	20	
4-Nitroaniline	34.17	5.0	50	0	68.3	50-120	34.07	0.281	20	
4-Nitrophenol	90.27	5.0	100	0	90.3	45-120	88.77	1.67	20	
Acenaphthene	44.34	5.0	50	0	88.7	55-120	40.75	8.44	20	
Acenaphthylene	44.17	5.0	50	0	88.3	55-120	40.05	9.78	20	
Aniline	40.22	5.0	50	0	80.4	30-120	34.48	15.4	20	
Anthracene	46.48	5.0	50	0	93	55-120	41.66	10.9	20	
Benz(a)anthracene	44.29	5.0	50	0	88.6	55-120	41.17	7.29	20	
Benzidine	10.64	5.0	50	0	21.3	10-120	11.73	9.71	20	
Hexachloroethane	39.63	5.0	50	0	79.3	55-120	32.79	18.9	20	
Indeno(1,2,3-cd)pyrene	40.85	5.0	50	0	81.7	55-120	36.38	11.6	20	
Isophorone	41.24	5.0	50	0	82.5	55-120	39.28	4.86	20	
N-Nitrosodi-n-propylamine	43.6	5.0	50	0	87.2	50-120	38.62	12.1	20	
N-Nitrosodimethylamine	48.9	5.0	50	0	97.8	45-120	35.82	30.9	20	R
N-Nitrosodiphenylamine	45.87	5.0	50	0	91.7	55-120	40.61	12.2	20	
Naphthalene	42.03	5.0	50	0	84.1	55-120	38.76	8.09	20	
Nitrobenzene	41.09	5.0	50	0	82.2	55-120	39.41	4.19	20	
Pentachlorophenol	92.79	5.0	100	0	92.8	55-120	84	9.94	20	
Phenanthrene	43.39	5.0	50	0	86.8	55-120	40.31	7.36	20	
Phenol	91.04	5.0	100	0	91	50-120	82.31	10.1	20	
Pyrene	39.99	5.0	50	0	80	55-120	39.36	1.59	20	
Surr: 2,4,6-Tribromophenol	77.66	5.0	100	0	77.7	42-124	74.31	4.42	20	
Surr: 2-Fluorobiphenyl	87.03	5.0	100	0	87	48-120	76.21	13.3	20	
Surr: 2-Fluorophenol	104.3	5.0	100	0	104	20-120	82.91	22.9	20	R
Surr: 4-Terphenyl-d14	72.72	5.0	100	0	72.7	51-135	71.22	2.08	20	
Surr: Nitrobenzene-d5	81.65	5.0	100	0	81.6	41-120	74.92	8.59	20	
Surr: Phenol-d6	89.31	5.0	100	0	89.3	20-120	80.6	10.3	20	

The following samples were analyzed in this batch:

1005694-01E

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91780 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-052910-R91780 Units: µg/L Analysis Date: 5/29/2010 01:39 PM

Client ID: Run ID: VOA1_100529A SeqNo: 1978015 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	45.19	5.0	50	0	90.4	70-125	0			
Surr: 4-Bromofluorobenzene	46.07	5.0	50	0	92.1	72-125	0			
Surr: Dibromofluoromethane	46.03	5.0	50	0	92.1	71-125	0			
Surr: Toluene-d8	45.04	5.0	50	0	90.1	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91780 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-052910-R91780 Units: µg/L Analysis Date: 5/29/2010 12:22 PM

Client ID: Run ID: VOA1_100529A SeqNo: 1978013 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.71	5.0	50	0	93.4	80-120	0			
1,1,2,2-Tetrachloroethane	53.94	5.0	50	0	108	72-120	0			
1,1,2-Trichloroethane	54.54	5.0	50	0	109	80-120	0			
1,1-Dichloroethane	50.08	5.0	50	0	100	76-120	0			
1,1-Dichloroethene	52.5	5.0	50	0	105	73-124	0			
1,2-Dichloroethane	49.76	5.0	50	0	99.5	78-120	0			
2-Butanone	118.4	10	100	0	118	58-132	0			
2-Chloroethyl vinyl ether	111.7	10	100	0	112	74-120	0			
2-Hexanone	122.8	10	100	0	123	61-130	0			
4-Methyl-2-pentanone	119.5	10	100	0	119	65-127	0			
Acetone	106.5	10	100	0	106	59-137	0			
Benzene	51.54	5.0	50	0	103	73-121	0			
Bromodichloromethane	50.31	5.0	50	0	101	80-120	0			
Bromoform	55.73	5.0	50	0	111	79-120	0			
Bromomethane	59.97	5.0	50	0	120	66-137	0			
Carbon disulfide	95.09	10	100	0	95.1	68-141	0			
Carbon tetrachloride	45.78	5.0	50	0	91.6	75-124	0			
Chlorobenzene	50.02	5.0	50	0	100	80-120	0			
Chloroethane	50.17	5.0	50	0	100	76-121	0			
Chloroform	50.56	5.0	50	0	101	80-120	0			
Chloromethane	48.7	5.0	50	0	97.4	67-123	0			
cis-1,3-Dichloropropene	49.35	5.0	50	0	98.7	80-120	0			
Dibromochloromethane	53.42	5.0	50	0	107	80-120	0			
Ethylbenzene	47.48	5.0	50	0	95	80-120	0			
m,p-Xylene	95.61	10	100	0	95.6	78-121	0			
Methylene chloride	49.45	10	50	0	98.9	65-133	0			
Styrene	51.49	5.0	50	0	103	80-120	0			
Tetrachloroethene	51.3	5.0	50	0	103	79-120	0			
Toluene	49.05	5.0	50	0	98.1	80-120	0			
trans-1,3-Dichloropropene	52.4	5.0	50	0	105	80-120	0			
Trichloroethene	49.43	5.0	50	0	98.9	80-120	0			
Vinyl acetate	96.36	10	100	0	96.4	67-139	0			
Vinyl chloride	45.33	2.0	50	0	90.7	70-127	0			
Xylenes, Total	145.9	15	150	0	97.2	80-120	0			
Surr: 1,2-Dichloroethane-d4	43.35	5.0	50	0	86.7	70-125	0			
Surr: 4-Bromofluorobenzene	47.62	5.0	50	0	95.2	72-125	0			
Surr: Dibromofluoromethane	45.12	5.0	50	0	90.2	71-125	0			
Surr: Toluene-d8	48.7	5.0	50	0	97.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91780 Instrument ID VOA1 Method: SW8260

MS Sample ID: 1005758-03AMS Units: µg/L Analysis Date: 5/29/2010 03:22 PM

Client ID: Run ID: VOA1_100529A SeqNo: 1978025 Prep Date: DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4689	500	5000	0	93.8	80-120	0			
1,1,2,2-Tetrachloroethane	5492	500	5000	0	110	72-120	0			
1,1,2-Trichloroethane	5065	500	5000	0	101	80-120	0			
1,1-Dichloroethane	5211	500	5000	0	104	76-120	0			
1,1-Dichloroethene	5059	500	5000	0	101	73-124	0			
1,2-Dichloroethane	5565	500	5000	0	111	78-120	0			
2-Butanone	12090	1,000	10000	0	121	58-132	0			
2-Chloroethyl vinyl ether	9005	1,000	10000	0	90.1	74-120	0			
2-Hexanone	11980	1,000	10000	0	120	61-130	0			
4-Methyl-2-pentanone	11410	1,000	10000	0	114	65-127	0			
Acetone	10730	1,000	10000	0	107	59-137	0			
Benzene	9427	500	5000	3688	115	73-121	0			
Bromodichloromethane	5281	500	5000	0	106	80-120	0			
Bromoform	5182	500	5000	0	104	79-120	0			
Bromomethane	5806	500	5000	0	116	66-137	0			
Carbon disulfide	9246	1,000	10000	0	92.5	68-141	0			
Carbon tetrachloride	4804	500	5000	0	96.1	75-124	0			
Chlorobenzene	4702	500	5000	0	94	80-120	0			
Chloroethane	4824	500	5000	0	96.5	76-121	0			
Chloroform	5148	500	5000	0	103	80-120	0			
Chloromethane	4946	500	5000	0	98.9	67-123	0			
cis-1,3-Dichloropropene	5651	500	5000	0	113	80-120	0			
Dibromochloromethane	5106	500	5000	0	102	80-120	0			
Ethylbenzene	5103	500	5000	359.9	94.9	80-120	0			
m,p-Xylene	9896	1,000	10000	506.9	93.9	78-121	0			
Methylene chloride	5168	1,000	5000	0	103	65-133	0			
Styrene	4801	500	5000	0	96	80-120	0			
Tetrachloroethene	4554	500	5000	0	91.1	79-120	0			
Toluene	4579	500	5000	97.48	89.6	80-120	0			
trans-1,3-Dichloropropene	5459	500	5000	0	109	80-120	0			
Trichloroethene	5251	500	5000	0	105	80-120	0			
Vinyl acetate	10250	1,000	10000	0	102	67-139	0			
Vinyl chloride	4577	200	5000	0	91.5	70-127	0			
Xylenes, Total	14710	1,500	15000	982.5	91.5	80-120	0			
Surr: 1,2-Dichloroethane-d4	4506	500	5000	0	90.1	70-125	0			
Surr: 4-Bromofluorobenzene	4104	500	5000	0	82.1	72-125	0			
Surr: Dibromofluoromethane	4700	500	5000	0	94	71-125	0			
Surr: Toluene-d8	4583	500	5000	0	91.7	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91780 Instrument ID VOA1 Method: SW8260

MSD Sample ID: 1005758-03AMSD Units: µg/L Analysis Date: 5/29/2010 03:48 PM

Client ID: Run ID: VOA1_100529A SeqNo: 1978027 Prep Date: DF: 100

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	4707	500	5000	0	94.1	80-120	4689	0.392	20	
1,1,2,2-Tetrachloroethane	5386	500	5000	0	108	72-120	5492	1.95	20	
1,1,2-Trichloroethane	4720	500	5000	0	94.4	80-120	5065	7.05	20	
1,1-Dichloroethane	5034	500	5000	0	101	76-120	5211	3.47	20	
1,1-Dichloroethene	4866	500	5000	0	97.3	73-124	5059	3.89	20	
1,2-Dichloroethane	5093	500	5000	0	102	78-120	5565	8.86	20	
2-Butanone	12990	1,000	10000	0	130	58-132	12090	7.16	20	
2-Chloroethyl vinyl ether	8688	1,000	10000	0	86.9	74-120	9005	3.58	20	
2-Hexanone	12010	1,000	10000	0	120	61-130	11980	0.195	20	
4-Methyl-2-pentanone	11510	1,000	10000	0	115	65-127	11410	0.88	20	
Acetone	10770	1,000	10000	0	108	59-137	10730	0.333	20	
Benzene	8593	500	5000	3688	98.1	73-121	9427	9.25	20	
Bromodichloromethane	4989	500	5000	0	99.8	80-120	5281	5.69	20	
Bromoform	5109	500	5000	0	102	79-120	5182	1.42	20	
Bromomethane	5910	500	5000	0	118	66-137	5806	1.76	20	
Carbon disulfide	9118	1,000	10000	0	91.2	68-141	9246	1.4	20	
Carbon tetrachloride	4260	500	5000	0	85.2	75-124	4804	12	20	
Chlorobenzene	4818	500	5000	0	96.4	80-120	4702	2.43	20	
Chloroethane	4865	500	5000	0	97.3	76-121	4824	0.839	20	
Chloroform	5151	500	5000	0	103	80-120	5148	0.0572	20	
Chloromethane	4680	500	5000	0	93.6	67-123	4946	5.51	20	
cis-1,3-Dichloropropene	4841	500	5000	0	96.8	80-120	5651	15.4	20	
Dibromochloromethane	5129	500	5000	0	103	80-120	5106	0.455	20	
Ethylbenzene	4774	500	5000	359.9	88.3	80-120	5103	6.66	20	
m,p-Xylene	9383	1,000	10000	506.9	88.8	78-121	9896	5.33	20	
Methylene chloride	4979	1,000	5000	0	99.6	65-133	5168	3.71	20	
Styrene	4668	500	5000	0	93.4	80-120	4801	2.82	20	
Tetrachloroethene	4367	500	5000	0	87.3	79-120	4554	4.21	20	
Toluene	4296	500	5000	97.48	84	80-120	4579	6.38	20	
trans-1,3-Dichloropropene	5050	500	5000	0	101	80-120	5459	7.77	20	
Trichloroethene	4989	500	5000	0	99.8	80-120	5251	5.11	20	
Vinyl acetate	9926	1,000	10000	0	99.3	67-139	10250	3.2	20	
Vinyl chloride	4352	200	5000	0	87	70-127	4577	5.04	20	
Xylenes, Total	13860	1,500	15000	982.5	85.8	80-120	14710	5.96	20	
Surr: 1,2-Dichloroethane-d4	4443	500	5000	0	88.9	70-125	4506	1.41	20	
Surr: 4-Bromofluorobenzene	4564	500	5000	0	91.3	72-125	4104	10.6	20	
Surr: Dibromofluoromethane	4753	500	5000	0	95.1	71-125	4700	1.13	20	
Surr: Toluene-d8	4495	500	5000	0	89.9	75-125	4583	1.93	20	

The following samples were analyzed in this batch:

1005694-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1005694
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91331 Instrument ID WetChem Method: SM4500H+ B

LCS	Sample ID: WLCS-052110-R91331	Units: pH units	Analysis Date: 5/21/2010							
Client ID:	Run ID: WETCHEM_100521E	SeqNo: 1967400	Prep Date: DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.01	0.10	6	0	100	90-110	0			

DUP	Sample ID: 1005702-02FDUP	Units: pH units	Analysis Date: 5/21/2010							
Client ID:	Run ID: WETCHEM_100521E	SeqNo: 1967417	Prep Date: DF: 1							
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	9.81	0.10	0	0	0	0-0	9.8	0.102	20	H

The following samples were analyzed in this batch:

1005694-01D

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91470 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-52410-R91470 Units: mg/L Analysis Date: 5/24/2010 06:00 PM

Client ID: Run ID: WETCHEM_100524J SeqNo: 1970785 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-52410-R91470 Units: mg/L Analysis Date: 5/24/2010 06:00 PM

Client ID: Run ID: WETCHEM_100524J SeqNo: 1970786 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1005	5.0	1000	0	100	80-120	0			
Alkalinity, Total (As CaCO3)	1005	5.0	1000	0	100	80-120	0			

DUP Sample ID: 1005392-01ddup Units: mg/L Analysis Date: 5/24/2010 06:00 PM

Client ID: Run ID: WETCHEM_100524J SeqNo: 1970810 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	824	5.0	0	0	0	0-0	824	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	824	5.0	0	0	0	0-0	824	0	20	

The following samples were analyzed in this batch:

1005694-01C

Client: Navajo Refining Company
Work Order: 1005694
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91533 Instrument ID WetChem Method: SW1010

LCS Sample ID: WLCS-052610-R91533 Units: °F Analysis Date: 5/26/2010 11:00 AM

Client ID: Run ID: WETCHEM_100526B SeqNo: 1972146 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	0			

DUP Sample ID: 1005792-01ADUP Units: °F Analysis Date: 5/26/2010 11:00 AM

Client ID: Run ID: WETCHEM_100526B SeqNo: 1972162 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	125	50	0	0	0	0-0	130	3.92	25	

The following samples were analyzed in this batch:

1005694-01D

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91564 Instrument ID Balance1 Method: M2540C

MBLK Sample ID: BLK-R91564 Units: mg/L Analysis Date: 5/25/2010 05:00 PM

Client ID: Run ID: BALANCE1_100525H SeqNo: 1972694 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: LCS-R91564 Units: mg/L Analysis Date: 5/25/2010 05:00 PM

Client ID: Run ID: BALANCE1_100525H SeqNo: 1972695 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	962	10	1000	0	96.2	85-115	0			

DUP Sample ID: 1005690-01CDUP Units: mg/L Analysis Date: 5/25/2010 05:00 PM

Client ID: Run ID: BALANCE1_100525H SeqNo: 1972675 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	406	10	0	0	0	0-0	422	3.86	20	

The following samples were analyzed in this batch:

1005694-01C

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91867 Instrument ID WetChem Method: M2510 B

MBLK Sample ID: WBLKW1-060210-R91867 Units: $\mu\text{mhos/cm}$ Analysis Date: 6/2/2010 06:40 PM

Client ID: Run ID: WETCHEM_100602G SeqNo: 1980053 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: WLCSW1-060210-R91867 Units: $\mu\text{mhos/cm}$ Analysis Date: 6/2/2010 06:40 PM

Client ID: Run ID: WETCHEM_100602G SeqNo: 1980054 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: 1005809-01BDUP Units: $\mu\text{mhos/cm}$ Analysis Date: 6/2/2010 06:40 PM

Client ID: Run ID: WETCHEM_100602G SeqNo: 1980058 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	123	1.0	0	0	0		122	0.816	20	

The following samples were analyzed in this batch:

1005694-01C

Client: Navajo Refining Company
 Work Order: 1005694
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91922 Instrument ID ICS2100 Method: E300

MBLK	Sample ID: WBLKW3-060210-R91922				Units: mg/L		Analysis Date: 6/2/2010 09:47 AM			
Client ID:	Run ID: ICS2100_100602A				SeqNo: 1981387		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Surr: Selenate (surr)	4.659	0.10	5	0	93.2	85-115	0			

LCS	Sample ID: WLCSW3-060210-R91922					Units: mg/L		Analysis Date: 6/2/2010 10:02 AM		
Client ID:	Run ID: ICS2100_100602A				SeqNo: 1981388		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.41	0.50	20	0	97	90-110	0			
Sulfate	19.32	0.50	20	0	96.6	90-110	0			
Surr: Selenate (surr)	4.784	0.10	5	0	95.7	85-115	0			

MS	Sample ID: 1005932-02BMS				Units: mg/L		Analysis Date: 6/2/2010 10:45 AM			
Client ID:	Run ID: ICS2100_100602A				SeqNo: 1981392		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	107.6	0.50	10	101.2	64.4	80-120	0			SEO
Sulfate	11.31	0.50	10	2.164	91.4	80-120	0			
Surr: Selenate (surr)	4.853	0.10	5	0	97.1	85-115	0			

MS	Sample ID: 1005891-25BMS				Units: mg/L		Analysis Date: 6/2/2010 03:11 PM			
Client ID:	Run ID: ICS2100_100602A				SeqNo: 1981408		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	552.3	0.50	10	536.5	158	80-120		0		SEO
Sulfate	91.48	0.50	10	81.26	102	80-120		0		O
Surr: Selenate (surr)	4.886	0.10	5	0	97.7	85-115		0		

MSD	Sample ID: 1005932-02BMSD					Units: mg/L		Analysis Date: 6/2/2010 11:00 AM		
Client ID:	Run ID: ICS2100_100602A				SeqNo: 1981396		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	109.6	0.50	10	101.2	84.3	80-120	107.6	1.83	20	EO
Sulfate	11.59	0.50	10	2.164	94.3	80-120	11.31	2.5	20	
Surr: Selenate (surr)	4.98	0.10	5	0	99.6	85-115	4.853	2.58	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1005694
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R91922 Instrument ID ICS2100 Method: E300

MSD Sample ID: 1005891-25BMSD Units: mg/L Analysis Date: 6/2/2010 03:25 PM

Client ID: Run ID: ICS2100_100602A SeqNo: 1981409 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	538.2	0.50	10	536.5	17.1	80-120	552.3	2.59	20	SEO
Sulfate	88.14	0.50	10	81.26	68.8	80-120	91.48	3.72	20	SO
Surr: Selenate (surr)	4.721	0.10	5	0	94.4	85-115	4.886	3.43	20	

The following samples were analyzed in this batch:

1005694-01C

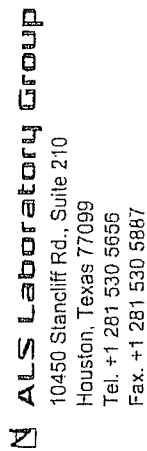
Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1005694

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



Chain of Custody Form

☐ ALS Laboratory Group

3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Page 1 of 1

Customer Information				Project Information				ALS Project Manager:				ALS Work Order #:													
Customer Information				Project Information				Parameter/Method Request for Analysis																	
Purchase Order	Work Order	Company Name	Send Report To	Project Name	Injection Well Quarterly	A	VOC (8260) Select	B	SVOC (8270) Select	C	Total Metals (6020/7000) Select	D	RCI Profile	E	Anions (300) Cl, SO4	F	Alkalinity	G	pH	H	Conductivity	I	TDS	J	
Navajo Refining Company	Navajo Refining Company	Navajo Refining Company	Navajo Refining Company	Project Number	Navajo Refining Company																				
Aaron Strange	Aaron Strange	Aaron Strange	Aaron Strange	Bill To Company	Aaron Strange																				
PQ Box 159	PQ Box 159	PQ Box 159	PQ Box 159	Invoice Attn	PQ Box 159																				
Address	Address	Address	Address	City/State/Zip	Artesia, NM 88211																				
City/State/Zip	City/State/Zip	Artesia, NM 88211	Artesia, NM 88211	Phone	(575) 748-6733																				
Phone	Phone	(575) 748-6733	(575) 748-6733	Fax	(575) 746-5421																				
Fax	Fax	(575) 746-5421	(575) 746-5421	e-Mail Address																					
e-Mail Address	e-Mail Address																								
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold								
1	Inj Well	5-19-10	0816	L	Y	9	X	X	X	X	X	X	X	X	X	X									
2	Trip Blank																								
3	Temp. Blank																								
4																									
5																									
6																									
7																									
8																									
9																									
10																									
Sampler(s) Please Print & Sign				Shipment Method				Required Turnaround Time: (Check Box)				Results Due Date:													
Aaron Strange				Fed Ex				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10				5 Wks Days				5 Wks Days													
Relinquished by:				Received by:				Notes:				10 Day TAT													
Aaron Strange				5/23/10																					

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

3. The Chain of Custody is a legal document. All information must be completed accurately.

1005641

	ALS Laboratory Group	
	10450 Stancliff Rd., Suite 210	
	Houston, Texas 77099	Date: <u>5</u>
	Tel: +1 281 530 5656	Name: <u>A</u>
	Fax: +1 281 530 5887	Company:

CUSTODY SEAL		 Seal Broken By:
<u>5-19-10</u>	Time: <u>1615</u>	
<u>Mark Strange</u>		Date: <u>5/20/10</u>
<u>Navajo Refining Co.</u>		

ALS Laboratory Group

Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 20-May-10 10:00

Work Order: 1005694

Received by: RNG

Checklist completed by Robert D. Harris

20-May-10

Reviewed by:

eSignature

Date

eSignature

Date

Matrices: waters

Carrier name: FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

Temperature(s)/Thermometer(s):

3.3c

002

Cooler(s)/Kit(s):

Water - VOA vials have zero headspace?

Yes ☒

No ☐

No VOA vials submitted ☐

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

pH adjusted?

Yes ☐

No ☐

N/A ☒

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

ALS Laboratory Group

Date: 01-Jun-10

Client: ALS Laboratory Group
Project: 1005694
Work Order: 1005516

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1005516-01	1005694-01F	Liquid		5/19/2010 08:16	5/22/2010 11:00	☐

Client: ALS Laboratory Group
Project: 1005694
WorkOrder: 1005516

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
SQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Laboratory Group

Date: 01-Jun-10

Client: ALS Laboratory Group

Project: 1005694

Work Order: 1005516

Sample ID: 1005694-01F

Lab ID: 1005516-01

Collection Date: 5/19/2010 08:16 AM

Matrix: LIQUID

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	ND		40.0	mg/Kg	1	5/27/2010
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	ND		40.0	mg/Kg	1	5/27/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Laboratory Group

Date: 01-Jun-10

Client: ALS Laboratory Group

Work Order: 1005516

Project: 1005694

QC BATCH REPORT

Batch ID: R77806 Instrument ID WETCHEM Method: SW7.3.4.2

MBLK	Sample ID: WBLKW1-052710-R77806				Units: mg/Kg		Analysis Date: 5/27/2010			
Client ID:	Run ID: WETCHEM_100527A				SeqNo: 1341204		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1005516-01A

Client: ALS Laboratory Group
 Work Order: 1005516
 Project: 1005694

QC BATCH REPORT

Batch ID: R77807 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK	Sample ID: WBLKW1-052710-R77807				Units: mg/Kg		Analysis Date: 5/27/2010			
Client ID:	Run ID: WETCHEM_100527B				SeqNo: 1341207		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS	Sample ID: WLCSW1-052710-R77807					Units: mg/Kg		Analysis Date: 5/27/2010		
Client ID:	Run ID: WETCHEM_100527B					SeqNo: 1341208		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	75-125	0			

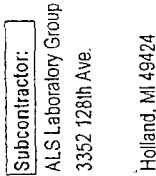
LCSD	Sample ID: WLCSDW1-052710-R77807					Units: mg/Kg		Analysis Date: 5/27/2010		
Client ID:	Run ID: WETCHEM_100527B					SeqNo: 1341214		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	249.6	6.06	35	

MS	Sample ID: 1005516-01A MS				Units: mg/Kg		Analysis Date: 5/27/2010				
Client ID: 1005694-01F			Run ID: WETCHEM_100527B			SeqNo: 1341211		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Cyanide, Reactive	234.9	40	250	0	94	50-150	0				

MSD	Sample ID: 1005516-01A MSD					Units: mg/Kg		Analysis Date: 5/27/2010		
Client ID: 1005694-01F			Run ID: WETCHEM_100527B			SeqNo: 1341212		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	234.9	0	35	

The following samples were analyzed in this batch:

1005516-01A



TEL: (616) 399-6070
FAX: (616) 399-6185
Acct #:

Holland, MI 49424

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Date: 20-May-10
COC ID: 8893
Due Date: 01-Jun-10

wo #1005516

Customer Information		Project Information		Parameter/Method Request for Analysis																
Purchase Order		Project Name	1005694	A	Reactive Cyanide (SW-846)															
Work Order		Project Number		B	Reactive Sulfide (SW-846)															
Company Name	ALS Group USA, Corp.	Bill To Company	ALS Group USA, Corp.	C																
Send Report To	JayLynn F Thibault	Inv Attn	Accounts Payable	D																
Address	10450 Stanciliff Rd, Suite 210	Address	10450 Stanciliff Rd, Suite 210	E																
				F																
City/State/Zip	Houston, Texas 77099-4338	City/State/Zip	Houston, Texas 77099-4338	G																
Phone	(281) 530-5656	Phone	(281) 530-5656	H																
Fax	(281) 530-5887	Fax	(281) 530-5887	I																
eMail Address	jaylynn.thibault@alsenviro.com	eMail CC	glenda.ramos@alsenviro.com	J																
Sample ID	Matrix	Collection Date	24hr	Bottle	A	B	C	D	E	F	G	H	I	J	K	L	M	N		
1005694-01F (Inj. Well)	Liquid	5/19/2010	8:16	(1) 1LPNEAT	X		X													

Comments:

Please analyze for Reactive Cyanide & Reactive Sulfide.

Relinquished by:

Date/Time

Received by:

Date/Time

Cooler IDs

Report/OC Level

Refrained by:

Date/Time:

Received by:

Date/Time

Date/Time 5/22/10 1100

ALS Laboratory Group

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 22-May-10 11:00

Work Order: 1005516

Received by: KRW

Checklist completed by *Deanne Shaw* 24-May-10
eSignature Date

Reviewed by: *Don Foston* 24-May-10
eSignature Date

Matrices: Liquid

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.6-5.0 c</u>		
Cooler(s)/Kit(s):	<u></u>		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☒
pH adjusted?	Yes ☐	No ☐	N/A ☒
pH adjusted by:	<u></u>		
Login Notes:	<u></u>		

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

ORIGIN ID: JGQA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

Ship Date: 21MAY10
ActWgt: 39.2 LB
CAD: 300130/CAFE2453

TO RECEIVING

(616) 399-6070

ALS LABORATORY
3352 128TH AVE.

FedEx
Express

HOLLAND, MI 49424

(US)



Trk# 4340 2159 6361

PRIORITY OVERNIGHT



3352 128TH AVE.

Part # 155148-034 NRIIT V3 12-09

PLACE THIS LABEL ON PACKAGE
NEXT TO THE SHIPPING LABEL



REFINING COMPANY, LLC

RECEIVED OGD

FAX

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

April 28, 2010

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2010 First Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the first quarter of 2010 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for these wells. A Mechanical Integrity Test (MIT) on all the wells was last done in October 2009 and a quarterly MIT for WDW-3 was last done in February 2010. All of the wells passed. The quarterly MIT on WDW-3 is per Carl Chavez's email of December 9, 2009 to Darrell Moore. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table. As you will notice, WDW-1 has a small decrease in WAMS level also. We are monitoring this closely to see if further testing is warranted.

You will also notice that the minimum annular pressure for the Mewbourne well (WDW-1) appears to be reading low in October 2009. We have investigated the low reading. There was a burnt connector and a bad fuse to the motors that allowed the pressure to drop. The burnt connector and fuse was replaced. The pumps have since been working correctly.

This report covers the period from January 1, 2010 to March 31, 2010. We have disposed a total of 47,835,560 barrels of fluid into the three wells as of December 31, 2009. The volume per well is:

- 28,072,838 barrels into WDW-1
- 14,577,051 barrels into WDW-2
- 5,185,671 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Michael Whatley
Vice-President, Navajo Refinery

Electronic cc (w/enc.): DGM, JEL, AMS
Environmental File: Navajo: (ART: REF - 4 A 02 D)

2010 FIRST QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1														
Jan-10	597	688	569	149	274	131	169	268	46	5,108	9,401	4,478	158,333	27,647,056
Feb-10	582	627	429	134	145	109	206	407	99	4,578	4,971	3,737	128,195	27,805,389
Mar-09	605	636	582	131	135	125	414	528	271	4,492	4,638	4,286	139,254	27,933,584
WDW-2														
Jan-10	605	625	560	149	153	142	210	346	128	5,122	5,252	4,882	158,777	14,124,671
Feb-10	568	625	442	145	149	130	346	530	257	4,963	5,097	4,465	138,969	14,283,448
Mar-09	625	650	598	145	153	142	499	616	360	4,988	5,240	4,857	154,635	14,422,416
WDW-3														
Jan-10	614	637	572	199	208	183	262	357	223	6,828	7,120	6,275	211,672	14,577,051
Feb-10	587	639	422	200	212	170	320	403	251	6,871	7,275	5,834	192,376	4,559,320
Mar-09	633	657	570	209	217	187	379	529	236	7,171	7,446	6,406	222,303	4,770,992
													Total Injected fluids:	
													47,835,560	

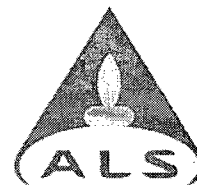
2010 FIRST QUARTER WEEKLY WAMS LEVEL TABLE

	1/7/10	1/11/10	1/20/10	1/27/10	2/1/10	2/8/10	2/16/10	2/22/10	3/1/10	3/8/10	3/15/10	3/22/10	3/29/10
WDW -1'	175	170	165	165	165	155	155	155	155	155	155	155	155
WDW-2'	125	125	125	125	125	185	185	185	185	185	185	185	185
WDW-3'	165	155	150	150	155	145	145	145	145	145	145	145	145
Comments: Added 55 gallons of antifreeze to WDW-2 on 02/03/2010.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

09-Mar-2010

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 1002802

Dear Aaron,

ALS Laboratory Group received 1 sample on 26-Feb-2010 08:50 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 41.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

JayLynn F Thibault

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ALS Group USA, Corp.

Part of the **ALS Laboratory Group**

10450 Stancliff Rd, Suite 210 Houston, Texas 77099-4338

Phone: (281) 530-5656 Fax: (281) 530-5887

www.alsglobal.com www.elabi.com

A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 09-Mar-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 1002802

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1002802-01	Inj Well	Water		2/25/2010 09:37	2/26/2010 08:50	☐

ALS Laboratory Group

Date: 09-Mar-10

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 1002802

Case Narrative

Batch R87705 Volatiles (sample 1002730-13) MS/MSD unrelated sample.

Batch 41332 Metals (sample 1002768-01) MS/MSD unrelated sample.

ALS Laboratory Group

Date: 09-Mar-10

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 2/25/2010 09:37 AM

Work Order: 1002802
Lab ID: 1002802-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY			SW7470		Prep Date: 3/2/2010	Analyst: JCJ
Mercury	ND		0.000200	mg/L	1	3/2/2010 02:48 PM
METALS			SW6020		Prep Date: 3/1/2010	Analyst: ALR
Aluminum	0.587		0.0100	mg/L	1	3/2/2010 01:44 PM
Arsenic	0.0502		0.00500	mg/L	1	3/1/2010 10:20 PM
Barium	0.0243		0.00500	mg/L	1	3/1/2010 10:20 PM
Beryllium	ND		0.00200	mg/L	1	3/2/2010 01:44 PM
Boron	0.159		0.0200	mg/L	1	3/2/2010 01:44 PM
Cadmium	ND		0.00200	mg/L	1	3/1/2010 10:20 PM
Calcium	151		0.500	mg/L	1	3/1/2010 10:20 PM
Chromium	ND		0.00500	mg/L	1	3/1/2010 10:20 PM
Cobalt	ND		0.00500	mg/L	1	3/1/2010 10:20 PM
Copper	ND		0.00500	mg/L	1	3/1/2010 10:20 PM
Iron	0.658		0.200	mg/L	1	3/1/2010 10:20 PM
Lead	ND		0.00500	mg/L	1	3/1/2010 10:20 PM
Magnesium	36.4		0.200	mg/L	1	3/1/2010 10:20 PM
Manganese	0.285		0.00500	mg/L	1	3/1/2010 10:20 PM
Molybdenum	0.143		0.00500	mg/L	1	3/1/2010 10:20 PM
Nickel	0.0109		0.00500	mg/L	1	3/1/2010 10:20 PM
Potassium	80.5		0.200	mg/L	1	3/1/2010 10:20 PM
Selenium	0.189		0.00500	mg/L	1	3/1/2010 10:20 PM
Silver	ND		0.00500	mg/L	1	3/1/2010 10:20 PM
Sodium	970		10.0	mg/L	50	3/2/2010 01:39 PM
Vanadium	ND		0.00500	mg/L	1	3/1/2010 10:20 PM
Zinc	1.60		0.00500	mg/L	1	3/1/2010 10:20 PM
SEMIVOLATILES			SW8270		Prep Date: 3/2/2010	Analyst: ACN
1,2,4-Trichlorobenzene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
2-Methylphenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
2-Nitroaniline	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
2-Nitrophenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
3-Nitroaniline	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
4-Nitroaniline	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
4-Nitrophenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Acenaphthene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Acenaphthylene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 09-Mar-10

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 2/25/2010 09:37 AM

Work Order: 1002802
Lab ID: 1002802-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Anthracene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Benzidine	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Hexachloroethane	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Isophorone	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Naphthalene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Nitrobenzene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Pentachlorophenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Phenanthrene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Phenol	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Pyrene	ND		0.0050	mg/L	1	3/3/2010 06:15 PM
Surr: 2,4,6-Tribromophenol	85.8		42-124	%REC	1	3/3/2010 06:15 PM
Surr: 2-Fluorobiphenyl	97.5		48-120	%REC	1	3/3/2010 06:15 PM
Surr: 2-Fluorophenol	86.0		20-120	%REC	1	3/3/2010 06:15 PM
Surr: 4-Terphenyl-d14	81.2		51-135	%REC	1	3/3/2010 06:15 PM
Surr: Nitrobenzene-d5	74.6		41-120	%REC	1	3/3/2010 06:15 PM
Surr: Phenol-d6	80.9		20-120	%REC	1	3/3/2010 06:15 PM
VOLATILES			SW8260			Analyst: PC
1,1,1-Trichloroethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
1,1-Dichloroethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
1,1-Dichloroethene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
1,2-Dichloroethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
2-Butanone	ND		0.010	mg/L	1	3/1/2010 01:48 PM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	3/1/2010 01:48 PM
2-Hexanone	ND		0.010	mg/L	1	3/1/2010 01:48 PM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	3/1/2010 01:48 PM
Acetone	0.015		0.010	mg/L	1	3/1/2010 01:48 PM
Benzene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Bromodichloromethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Bromoform	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Bromomethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Carbon disulfide	ND		0.010	mg/L	1	3/1/2010 01:48 PM
Carbon tetrachloride	ND		0.0050	mg/L	1	3/1/2010 01:48 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 09-Mar-10

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 2/25/2010 09:37 AM

Work Order: 1002802
Lab ID: 1002802-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Chloroethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Chloroform	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Chloromethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Dibromochloromethane	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Ethylbenzene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
m,p-Xylene	ND		0.010	mg/L	1	3/1/2010 01:48 PM
Methylene chloride	ND		0.010	mg/L	1	3/1/2010 01:48 PM
Styrene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Tetrachloroethene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Toluene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Trichloroethene	ND		0.0050	mg/L	1	3/1/2010 01:48 PM
Vinyl acetate	ND		0.010	mg/L	1	3/1/2010 01:48 PM
Vinyl chloride	ND		0.0020	mg/L	1	3/1/2010 01:48 PM
Xylenes, Total	ND		0.015	mg/L	1	3/1/2010 01:48 PM
Surr: 1,2-Dichloroethane-d4	95.7		70-125	%REC	1	3/1/2010 01:48 PM
Surr: 4-Bromofluorobenzene	93.7		72-125	%REC	1	3/1/2010 01:48 PM
Surr: Dibromofluoromethane	99.6		71-125	%REC	1	3/1/2010 01:48 PM
Surr: Toluene-d8	93.7		75-125	%REC	1	3/1/2010 01:48 PM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	3/2/2010
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	3/2/2010
ANIONS			E300			Analyst: JBA
Chloride	327		25.0	mg/L	50	2/28/2010 07:52 PM
Fluoride	15.2		0.100	mg/L	1	2/28/2010 04:24 AM
Sulfate	2,470		25.0	mg/L	50	2/28/2010 07:52 PM
Surr: Selenate (surr)	87.3		85-115	%REC	50	2/28/2010 07:52 PM
Surr: Selenate (surr)	102		85-115	%REC	1	2/28/2010 04:24 AM
ALKALINITY			SM2320B			Analyst: TDW
Alkalinity, Bicarbonate (As CaCO3)	56.7		5.00	mg/L	1	3/4/2010 12:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	3/4/2010 12:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	3/4/2010 12:00 PM
Alkalinity, Total (As CaCO3)	56.7		5.00	mg/L	1	3/4/2010 12:00 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: TDW
Specific Conductivity	6,050		1.00	µmhos/cm	1	3/8/2010 02:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 09-Mar-10

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Inj Well
Collection Date: 2/25/2010 09:37 AM

Work Order: 1002802
Lab ID: 1002802-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
IGNITIBILITY			SW1010			Analyst: JLC
Ignitability	>212		50.0	°F	1	3/1/2010
PH			SM4500H+ B			Analyst: JLC
pH	7.15	H	0.100	pH units	1	3/1/2010
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: TDW
Total Dissolved Solids (Residue, Filterable)	4,200		10.0	mg/L	1	3/2/2010 05:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 09-Mar-10

Client: Navajo Refining Company
Work Order: 1002802
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **41332** Instrument ID **ICPMS03** Method: **SW6020**

MBLK Sample ID: **MBLKW2-030110-41332** Units: **mg/L** Analysis Date: **3/1/2010 04:35 PM**

Client ID: Run ID: **ICPMS03_100301A** SeqNo: **1890961** Prep Date: **3/1/2010** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.004023	0.010								J
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	0.005812	0.050								J
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	ND	0.0050								
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	ND	0.0050								
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41332 Instrument ID ICPMS03 Method: SW6020

LCS Sample ID: MLCSW2-030110-41332 Units: mg/L Analysis Date: 3/1/2010 04:40 PM

Client ID: Run ID: ICPMS03_100301A SeqNo: 1890963 Prep Date: 3/1/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09859	0.010	0.1	0	98.6	80-120	0			
Arsenic	0.05168	0.0050	0.05	0	103	80-120	0			
Barium	0.05049	0.0050	0.05	0	101	80-120	0			
Beryllium	0.05009	0.0020	0.05	0	100	80-120	0			
Boron	0.4772	0.050	0.5	0	95.4	80-120	0			
Cadmium	0.0512	0.0020	0.05	0	102	80-120	0			
Calcium	5.062	0.50	5	0	101	80-120	0			
Chromium	0.05099	0.0050	0.05	0	102	80-120	0			
Cobalt	0.05052	0.0050	0.05	0	101	80-120	0			
Copper	0.05032	0.0050	0.05	0	101	80-120	0			
Iron	5.083	0.20	5	0	102	80-120	0			
Lead	0.04911	0.0050	0.05	0	98.2	80-120	0			
Magnesium	5.001	0.20	5	0	100	80-120	0			
Manganese	0.05022	0.0050	0.05	0	100	80-120	0			
Molybdenum	0.04983	0.0050	0.05	0	99.7	80-120	0			
Nickel	0.05	0.0050	0.05	0	100	80-120	0			
Potassium	5.05	0.20	5	0	101	80-120	0			
Selenium	0.05833	0.0050	0.05	0	117	80-120	0			
Silver	0.05105	0.0050	0.05	0	102	80-120	0			
Sodium	5.048	0.20	5	0	101	80-120	0			
Vanadium	0.05032	0.0050	0.05	0	101	80-120	0			
Zinc	0.05841	0.0050	0.05	0	117	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41332 Instrument ID ICPMS03 Method: SW6020

MS Sample ID: 1002768-01BMS Units: mg/L Analysis Date: 3/1/2010 08:00 PM

Client ID: Run ID: ICPMS03_100301A SeqNo: 1891171 Prep Date: 3/1/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1887	0.010	0.1	0.05322	135	80-120	0			S
Arsenic	0.05437	0.0050	0.05	0.0006206	107	80-120	0			
Barium	0.1353	0.0050	0.05	0.07416	122	80-120	0			S
Beryllium	0.05138	0.0020	0.05	-0.0003913	104	80-120	0			
Boron	0.7581	0.050	0.5	0.2207	107	80-120	0			
Cadmium	0.05295	0.0020	0.05	-0.0007701	107	80-120	0			
Calcium	133.4	0.50	5	122.4	220	80-120	0			SO
Chromium	0.05283	0.0050	0.05	0.0006298	104	80-120	0			
Cobalt	0.05137	0.0050	0.05	-0.00003754	103	80-120	0			
Copper	0.05207	0.0050	0.05	0.001487	101	80-120	0			
Iron	5.304	0.20	5	-0.004417	106	80-120	0			
Lead	0.05455	0.0050	0.05	0.0008749	107	80-120	0			
Magnesium	18.3	0.20	5	12.38	118	80-120	0			
Manganese	0.05639	0.0050	0.05	0.004264	104	80-120	0			
Molybdenum	0.05559	0.0050	0.05	0.00174	108	80-120	0			
Nickel	0.05226	0.0050	0.05	0.0008087	103	80-120	0			
Potassium	8.001	0.20	5	2.554	109	80-120	0			
Selenium	0.05864	0.0050	0.05	0.003845	110	80-120	0			
Silver	0.0513	0.0050	0.05	-0.0006232	104	80-120	0			
Sodium	74.61	0.20	5	66.21	168	80-120	0			SO
Vanadium	0.05436	0.0050	0.05	0.001474	106	80-120	0			
Zinc	0.06092	0.0050	0.05	0.005501	111	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41332 Instrument ID ICPMS03 Method: SW6020

MSD Sample ID: 1002768-01BMSD Units: mg/L Analysis Date: 3/1/2010 08:05 PM

Client ID: Run ID: ICPMS03_100301A SeqNo: 1891172 Prep Date: 3/1/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1749	0.010	0.1	0.05322	122	80-120	0.1887	7.59	15	S
Arsenic	0.0533	0.0050	0.05	0.0006206	105	80-120	0.05437	1.99	15	
Barium	0.1322	0.0050	0.05	0.07416	116	80-120	0.1353	2.32	15	
Beryllium	0.05073	0.0020	0.05	-0.0003913	102	80-120	0.05138	1.27	15	
Boron	0.7763	0.050	0.5	0.2207	111	80-120	0.7581	2.37	15	
Cadmium	0.05062	0.0020	0.05	-0.0007701	103	80-120	0.05295	4.5	15	
Calcium	131.2	0.50	5	122.4	176	80-120	133.4	1.66	15	SO
Chromium	0.05183	0.0050	0.05	0.0006298	102	80-120	0.05283	1.91	15	
Cobalt	0.05051	0.0050	0.05	-0.00003754	101	80-120	0.05137	1.69	15	
Copper	0.05145	0.0050	0.05	0.001487	99.9	80-120	0.05207	1.2	15	
Iron	5.353	0.20	5	-0.004417	107	80-120	5.304	0.92	15	
Lead	0.05312	0.0050	0.05	0.0008749	104	80-120	0.05455	2.66	15	
Magnesium	17.77	0.20	5	12.38	108	80-120	18.3	2.94	15	
Manganese	0.05617	0.0050	0.05	0.004264	104	80-120	0.05639	0.391	15	
Molybdenum	0.05465	0.0050	0.05	0.00174	106	80-120	0.05559	1.71	15	
Nickel	0.05078	0.0050	0.05	0.0008087	99.9	80-120	0.05226	2.87	15	
Potassium	7.896	0.20	5	2.554	107	80-120	8.001	1.32	15	
Selenium	0.05582	0.0050	0.05	0.003845	104	80-120	0.05864	4.93	15	
Silver	0.04978	0.0050	0.05	-0.0006232	101	80-120	0.0513	3.01	15	
Sodium	73.91	0.20	5	66.21	154	80-120	74.61	0.943	15	SO
Vanadium	0.05313	0.0050	0.05	0.001474	103	80-120	0.05436	2.29	15	
Zinc	0.0589	0.0050	0.05	0.005501	107	80-120	0.06092	3.37	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41332 Instrument ID ICPMS03 Method: SW6020

DUP	Sample ID: 1002768-01BDUP	Units: mg/L					Analysis Date: 3/1/2010 07:49 PM			
Client ID:	Run ID: ICPMS03_100301A	SeqNo: 1891169			Prep Date: 3/1/2010		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.05712	0.010	0	0	0	0-0	0.05322	7.07	25	
Arsenic	ND	0.0050	0	0	0	0-0	0.0006206	0	25	
Barium	0.07356	0.0050	0	0	0	0-0	0.07416	0.812	25	
Beryllium	ND	0.0020	0	0	0	0-0	-0.0003913	0	25	
Boron	0.2242	0.050	0	0	0	0-0	0.2207	1.57	25	
Cadmium	ND	0.0020	0	0	0	0-0	-0.0007701	0	25	
Calcium	126.1	0.50	0	0	0	0-0	122.4	2.98	25	
Chromium	0.0006429	0.0050	0	0	0	0-0	0.0006298	0	25	J
Cobalt	ND	0.0050	0	0	0	0-0	-0.00003754	0	25	
Copper	0.001417	0.0050	0	0	0	0-0	0.001487	0	25	J
Iron	ND	0.20	0	0	0	0-0	-0.004417	0	25	
Lead	0.0007599	0.0050	0	0	0	0-0	0.0008749	0	25	J
Magnesium	11.72	0.20	0	0	0	0-0	12.38	5.48	25	
Manganese	0.00435	0.0050	0	0	0	0-0	0.004264	0	25	J
Molybdenum	0.001674	0.0050	0	0	0	0-0	0.00174	0	25	J
Nickel	ND	0.0050	0	0	0	0-0	0.0008087	0	25	
Potassium	2.495	0.20	0	0	0	0-0	2.554	2.34	25	
Silver	ND	0.0050	0	0	0	0-0	-0.0006232	0	25	
Sodium	63.34	0.20	0	0	0	0-0	66.21	4.43	25	
Vanadium	0.001371	0.0050	0	0	0	0-0	0.001474	0	25	J
Zinc	0.005255	0.0050	0	0	0	0-0	0.005501	4.57	25	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41332 Instrument ID ICPMS03 Method: SW6020

PDS Sample ID: 1002768-01BBS Units: mg/L Analysis Date: 3/1/2010 08:10 PM

Client ID: Run ID: ICPMS03_100301A SeqNo: 1891173 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1665	0.010	0.1	0.05322	113	75-125	0			
Arsenic	0.1054	0.0050	0.1	0.0006206	105	75-125	0			
Barium	0.1784	0.0050	0.1	0.07416	104	75-125	0			
Beryllium	0.1025	0.0020	0.1	-0.0003913	103	75-125	0			
Boron	1.263	0.050	1	0.2207	104	75-125	0			
Cadmium	0.1009	0.0020	0.1	-0.0007701	102	75-125	0			
Calcium	131.2	0.50	10	122.4	88	75-125	0			O
Chromium	0.1029	0.0050	0.1	0.0006298	102	75-125	0			
Cobalt	0.1008	0.0050	0.1	-0.00003754	101	75-125	0			
Copper	0.1003	0.0050	0.1	0.001487	98.8	75-125	0			
Iron	10.37	0.20	10	-0.004417	104	75-125	0			
Lead	0.1048	0.0050	0.1	0.0008749	104	75-125	0			
Magnesium	22.53	0.20	10	12.38	102	75-125	0			
Manganese	0.1076	0.0050	0.1	0.004264	103	75-125	0			
Molybdenum	0.107	0.0050	0.1	0.00174	105	75-125	0			
Nickel	0.1013	0.0050	0.1	0.0008087	100	75-125	0			
Potassium	13.1	0.20	10	2.554	105	75-125	0			
Selenium	0.1087	0.0050	0.1	0.003845	105	75-125	0			
Silver	0.1002	0.0050	0.1	-0.0006232	101	75-125	0			
Sodium	75.66	0.20	10	66.21	94.5	75-125	0			O
Vanadium	0.1032	0.0050	0.1	0.001474	102	75-125	0			
Zinc	0.111	0.0050	0.1	0.005501	105	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41332 Instrument ID ICPMS03 Method: SW6020

SD	Sample ID: 1002768-01B DIL SX				Units: mg/L		Analysis Date: 3/1/2010 07:54 PM			
Client ID:	Run ID: ICPMS03_100301A				SeqNo: 1891170		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%D	%D Limit	Qual
Aluminum	0.06975	0.050	0	0	0	0-0	0.05322	31.1	10	R
Arsenic	ND	0.025	0	0	0	0-0	0.0006206	0	10	
Barium	0.07355	0.025	0	0	0	0-0	0.07416	0.823	10	
Beryllium	ND	0.010	0	0	0	0-0	-0.0003913	0	10	
Boron	0.2637	0.25	0	0	0	0-0	0.2207	0	10	
Cadmium	ND	0.010	0	0	0	0-0	-0.0007701	0	10	
Calcium	121.8	2.5	0	0	0	0-0	122.4	0.449	10	
Chromium	ND	0.025	0	0	0	0-0	0.0006298	0	10	
Cobalt	ND	0.025	0	0	0	0-0	-0.00003754	0	10	
Copper	ND	0.025	0	0	0	0-0	0.001487	0	10	
Iron	ND	1.0	0	0	0	0-0	-0.004417	0	10	
Lead	ND	0.025	0	0	0	0-0	0.0008749	0	10	
Magnesium	11.88	1.0	0	0	0	0-0	12.38	4.04	10	
Manganese	ND	0.025	0	0	0	0-0	0.004264	0	10	
Molybdenum	ND	0.025	0	0	0	0-0	0.00174	0	10	
Nickel	ND	0.025	0	0	0	0-0	0.0008087	0	10	
Potassium	2.256	1.0	0	0	0	0-0	2.554	11.7	10	R
Selenium	ND	0.025	0	0	0	0-0	0.003845	0	10	
Silver	ND	0.025	0	0	0	0-0	-0.0006232	0	10	
Sodium	64.45	1.0	0	0	0	0-0	66.21	2.66	10	
Vanadium	ND	0.025	0	0	0	0-0	0.001474	0	10	
Zinc	ND	0.025	0	0	0	0-0	0.005501	0	10	

The following samples were analyzed in this batch:

1002802-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41351 Instrument ID HG02 Method: SW7470

MBLK Sample ID: GBLKW3-030210-41351 Units: mg/L Analysis Date: 3/2/2010 02:36 PM

Client ID: Run ID: HG02_100302A SeqNo: 1891822 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW3-030210-41351 Units: mg/L Analysis Date: 3/2/2010 02:38 PM

Client ID: Run ID: HG02_100302A SeqNo: 1891823 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00536	0.00020	0.005	0	107	85-115	0			

MS Sample ID: 1002799-01AMS Units: mg/L Analysis Date: 3/2/2010 02:44 PM

Client ID: Run ID: HG02_100302A SeqNo: 1891826 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00499	0.00020	0.005	-0.00001	100	85-115	0			

MSD Sample ID: 1002799-01AMSD Units: mg/L Analysis Date: 3/2/2010 02:46 PM

Client ID: Run ID: HG02_100302A SeqNo: 1891827 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00508	0.00020	0.005	-0.00001	102	85-115	0.00499	1.79	20	

DUP Sample ID: 1002799-01ADUP Units: mg/L Analysis Date: 3/2/2010 02:42 PM

Client ID: Run ID: HG02_100302A SeqNo: 1891825 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.00001	0	20	

The following samples were analyzed in this batch: 1002802-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41362 Instrument ID SV-3 Method: SW8270

MBLK Sample ID: SBLKW3-100302-41362 Units: µg/L Analysis Date: 3/3/2010 03:08 PM

Client ID: Run ID: SV-3_100303B SeqNo: 1893489 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	74.66	5.0	100	0	74.7	42-124	0			
Surr: 2-Fluorobiphenyl	86.34	5.0	100	0	86.3	48-120	0			
Surr: 2-Fluorophenol	72.62	5.0	100	0	72.6	20-120	0			
Surr: 4-Terphenyl-d14	90.71	5.0	100	0	90.7	51-135	0			
Surr: Nitrobenzene-d5	78.98	5.0	100	0	79	41-120	0			
Surr: Phenol-d6	75.59	5.0	100	0	75.6	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41362 Instrument ID SV-3 Method: SW8270

LCS		Sample ID: SLCSW3-100302-41362				Units: µg/L		Analysis Date: 3/3/2010 03:31 PM		
Client ID:		Run ID: SV-3_100303B				SeqNo: 1893490		Prep Date: 3/2/2010		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	38.91	5.0	50	0	77.8	50-120	0			
2,4,5-Trichlorophenol	85.46	5.0	100	0	85.5	50-120	0			
2,4,6-Trichlorophenol	88.3	5.0	100	0	88.3	50-120	0			
2-Methylnaphthalene	34.82	5.0	50	0	69.6	55-120	0			
2-Methylphenol	72.79	5.0	100	0	72.8	50-120	0			
2-Nitroaniline	48.28	5.0	50	0	96.6	55-120	0			
2-Nitrophenol	83.2	5.0	100	0	83.2	55-120	0			
3&4-Methylphenol	100.9	5.0	150	0	67.2	55-120	0			
3-Nitroaniline	32.22	5.0	50	0	64.4	40-120	0			
4-Nitroaniline	38.57	5.0	50	0	77.1	50-120	0			
4-Nitrophenol	80.94	5.0	100	0	80.9	45-120	0			
Acenaphthene	44.71	5.0	50	0	89.4	55-120	0			
Acenaphthylene	45.34	5.0	50	0	90.7	55-120	0			
Aniline	25.09	5.0	50	0	50.2	30-120	0			
Anthracene	42.17	5.0	50	0	84.3	55-120	0			
Benz(a)anthracene	41.77	5.0	50	0	83.5	55-120	0			
Benzidine	15.43	5.0	50	0	30.9	10-120	0			
Hexachloroethane	39.06	5.0	50	0	78.1	55-120	0			
Indeno(1,2,3-cd)pyrene	40.68	5.0	50	0	81.4	55-120	0			
Isophorone	34.63	5.0	50	0	69.3	55-120	0			
N-Nitrosodi-n-propylamine	31.39	5.0	50	0	62.8	50-120	0			
N-Nitrosodimethylamine	43.08	5.0	50	0	86.2	45-120	0			
N-Nitrosodiphenylamine	44.23	5.0	50	0	88.5	55-120	0			
Naphthalene	38.97	5.0	50	0	77.9	55-120	0			
Nitrobenzene	39.44	5.0	50	0	78.9	55-120	0			
Pentachlorophenol	79.65	5.0	100	0	79.7	55-120	0			
Phenanthrene	42.1	5.0	50	0	84.2	55-120	0			
Phenol	70.61	5.0	100	0	70.6	50-120	0			
Pyrene	45.7	5.0	50	0	91.4	55-120	0			
Surr: 2,4,6-Tribromophenol	77.84	5.0	100	0	77.8	42-124	0			
Surr: 2-Fluorobiphenyl	88.36	5.0	100	0	88.4	48-120	0			
Surr: 2-Fluorophenol	78.52	5.0	100	0	78.5	20-120	0			
Surr: 4-Terphenyl-d14	77.61	5.0	100	0	77.6	51-135	0			
Surr: Nitrobenzene-d5	72.58	5.0	100	0	72.6	41-120	0			
Surr: Phenol-d6	72.49	5.0	100	0	72.5	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 41362 Instrument ID SV-3 Method: SW8270

LCSD Sample ID: SLCSWD3-100302-41362 Units: µg/L Analysis Date: 3/3/2010 03:54 PM

Client ID: Run ID: SV-3_100303B SeqNo: 1893491 Prep Date: 3/2/2010 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	43.36	5.0	50	0	86.7	50-120	38.91	10.8	20	
2,4,5-Trichlorophenol	87.34	5.0	100	0	87.3	50-120	85.46	2.18	20	
2,4,6-Trichlorophenol	86.95	5.0	100	0	86.9	50-120	88.3	1.54	20	
2-Methylnaphthalene	38.65	5.0	50	0	77.3	55-120	34.82	10.4	20	
2-Methylphenol	81.67	5.0	100	0	81.7	50-120	72.79	11.5	20	
2-Nitroaniline	52.68	5.0	50	0	105	55-120	48.28	8.71	20	
2-Nitrophenol	92.09	5.0	100	0	92.1	55-120	83.2	10.1	20	
3&4-Methylphenol	115.1	5.0	150	0	76.8	55-120	100.9	13.2	20	
3-Nitroaniline	32.59	5.0	50	0	65.2	40-120	32.22	1.16	20	
4-Nitroaniline	38.07	5.0	50	0	76.1	50-120	38.57	1.3	20	
4-Nitrophenol	87.52	5.0	100	0	87.5	45-120	80.94	7.81	20	
Acenaphthene	43.72	5.0	50	0	87.4	55-120	44.71	2.24	20	
Acenaphthylene	45.12	5.0	50	0	90.2	55-120	45.34	0.487	20	
Aniline	28.45	5.0	50	0	56.9	30-120	25.09	12.6	20	
Anthracene	46.8	5.0	50	0	93.6	55-120	42.17	10.4	20	
Benz(a)anthracene	46.52	5.0	50	0	93	55-120	41.77	10.8	20	
Benzidine	14.51	5.0	50	0	29	10-120	15.43	6.16	20	
Hexachloroethane	41.89	5.0	50	0	83.8	55-120	39.06	6.99	20	
Indeno(1,2,3-cd)pyrene	46.02	5.0	50	0	92	55-120	40.68	12.3	20	
Isophorone	38.5	5.0	50	0	77	55-120	34.63	10.6	20	
N-Nitrosodi-n-propylamine	37.93	5.0	50	0	75.9	50-120	31.39	18.9	20	
N-Nitrosodimethylamine	45.74	5.0	50	0	91.5	45-120	43.08	6	20	
N-Nitrosodiphenylamine	50.62	5.0	50	0	101	55-120	44.23	13.5	20	
Naphthalene	43.34	5.0	50	0	86.7	55-120	38.97	10.6	20	
Nitrobenzene	44.07	5.0	50	0	88.1	55-120	39.44	11.1	20	
Pentachlorophenol	84.56	5.0	100	0	84.6	55-120	79.65	5.98	20	
Phenanthrene	46.4	5.0	50	0	92.8	55-120	42.1	9.73	20	
Phenol	85.73	5.0	100	0	85.7	50-120	70.61	19.3	20	
Pyrene	48.48	5.0	50	0	97	55-120	45.7	5.89	20	
Surr: 2,4,6-Tribromophenol	77.39	5.0	100	0	77.4	42-124	77.84	0.58	20	
Surr: 2-Fluorobiphenyl	88.93	5.0	100	0	88.9	48-120	88.36	0.643	20	
Surr: 2-Fluorophenol	92.82	5.0	100	0	92.8	20-120	78.52	16.7	20	
Surr: 4-Terphenyl-d14	84.31	5.0	100	0	84.3	51-135	77.61	8.27	20	
Surr: Nitrobenzene-d5	84.33	5.0	100	0	84.3	41-120	72.58	15	20	
Surr: Phenol-d6	83.54	5.0	100	0	83.5	20-120	72.49	14.2	20	

The following samples were analyzed in this batch:

1002802-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87705 Instrument ID VOA1 Method: SW8260

MBLK Sample ID: VBLKW-030110-R87705 Units: µg/L Analysis Date: 3/1/2010 12:07 PM

Client ID: Run ID: VOA1_100301B SeqNo: 1891402 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	44.58	5.0	50	0	89.2	70-125	0			
Surr: 4-Bromofluorobenzene	45.46	5.0	50	0	90.9	72-125	0			
Surr: Dibromofluoromethane	47.36	5.0	50	0	94.7	71-125	0			
Surr: Toluene-d8	50.56	5.0	50	0	101	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87705 Instrument ID VOA1 Method: SW8260

LCS Sample ID: VLCSW-030110-R87705 Units: µg/L Analysis Date: 3/1/2010 11:17 AM

Client ID: Run ID: VOA1_100301B SeqNo: 1891401 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	48.3	5.0	50	0	96.6	80-120	0			
1,1,2,2-Tetrachloroethane	46.46	5.0	50	0	92.9	72-120	0			
1,1,2-Trichloroethane	46.04	5.0	50	0	92.1	80-120	0			
1,1-Dichloroethane	44.27	5.0	50	0	88.5	76-120	0			
1,1-Dichloroethene	47.32	5.0	50	0	94.6	73-124	0			
1,2-Dichloroethane	46.89	5.0	50	0	93.8	78-120	0			
2-Butanone	97.99	10	100	0	98	58-132	0			
2-Chloroethyl vinyl ether	100.4	10	100	0	100	74-120	0			
2-Hexanone	101	10	100	0	101	61-130	0			
4-Methyl-2-pentanone	101.4	10	100	0	101	65-127	0			
Acetone	91.42	10	100	0	91.4	59-137	0			
Benzene	46.57	5.0	50	0	93.1	73-121	0			
Bromodichloromethane	48.44	5.0	50	0	96.9	80-120	0			
Bromoform	45.84	5.0	50	0	91.7	79-120	0			
Bromomethane	46.49	5.0	50	0	93	66-137	0			
Carbon disulfide	92.81	10	100	0	92.8	68-141	0			
Carbon tetrachloride	48.2	5.0	50	0	96.4	75-124	0			
Chlorobenzene	46.74	5.0	50	0	93.5	80-120	0			
Chloroethane	47.74	5.0	50	0	95.5	76-121	0			
Chloroform	46.55	5.0	50	0	93.1	80-120	0			
Chloromethane	49.05	5.0	50	0	98.1	67-123	0			
cis-1,3-Dichloropropene	48.44	5.0	50	0	96.9	80-120	0			
Dibromochloromethane	47.1	5.0	50	0	94.2	80-120	0			
Ethylbenzene	48.04	5.0	50	0	96.1	80-120	0			
m,p-Xylene	95	10	100	0	95	78-121	0			
Methylene chloride	45.09	10	50	0	90.2	65-133	0			
Styrene	49.96	5.0	50	0	99.9	80-120	0			
Tetrachloroethene	48.45	5.0	50	0	96.9	79-120	0			
Toluene	47.23	5.0	50	0	94.5	80-120	0			
trans-1,3-Dichloropropene	47.68	5.0	50	0	95.4	80-120	0			
Trichloroethene	49.34	5.0	50	0	98.7	80-120	0			
Vinyl acetate	93.37	10	100	0	93.4	67-139	0			
Vinyl chloride	49.23	2.0	50	0	98.5	70-127	0			
Xylenes, Total	143.3	15	150	0	95.6	80-120	0			
Surr: 1,2-Dichloroethane-d4	43.32	5.0	50	0	86.6	70-125	0			
Surr: 4-Bromofluorobenzene	45.56	5.0	50	0	91.1	72-125	0			
Surr: Dibromofluoromethane	45.45	5.0	50	0	90.9	71-125	0			
Surr: Toluene-d8	49.19	5.0	50	0	98.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87705 Instrument ID VOA1 Method: SW8260

MS		Sample ID: 1002730-13AMS		Units: µg/L		Analysis Date: 3/1/2010 03:29 PM				
Client ID:		Run ID: VOA1_100301B		SeqNo: 1891407		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	41.35	5.0	50	0	82.7	80-120	0			
1,1,2,2-Tetrachloroethane	44.1	5.0	50	0	88.2	72-120	0			
1,1,2-Trichloroethane	46.28	5.0	50	0	92.6	80-120	0			
1,1-Dichloroethane	43.09	5.0	50	0	86.2	76-120	0			
1,1-Dichloroethene	41.72	5.0	50	0	83.4	73-124	0			
1,2-Dichloroethane	46.02	5.0	50	0	92	78-120	0			
2-Butanone	92.79	10	100	0	92.8	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	107.9	10	100	0	108	61-130	0			
4-Methyl-2-pentanone	107.4	10	100	0	107	65-127	0			
Acetone	83.22	10	100	0	83.2	59-137	0			
Benzene	44.95	5.0	50	0	89.9	73-121	0			
Bromodichloromethane	45.46	5.0	50	0	90.9	80-120	0			
Bromoform	45.41	5.0	50	0	90.8	79-120	0			
Bromomethane	38.9	5.0	50	0	77.8	66-137	0			
Carbon disulfide	85.71	10	100	0	85.7	68-141	0			
Carbon tetrachloride	42.09	5.0	50	0	84.2	75-124	0			
Chlorobenzene	45.49	5.0	50	0	91	80-120	0			
Chloroethane	43.25	5.0	50	0	86.5	76-121	0			
Chloroform	44.56	5.0	50	0	89.1	80-120	0			
Chloromethane	43.88	5.0	50	0	87.8	67-123	0			
cis-1,3-Dichloropropene	44.8	5.0	50	0	89.6	80-120	0			
Dibromochloromethane	46.53	5.0	50	0	93.1	80-120	0			
Ethylbenzene	48.04	5.0	50	0	96.1	80-120	0			
m,p-Xylene	92.51	10	100	0	92.5	78-121	0			
Methylene chloride	45.25	10	50	0	90.5	65-133	0			
Styrene	50.21	5.0	50	0	100	80-120	0			
Tetrachloroethene	43.56	5.0	50	0	87.1	79-120	0			
Toluene	45.43	5.0	50	0	90.9	80-120	0			
trans-1,3-Dichloropropene	46.36	5.0	50	0	92.7	80-120	0			
Trichloroethene	44.35	5.0	50	0	88.7	80-120	0			
Vinyl acetate	97.53	10	100	0	97.5	67-139	0			
Vinyl chloride	42.91	2.0	50	0	85.8	70-127	0			
Xylenes, Total	141.2	15	150	0	94.1	80-120	0			
Surr: 1,2-Dichloroethane-d4	43.31	5.0	50	0	86.6	70-125	0			
Surr: 4-Bromofluorobenzene	49.72	5.0	50	0	99.4	72-125	0			
Surr: Dibromofluoromethane	45.25	5.0	50	0	90.5	71-125	0			
Surr: Toluene-d8	47.51	5.0	50	0	95	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87705 Instrument ID VOA1 Method: SW8260

MSD	Sample ID: 1002730-13AMSD	Units: µg/L		Analysis Date: 3/1/2010 03:55 PM						
Client ID:	Run ID: VOA1_100301B	SeqNo: 1891408		Prep Date:		DF: 1				
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	44.7	5.0	50	0	89.4	80-120	41.35	7.78	20	
1,1,2,2-Tetrachloroethane	47.39	5.0	50	0	94.8	72-120	44.1	7.21	20	
1,1,2-Trichloroethane	47.18	5.0	50	0	94.4	80-120	46.28	1.92	20	
1,1-Dichloroethane	46.98	5.0	50	0	94	76-120	43.09	8.63	20	
1,1-Dichloroethene	43.28	5.0	50	0	86.6	73-124	41.72	3.69	20	
1,2-Dichloroethane	47.44	5.0	50	0	94.9	78-120	46.02	3.05	20	
2-Butanone	100.6	10	100	0	101	58-132	92.79	8.12	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	124.1	10	100	0	124	61-130	107.9	13.9	20	
4-Methyl-2-pentanone	118.7	10	100	0	119	65-127	107.4	9.96	20	
Acetone	89.93	10	100	0	89.9	59-137	83.22	7.75	20	
Benzene	46.36	5.0	50	0	92.7	73-121	44.95	3.09	20	
Bromodichloromethane	46.08	5.0	50	0	92.2	80-120	45.46	1.34	20	
Bromoform	48.32	5.0	50	0	96.6	79-120	45.41	6.2	20	
Bromomethane	45.23	5.0	50	0	90.5	66-137	38.9	15	20	
Carbon disulfide	89.56	10	100	0	89.6	68-141	85.71	4.4	20	
Carbon tetrachloride	39.42	5.0	50	0	78.8	75-124	42.09	6.55	20	
Chlorobenzene	47.93	5.0	50	0	95.9	80-120	45.49	5.24	20	
Chloroethane	44.68	5.0	50	0	89.4	76-121	43.25	3.25	20	
Chloroform	45.92	5.0	50	0	91.8	80-120	44.56	3	20	
Chloromethane	47.31	5.0	50	0	94.6	67-123	43.88	7.53	20	
cis-1,3-Dichloropropene	48.46	5.0	50	0	96.9	80-120	44.8	7.84	20	
Dibromochloromethane	49.58	5.0	50	0	99.2	80-120	46.53	6.34	20	
Ethylbenzene	51.24	5.0	50	0	102	80-120	48.04	6.46	20	
m,p-Xylene	101	10	100	0	101	78-121	92.51	8.73	20	
Methylene chloride	49.11	10	50	0	98.2	65-133	45.25	8.18	20	
Styrene	51.41	5.0	50	0	103	80-120	50.21	2.36	20	
Tetrachloroethene	45.28	5.0	50	0	90.6	79-120	43.56	3.88	20	
Toluene	46.77	5.0	50	0	93.5	80-120	45.43	2.91	20	
trans-1,3-Dichloropropene	47.16	5.0	50	0	94.3	80-120	46.36	1.72	20	
Trichloroethene	46.31	5.0	50	0	92.6	80-120	44.35	4.31	20	
Vinyl acetate	101.9	10	100	0	102	67-139	97.53	4.42	20	
Vinyl chloride	45.02	2.0	50	0	90	70-127	42.91	4.79	20	
Xylenes, Total	151.2	15	150	0	101	80-120	141.2	6.88	20	
Surr: 1,2-Dichloroethane-d4	46.32	5.0	50	0	92.6	70-125	43.31	6.72	20	
Surr: 4-Bromofluorobenzene	48.69	5.0	50	0	97.4	72-125	49.72	2.1	20	
Surr: Dibromofluoromethane	48.43	5.0	50	0	96.9	71-125	45.25	6.79	20	
Surr: Toluene-d8	48.89	5.0	50	0	97.8	75-125	47.51	2.86	20	

The following samples were analyzed in this batch:

1002802-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1002802
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87653 Instrument ID WetChem Method: SW1010

LCS Sample ID: WLCS-03012010-R87653 Units: °F Analysis Date: 3/1/2010

Client ID: Run ID: WETCHEM_100301B SeqNo: 1890229 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	83	50	83	0	100	80-120	0			

DUP Sample ID: 1002802-01DDUP Units: °F Analysis Date: 3/1/2010

Client ID: Inj Well Run ID: WETCHEM_100301B SeqNo: 1890239 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch:

1002802-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87661 Instrument ID ICS3K2 Method: E300

MBLK Sample ID: WBLKW1-022710-R87661 Units: mg/L Analysis Date: 2/27/2010 06:00 PM

Client ID: Run ID: ICS3K2_100227A SeqNo: 1890433 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.267	0.50								J
Fluoride	ND	0.10								
Sulfate	ND	0.50								
Surr: Selenate (surr)	4.791	0.10	5	0	95.8	85-115	0			

LCS Sample ID: WLC SW1-022710-R87661 Units: mg/L Analysis Date: 2/27/2010 06:22 PM

Client ID: Run ID: ICS3K2_100227A SeqNo: 1890434 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.06	0.50	20	0	95.3	90-110	0			
Fluoride	3.944	0.10	4	0	98.6	90-110	0			
Sulfate	19.45	0.50	20	0	97.2	90-110	0			
Surr: Selenate (surr)	4.635	0.10	5	0	92.7	85-115	0			

LCSD Sample ID: WLCSDW1-022710-R87661 Units: mg/L Analysis Date: 2/27/2010 06:43 PM

Client ID: Run ID: ICS3K2_100227A SeqNo: 1890435 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.38	0.50	20	0	96.9	90-110	19.06	1.66	20	
Fluoride	4.035	0.10	4	0	101	90-110	3.944	2.28	20	
Sulfate	19.1	0.50	20	0	95.5	90-110	19.45	1.81	20	
Surr: Selenate (surr)	4.673	0.10	5	0	93.5	85-115	4.635	0.817	20	

MS Sample ID: 1002811-02EMS Units: mg/L Analysis Date: 2/27/2010 11:02 PM

Client ID: Run ID: ICS3K2_100227A SeqNo: 1890459 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	11.2	0.50	10	2.201	89.9	80-120	0			
Fluoride	1.915	0.10	2	-0.006	96	80-120	0			
Sulfate	12.52	0.50	10	3.38	91.4	80-120	0			
Surr: Selenate (surr)	4.371	0.10	5	0	87.4	85-115	0			

MSD Sample ID: 1002811-02EMSD Units: mg/L Analysis Date: 2/27/2010 11:23 PM

Client ID: Run ID: ICS3K2_100227A SeqNo: 1890460 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	11.2	0.50	10	2.201	90	80-120	11.2	0.0179	20	
Fluoride	1.912	0.10	2	-0.006	95.9	80-120	1.915	0.157	20	
Sulfate	12.46	0.50	10	3.38	90.8	80-120	12.52	0.488	20	
Surr: Selenate (surr)	4.385	0.10	5	0	87.7	85-115	4.371	0.32	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1002802
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R87661** Instrument ID **ICS3K2** Method: **E300**

The following samples were analyzed in this batch:

1002802-01C

Client: Navajo Refining Company
Work Order: 1002802
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87685 Instrument ID WetChem Method: SM4500H+ B

LCS Sample ID: WLCS-03012010-R87685 Units: pH units Analysis Date: 3/1/2010

Client ID: Run ID: WETCHEM_100301J SeqNo: 1890814 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: 1003007-01BDUP Units: pH units Analysis Date: 3/1/2010

Client ID: Run ID: WETCHEM_100301J SeqNo: 1890856 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	1.82	0.10	0	0	0	0-0	1.85	1.63	20	

The following samples were analyzed in this batch:

1002802-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1002802
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87748 Instrument ID Balance1 Method: M2540C

MBLK Sample ID: BLANK-R87748 Units: mg/L Analysis Date: 3/2/2010 05:00 PM
Client ID: Run ID: BALANCE1_100302E SeqNo: 1892329 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	ND	10								

LCS Sample ID: lcs-R87748 Units: mg/L Analysis Date: 3/2/2010 05:00 PM
Client ID: Run ID: BALANCE1_100302E SeqNo: 1892330 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	988	10	1000		0	98.8	85-115	0		

DUP Sample ID: 1003020-01ADUP Units: mg/L Analysis Date: 3/2/2010 05:00 PM
Client ID: Run ID: BALANCE1_100302E SeqNo: 1892323 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Filt	6455	10	0		0	0	0-0	6600	2.22	20

The following samples were analyzed in this batch:

1002802-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 1002802
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R87847 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-3410-R87847 Units: mg/L Analysis Date: 3/4/2010 12:00 PM

Client ID: Run ID: WETCHEM_100304J SeqNo: 1894463 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-3410-R87847 Units: mg/L Analysis Date: 3/4/2010 12:00 PM

Client ID: Run ID: WETCHEM_100304J SeqNo: 1894464 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1012	5.0	1000	0	101	80-120	0			
Alkalinity, Total (As CaCO3)	1012	5.0	1000	0	101	80-120	0			

DUP Sample ID: 1002698-15bdup Units: mg/L Analysis Date: 3/4/2010 12:00 PM

Client ID: Run ID: WETCHEM_100304J SeqNo: 1894485 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	184.2	5.0	0	0	0	0-0	184.2	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	184.2	5.0	0	0	0	0-0	184.2	0	20	

The following samples were analyzed in this batch:

1002802-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 1002802
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R87923** Instrument ID **WetChem** Method: **M2510 B**

MBLK Sample ID: **WBLKW1-3810-R87923** Units: **µmhos/cm** Analysis Date: **3/8/2010 02:00 PM**

Client ID: Run ID: **WETCHEM_100308D** SeqNo: **1895895** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **WLCSW1-3810-R87923** Units: **µmhos/cm** Analysis Date: **3/8/2010 02:00 PM**

Client ID: Run ID: **WETCHEM_100308D** SeqNo: **1895896** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1420	1.0	1413		0	100	80-120	0		

DUP Sample ID: **1002802-01cdup** Units: **µmhos/cm** Analysis Date: **3/8/2010 02:00 PM**

Client ID: **Inj Well** Run ID: **WETCHEM_100308D** SeqNo: **1895900** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	6040	1.0	0		0	0	6050	0.165	20	

The following samples were analyzed in this batch:

1002802-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Laboratory Group

Date: 09-Mar-10

Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 1002802

QUALIFIERS, ACRONYMS, UNITS

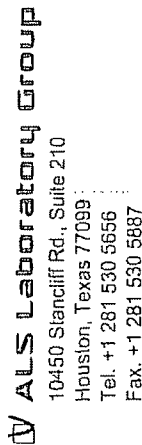
<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
M	Manually integrated, see raw data for justification
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

MDL

Over calibration

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Customer Information						Project Information						ALS Project Manager:										ALS Work Order #:									
Purchase Order						Project Name						Injection Well Quarterly						Parameter/Method Request for Analysis													
Work Order						Project Number												A VOC (8260) Select													
Company Name						Bill To Company						Navajo Refining Company						B SVOC (0070) Select													
Send Report To						Invoice Attn						Aaron Strange						C Total Metals (0020/7000) Select													
Address						PO Box 150												D RCI Profile													
City/State/Zip						Artesia, NM 88211												E Arsenic (300) Cl SO4													
Phone						(505) 746- 5521 3311												F Alkalinity													
Fax						(505) 746-5521												G pH													
e-Mail Address																		H Conductivity													
																		I TDS													
																		J													
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold														
1	Env Well	2/25/10	0937	L	Y	9	X	X	X	X	X	X	X	X	X																
2	Temp Blank																														
3	Trip Blank																														
4																															
5																															
6																															
7																															
8																															
9																															
10																															

Sampler(s) Please Print & Sign: Aaron Strange

Received by: Aaron Strange Date: 2/25/10 Time: 1615

Shipment Method: FedEx

Required Turnaround Time: (Check Box) V Same Day Next Business Day Other

Results Due Date: _____

Notes: _____

Logged by (Laboratory): _____ Cooler ID: _____ Cooler Temp: _____

Refriniquished by: _____ Checked by (Laboratory): _____

IC Package: (Check One Box Below)

Level II Std OC Level III Std OC Level IV Std OC Other

Preservative Key: 1-HClO₄, 2-HNO₃, 3-H₂SO₄, 4-NaOH, 5-Na₂S₂O₈, 6-NaHSO₄, 7-Other: 8-4°C, 9-5035.

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

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ALS Laboratory Group

Sample Receipt Checklist

Client Name: **NAVAJO REFINING**

Date/Time Received: **26-Feb-10 08:50**

Work Order: **1002802**

Received by: **RDH**

Checklist completed by Raymond N. Gumban
eSignature

26-Feb-10
Date

Reviewed by: Lynne F. Thibault
eSignature

02-Mar-10
Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>2.1c</u> <u>002</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			
Login Notes:			

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

ORIGIN ID: R
NAVAJO ARTS
501 E MAIN
ARTESIA, N.E. 67103440
UNITED STATES

SHIP DATE: 25FEB10
ACTNGT: 55.0 LB MAIN
CAD: 634483/CAFE2434

BILL RECIPIENT

TO

ALS LABORATORY GROUP
10450 STANCLIFF RD., SUITE 210

HOUSTON TX 77099

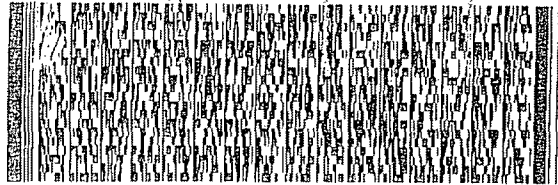
(281) 530-5656

INV:

PO:

REF:

DEPT:



FedEx
Express



CB012030831234

TRICH
0201

4347 1017 8146

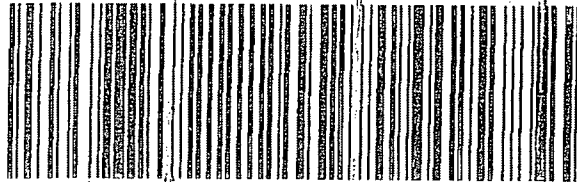
FRI - 26FEB A2
PRIORITY OVERNIGHT

AB JGQA

77099

TX-US

IAH



ALS Laboratory Group

10450 Stancliff Rd., Suite 210

Houston, Texas 77099

Tel. +1 281 530 5656

Fax. +1 281 530 5887

Date: 2-25-
Name: RAE
Company: NA

CUSTODY SEAL

TO: 10 Time: 1615
on 5/26/09
Waja Refining Co.

Seal Broken By:

2/26/10

ALS Laboratory Group

Date: 03-Mar-10

Client: ALS Laboratory Group
Project: 1002802
Work Order: 1003056

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1003056-01	1002802-01F	Water		2/25/2010 09:37	3/2/2010 09:00	☐

ALS Laboratory Group

Date: 03-Mar-10

Client: ALS Laboratory Group
Project: 1002802
WorkOrder: 1003056

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Laboratory Group

Date: 03-Mar-10

Client: ALS Laboratory Group

Project: 1002802

Work Order: 1003056

Sample ID: 1002802-01F

Lab ID: 1003056-01

Collection Date: 2/25/2010 09:37 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: EE
Cyanide, Reactive	ND		40.0	mg/Kg	1	3/2/2010
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: EE
Sulfide, Reactive	ND		40.0	mg/Kg	1	3/2/2010

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Laboratory Group

Date: 03-Mar-10

Client: ALS Laboratory Group

QC BATCH REPORT

Work Order: 1003056

Project: 1002802

Batch ID: R75358 Instrument ID WETCHEM Method: SW7.3.4.2

MBLK Sample ID: WBLKW1-030110-R75358 Units: mg/Kg Analysis Date: 3/1/2010 01:00 PM

Client ID: Run ID: WETCHEM_100301H SeqNo: 1292828 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

1003056-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Laboratory Group
 Work Order: 1003056
 Project: 1002802

QC BATCH REPORT

Batch ID: R75361 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK	Sample ID: WBLKW1-030110-R75361				Units: mg/Kg		Analysis Date: 3/1/2010 01:00 PM			
Client ID:	Run ID: WETCHEM_100301J				SeqNo: 1292838		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS	Sample ID: WLCSW1-030110-R75361					Units: mg/Kg		Analysis Date: 3/1/2010 01:00 PM		
Client ID:	Run ID: WETCHEM_100301J				SeqNo: 1292839		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	0			

LCSD	Sample ID: WLCSDW1-030110-R75361					Units: mg/Kg		Analysis Date: 3/1/2010 01:00 PM		
Client ID:	Run ID: WETCHEM_100301J				SeqNo: 1292845		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	234.9	0	35	

MS	Sample ID: 1003006-01A MS				Units: mg/Kg		Analysis Date: 3/1/2010 01:00 PM			
Client ID:	Run ID: WETCHEM_100301J				SeqNo: 1292841		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	0			

MSD	Sample ID: 1003006-01A MSD					Units: mg/Kg		Analysis Date: 3/1/2010 01:00 PM		
Client ID:	Run ID: WETCHEM_100301J				SeqNo: 1292842		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	50-150	234.9	0	35	

The following samples were analyzed in this batch: 1003056-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

W04 1003056

Date: 26-Feb-10
COC ID: 0593
Due Date 08-Mar-10

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Subcontractor:
ALS Laboratory Group
3352 128th Ave.
Holland, MI 49424

TEL: (616) 398-6070
FAX: (616) 398-6185
Acct #:

Parameter/Method Request for Analysis

A. Reactive Cyanide (SW-846)
B. Reactive Sulfide (SW-846)

Project Information

Project Name
1002002

Project Number

Bill To Company
ALS Group USA, Corp.

Inv / Attn
Accounts Payable

Address
10450 Stanciliff Rd, Suite 210

City/State/Zip
Houston, Texas 77099-4138

Phone
(281) 530-5656

Fax
(281) 530-5887

eMail Address
jaylynn.thibault@alsenviro.com

Collection Date 2/26/2010 9:37

Matrix
Water

Bottle
(1) LPNEAT

Customer Information

Purchase Order
10-2117791

Work Order

Company Name
ALS Group USA, Corp.

Sent Report To
JayLynn P. Thibault

Address
10450 Stanciliff Rd, Suite 210

City/State/Zip
Houston, Texas 77099-4138

Phone
(281) 530-5656

Fax
(281) 530-5887

eMail Address
jaylynn.thibault@alsenviro.com

Collection Date 2/26/2010 9:37

Matrix
Water

Bottle
(1) LPNEAT

Comments:

Please analyze for Reactive Cyanide and Reactive Sulfide. Report is due on 3/2/10. Please send report to Jaylynn Thibault, jaylynn.thibault@alsenviro.com, and CC: results to Glenda Ramos, glenda.ramos@alsenviro.com

Report/OC Level

Cooler lbs

Date/Time

Received by

Date/Time

Relinquished by

Date/Time

Relinquished by

Date/Time

Relinquished by

Date/Time

Relinquished by

Date/Time

Relinquished by

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 02-Mar-10 09:00

Work Order: 1003056

Received by: DS

Checklist completed by Diane Shaw 02-Mar-10
eSignature Date

Reviewed by: Diane Shaw 03-Mar-10
eSignature Date

Matrices: Water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>2.8 c</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

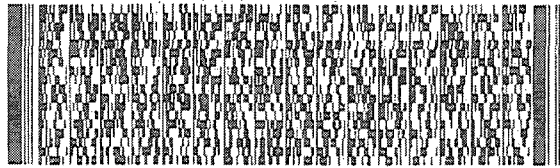
ORIGIN ID: JGGA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

SHIP DATE: 01MAR10
ACTWGT: 23.9 LB
CAD: 300130/CAFE2450

BILL SENDER

TO RECEIVING
ALS LABORATORY
3352 128TH AVE.

HOLLAND MI 49424
(616) 399-6070
REF: SUBCONTRACT



FedEx
Express



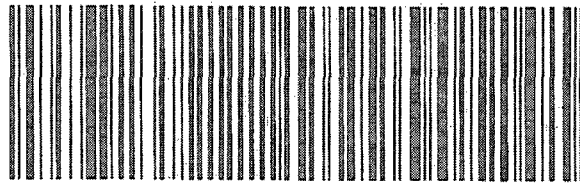
J09200911302223

TRK# 4340 2158 7985
0201

TUE - 02MAR AA
PRIORITY OVERNIGHT

NI GRRR

49424
MI-US
GRR



0201 4340 2158 7985 49424 MI-US GRR



REFINING COMPANY, LLC

RECEIVED

FAX

(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

FAX

501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

2010 FEB 1 PM 1 58

(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

January 29, 2010

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2009 Fourth Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the fourth quarter of 2009 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on the wells continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and have found it to be dropping at a very slow rate in WDW-1 and WDW-3. We are closely monitoring the fluid level for these wells. A Mechanical Integrity Test (MIT) on all the wells was last done in October 2009. All of the wells passed. Our consultants have stated that the loss rate is so small that we would not be able to find the leak. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table.

You will also notice that the minimum annular pressure for the Mewbourne well (WDW-1) appears to be reading low in October 2009. We have investigated the low reading. There was a burnt connector and a bad fuse to the motors that allowed the pressure to drop. The burnt connector and fuse was replaced. The pumps have since been working correctly.

This report covers the period from October 1, 2009 to December 31, 2009. We have disposed a total of 46,331,047 barrels of fluid into the three wells as of December 31, 2009. The volume per well is:

- 27,647,056 barrels into WDW-1
- 14,124,671 barrels into WDW-2
- 4,559,320 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Michael Whatley
Vice-President, Navajo Refinery

ecc: DGM, JEL
File; REF:ART: 4 A 02 D

2009 FORTH QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1														
Oct-09	445	901	149	142	244	115	390	605	25	4,873	8,366	3,938	151,065	27,199,719
Nov-09	498	544	444	126	136	110	482	1,000	149	4,331	4,653	3,786	129,935	27,350,784
Dec-09	557	665	309	156	333	108	412	621	221	5,366	11,426	3,704	166,336	27,480,719
WDW-2														
Oct-09	408	565	171	113	120	103	551	918	119	3,865	4,116	3,533	119,817	13,717,586
Nov-09	510	604	434	111	161	76	579	894	347	3,790	5,528	2,589	113,692	13,837,403
Dec-09	594	884	513	163	342	138	320	557	109	5,599	11,739	4,746	173,576	13,951,095
WDW-3														
Oct-09	386	529	10	201	217	188	310	549	206	6,903	7,442	6,449	213,990	14,124,671
Nov-09	540	651	479	206	250	172	312	533	241	7,067	8,577	5,895	212,016	3,912,141
Dec-09	587	625	551	208	219	184	335	500	234	7,135	7,511	6,320	221,173	4,126,131
Total Injected fluids:														4,559,320

2009 FORTH QUARTER WEEKLY WAMS LEVEL TABLE

	10/2/09	10/9/09	10/16/09	10/23/09	10/30/09	11/6/09	11/13/09	11/20/09	11/25/09	12/6/09	12/15/09	12/22/09
WDW -1 ¹	130	130	115	100	75	75	65	175	175	175	175	175
WDW-2 ¹	145	145	140	135	135	130	130	130	125	125	125	125
WDW-3 ¹	215	215	215	210	205	205	200	200	175	175	170	165
Comments: Added 110 gallons of antifreeze to WDW-1 on 11/20/09.												

¹ Graduated tank gauged weekly in the field. Reading is in gallons.

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES



Environmental Division

08-Dec-2009

Aaron Strange
Navajo Refining Company
PO Box 159
Artesia, NM 88211

Tel: (575) 748-6733
Fax: (575) 746-5421

Re: Injection Well Quarterly

Work Order: 0911524

Dear Aaron,

ALS Laboratory Group received 1 sample on 20-Nov-2009 09:20 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Laboratory Group and for only the analyses requested. Results are expressed as "as received" unless otherwise noted.

QC sample results for this data met EPA or laboratory specifications except as noted in the Case Narrative or as noted with qualifiers in the QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained by ALS Laboratory Group. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to call me.

Sincerely,

J a y L y n n F T h i b a u l t

Electronically approved by: Glenda H. Ramos

JayLynn F Thibault
Project Manager



Certificate No: T104704231-09A-TX

ALS Group USA, Corp.

Part of the **ALS Laboratory Group**

10450 Standcliff Rd, Suite 210 Houston, Texas 77099-4338

Phone: (281) 530-5656 Fax: (281) 530-5887

www.alsglobal.com www.elabi.com

A Campbell Brothers Limited Company

ALS Laboratory Group

Date: 08-Dec-09

Client: Navajo Refining Company

Project: Injection Well Quarterly

Work Order: 0911524

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0911524-01	Injection Well	Water		11/19/2009 13:58	11/20/2009 09:20	☐

ALS Laboratory Group

Date: 08-Dec-09

Client: Navajo Refining Company
Project: Injection Well Quarterly
Work Order: 0911524

Case Narrative

Batch R84328 Volatiles (Sample 0911621-01)MS/MSD unrelated sample.

Batch 39668 Metals (sample 0911561-01) MS/MSD unrelated sample.

ALS Laboratory Group

Date: 08-Dec-09

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Injection Well
Collection Date: 11/19/2009 01:58 PM

Work Order: 0911524
Lab ID: 0911524-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY						
Mercury	ND		SW7470 0.000200	mg/L	Prep Date: 11/25/2009 1	Analyst: JCJ 11/25/2009 03:14 PM
METALS						
Aluminum	0.329		SW6020 0.0100	mg/L	Prep Date: 11/25/2009 1	Analyst: ALR 11/25/2009 08:09 PM
Arsenic	0.111		0.00500	mg/L	1	11/25/2009 08:09 PM
Barium	0.0198		0.00500	mg/L	1	11/25/2009 08:09 PM
Beryllium	ND		0.00200	mg/L	1	11/25/2009 08:09 PM
Boron	0.258		0.0200	mg/L	1	11/25/2009 08:09 PM
Cadmium	ND		0.00200	mg/L	1	11/25/2009 08:09 PM
Calcium	147		0.500	mg/L	1	11/25/2009 08:09 PM
Chromium	ND		0.00500	mg/L	1	11/25/2009 08:09 PM
Cobalt	ND		0.00500	mg/L	1	11/25/2009 08:09 PM
Copper	ND		0.00500	mg/L	1	11/25/2009 08:09 PM
Iron	ND		0.200	mg/L	1	11/25/2009 08:09 PM
Lead	ND		0.00500	mg/L	1	11/25/2009 08:09 PM
Magnesium	46.6		0.200	mg/L	1	11/25/2009 08:09 PM
Manganese	0.0634		0.00500	mg/L	1	11/25/2009 08:09 PM
Molybdenum	0.155		0.00500	mg/L	1	11/25/2009 08:09 PM
Nickel	0.00618		0.00500	mg/L	1	11/25/2009 08:09 PM
Potassium	16.4		0.200	mg/L	1	11/25/2009 08:09 PM
Selenium	0.428		0.0500	mg/L	10	11/30/2009 05:14 PM
Silver	ND		0.00500	mg/L	1	11/25/2009 08:09 PM
Sodium	1,060		40.0	mg/L	200	11/30/2009 07:41 PM
Vanadium	ND		0.00500	mg/L	1	11/25/2009 08:09 PM
Zinc	0.0382		0.00500	mg/L	1	11/25/2009 08:09 PM
SEMIVOLATILES						
1,2,4-Trichlorobenzene	ND		SW8270 0.0050	mg/L	Prep Date: 11/24/2009 1	Analyst: ACN 12/3/2009 07:19 PM
2,4,5-Trichlorophenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
2,4,6-Trichlorophenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
2-Methylnaphthalene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
2-Methylphenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
2-Nitroaniline	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
2-Nitrophenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
3&4-Methylphenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
3-Nitroaniline	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
4-Nitroaniline	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
4-Nitrophenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Acenaphthene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Acenaphthylene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 08-Dec-09

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Injection Well
Collection Date: 11/19/2009 01:58 PM

Work Order: 0911524
Lab ID: 0911524-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Aniline	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Anthracene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Benz(a)anthracene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Benzidine	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Hexachloroethane	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Indeno(1,2,3-cd)pyrene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Isophorone	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
N-Nitrosodi-n-propylamine	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
N-Nitrosodimethylamine	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
N-Nitrosodiphenylamine	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Naphthalene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Nitrobenzene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Pentachlorophenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Phenanthrene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Phenol	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Pyrene	ND		0.0050	mg/L	1	12/3/2009 07:19 PM
Surr: 2,4,6-Tribromophenol	79.3		42-124	%REC	1	12/3/2009 07:19 PM
Surr: 2-Fluorobiphenyl	70.6		48-120	%REC	1	12/3/2009 07:19 PM
Surr: 2-Fluorophenol	63.0		20-120	%REC	1	12/3/2009 07:19 PM
Surr: 4-Terphenyl-d14	66.4		51-135	%REC	1	12/3/2009 07:19 PM
Surr: Nitrobenzene-d5	69.2		41-120	%REC	1	12/3/2009 07:19 PM
Surr: Phenol-d6	63.3		20-120	%REC	1	12/3/2009 07:19 PM

VOLATILES

SW8260

Analyst: PC

1,1,1-Trichloroethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
1,1,2,2-Tetrachloroethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
1,1,2-Trichloroethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
1,1-Dichloroethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
1,1-Dichloroethene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
1,2-Dichloroethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
2-Butanone	0.010		0.010	mg/L	1	11/26/2009 12:50 AM
2-Chloroethyl vinyl ether	ND		0.010	mg/L	1	11/26/2009 12:50 AM
2-Hexanone	ND		0.010	mg/L	1	11/26/2009 12:50 AM
4-Methyl-2-pentanone	ND		0.010	mg/L	1	11/26/2009 12:50 AM
Acetone	0.043		0.010	mg/L	1	11/26/2009 12:50 AM
Benzene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Bromodichloromethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Bromoform	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Bromomethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Carbon disulfide	ND		0.010	mg/L	1	11/26/2009 12:50 AM
Carbon tetrachloride	ND		0.0050	mg/L	1	11/26/2009 12:50 AM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 08-Dec-09

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Injection Well
Collection Date: 11/19/2009 01:58 PM

Work Order: 0911524
Lab ID: 0911524-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chlorobenzene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Chloroethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Chloroform	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Chloromethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
cis-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Dibromochloromethane	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Ethylbenzene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
m,p-Xylene	ND		0.010	mg/L	1	11/26/2009 12:50 AM
Methylene chloride	ND		0.010	mg/L	1	11/26/2009 12:50 AM
Styrene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Tetrachloroethene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Toluene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
trans-1,3-Dichloropropene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Trichloroethene	ND		0.0050	mg/L	1	11/26/2009 12:50 AM
Vinyl acetate	ND		0.010	mg/L	1	11/26/2009 12:50 AM
Vinyl chloride	ND		0.0020	mg/L	1	11/26/2009 12:50 AM
Xylenes, Total	ND		0.015	mg/L	1	11/26/2009 12:50 AM
Surr: 1,2-Dichloroethane-d4	105		70-125	%REC	1	11/26/2009 12:50 AM
Surr: 4-Bromofluorobenzene	99.3		72-125	%REC	1	11/26/2009 12:50 AM
Surr: Dibromofluoromethane	84.1		71-125	%REC	1	11/26/2009 12:50 AM
Surr: Toluene-d8	98.9		75-125	%REC	1	11/26/2009 12:50 AM
REACTIVE CYANIDE			SW-846			Analyst: HN
Reactive Cyanide	ND		40.0	mg/Kg	1	11/24/2009 10:15 AM
REACTIVE SULFIDE			SW-846			Analyst: HN
Reactive Sulfide	ND		40.0	mg/Kg	1	11/24/2009 10:15 AM
ANIONS			E300			Analyst: IGF
Chloride	735		25.0	mg/L	50	11/23/2009 07:41 PM
Sulfate	1,900		25.0	mg/L	50	11/23/2009 07:41 PM
Surr: Selenate (surr)	107		85-115	%REC	50	11/23/2009 07:41 PM
ALKALINITY			SM2320B			Analyst: TDW
Alkalinity, Bicarbonate (As CaCO3)	131		5.00	mg/L	1	11/21/2009 01:00 PM
Alkalinity, Carbonate (As CaCO3)	ND		5.00	mg/L	1	11/21/2009 01:00 PM
Alkalinity, Hydroxide (As CaCO3)	ND		5.00	mg/L	1	11/21/2009 01:00 PM
Alkalinity, Total (As CaCO3)	131		5.00	mg/L	1	11/21/2009 01:00 PM
SPECIFIC CONDUCTIVITY			M2510 B			Analyst: TDW
Specific Conductivity	5,970		1.00	µmhos/cm	1	12/1/2009 04:00 PM
IGNITIBILITY			SW1010			Analyst: RPM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 08-Dec-09

Client: Holly Energy Partners
Project: Injection Well Quarterly
Sample ID: Injection Well
Collection Date: 11/19/2009 01:58 PM

Work Order: 0911524
Lab ID: 0911524-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Ignitability	> 160		50.0	°F	1	12/4/2009 01:30 PM
PH			SM4500H+ B			Analyst: TDW
pH	7.00	H	0.100	pH units	1	11/20/2009 07:00 PM
TOTAL DISSOLVED SOLIDS			M2540C			Analyst: TDW
Total Dissolved Solids (Residue, Filterable)	4,010		10.0	mg/L	1	11/21/2009 12:00 PM

Note: See Qualifiers Page for a list of qualifiers and their explanation.

ALS Laboratory Group

Date: 08-Dec-09

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39668 Instrument ID ICPMS02 Method: SW6020

MBLK Sample ID: MBLKW1-112509-39668 Units: mg/L Analysis Date: 11/25/2009 02:42 PM

Client ID: Run ID: ICPMS02_091125A SeqNo: 1822643 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Cadmium	ND	0.0020								
Calcium	ND	0.50								
Chromium	ND	0.0050								
Cobalt	ND	0.0050								
Copper	ND	0.0050								
Iron	ND	0.20								
Lead	0.0008137	0.0050								J
Magnesium	ND	0.20								
Manganese	ND	0.0050								
Molybdenum	0.0008733	0.0050								J
Nickel	ND	0.0050								
Potassium	ND	0.20								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Sodium	ND	0.20								
Vanadium	ND	0.0050								
Zinc	ND	0.0050								

MBLK Sample ID: MBLKW1-112509-39668 Units: mg/L Analysis Date: 11/25/2009 05:13 PM

Client ID: Run ID: ICPMS02_091125A SeqNo: 1822838 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.0006241	0.0020								J
Boron	0.01032	0.050								J

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39668 Instrument ID ICPMS02 Method: SW6020

LCS Sample ID: MLCW1-112509-39668 Units: mg/L Analysis Date: 11/25/2009 02:48 PM

Client ID: Run ID: ICPMS02_091125A SeqNo: 1822644 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09438	0.010	0.1	0	94.4	80-120	0			
Arsenic	0.04633	0.0050	0.05	0	92.7	80-120	0			
Barium	0.04922	0.0050	0.05	0	98.4	80-120	0			
Cadmium	0.04862	0.0020	0.05	0	97.2	80-120	0			
Calcium	4.574	0.50	5	0	91.5	80-120	0			
Chromium	0.04545	0.0050	0.05	0	90.9	80-120	0			
Cobalt	0.046	0.0050	0.05	0	92	80-120	0			
Copper	0.04608	0.0050	0.05	0	92.2	80-120	0			
Iron	4.704	0.20	5	0	94.1	80-120	0			
Lead	0.04769	0.0050	0.05	0	95.4	80-120	0			
Magnesium	4.466	0.20	5	0	89.3	80-120	0			
Manganese	0.04533	0.0050	0.05	0	90.7	80-120	0			
Molybdenum	0.04726	0.0050	0.05	0	94.5	80-120	0			
Nickel	0.04762	0.0050	0.05	0	95.2	80-120	0			
Potassium	4.555	0.20	5	0	91.1	80-120	0			
Selenium	0.04945	0.0050	0.05	0	98.9	80-120	0			
Silver	0.0492	0.0050	0.05	0	98.4	80-120	0			
Sodium	4.486	0.20	5	0	89.7	80-120	0			
Vanadium	0.0455	0.0050	0.05	0	91	80-120	0			
Zinc	0.04926	0.0050	0.05	0	98.5	80-120	0			

LCS Sample ID: MLCW1-112509-39668 Units: mg/L Analysis Date: 11/25/2009 05:20 PM

Client ID: Run ID: ICPMS02_091125A SeqNo: 1822839 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Beryllium	0.04597	0.0020	0.05	0	91.9	80-120	0			
Boron	0.4568	0.050	0.5	0	91.4	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39668 Instrument ID ICPMS02 Method: SW6020

MS Sample ID: 0911561-01CMS Units: mg/L Analysis Date: 11/25/2009 07:26 PM

Client ID: Run ID: ICPMS02_091125A SeqNo: 1822994 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1212	0.010	0.1	0.01542	106	80-120	0			
Arsenic	0.06692	0.0050	0.05	0.01469	104	80-120	0			
Barium	0.2288	0.0050	0.05	0.1662	125	80-120	0			S
Beryllium	0.05243	0.0020	0.05	0.0006254	104	80-120	0			
Boron	0.692	0.050	0.5	0.1727	104	80-120	0			
Cadmium	0.05211	0.0020	0.05	0.0002283	104	80-120	0			
Calcium	157.3	0.50	5	159.6	-46	80-120	0			SO
Chromium	0.05071	0.0050	0.05	0.0009071	99.6	80-120	0			
Cobalt	0.05107	0.0050	0.05	0.001202	99.7	80-120	0			
Copper	0.05812	0.0050	0.05	0.009049	98.1	80-120	0			
Iron	11.42	0.20	5	6.396	100	80-120	0			
Lead	0.0531	0.0050	0.05	0.001434	103	80-120	0			
Magnesium	35.73	0.20	5	30.84	97.8	80-120	0			O
Manganese	2.244	0.0050	0.05	2.259	-30	80-120	0			SEO
Molybdenum	0.05426	0.0050	0.05	0.001892	105	80-120	0			
Nickel	0.0565	0.0050	0.05	0.005352	102	80-120	0			
Potassium	5.699	0.20	5	0.6167	102	80-120	0			
Selenium	0.05374	0.0050	0.05	-0.000454	108	80-120	0			
Silver	0.04964	0.0050	0.05	0.0001281	99	80-120	0			
Sodium	124.3	0.20	5	119.4	98	80-120	0			O
Vanadium	0.05495	0.0050	0.05	0.003428	103	80-120	0			
Zinc	0.06082	0.0050	0.05	0.007692	106	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39668 Instrument ID ICPMS02 Method: SW6020

MSD		Sample ID: 0911561-01CMSD				Units: mg/L		Analysis Date: 11/25/2009 07:32 PM		
Client ID:		Run ID: ICPMS02_091125A				SeqNo: 1822995		Prep Date: 11/25/2009		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1192	0.010	0.1	0.01542	104	80-120	0.1212	1.66	15	
Arsenic	0.06978	0.0050	0.05	0.01469	110	80-120	0.06692	4.18	15	
Barium	0.2295	0.0050	0.05	0.1662	127	80-120	0.2288	0.305	15	S
Beryllium	0.05212	0.0020	0.05	0.0006254	103	80-120	0.05243	0.593	15	
Boron	0.6907	0.050	0.5	0.1727	104	80-120	0.692	0.188	15	
Cadmium	0.05021	0.0020	0.05	0.0002283	100	80-120	0.05211	3.71	15	
Calcium	162.8	0.50	5	159.6	64	80-120	157.3	3.44	15	SO
Chromium	0.05183	0.0050	0.05	0.0009071	102	80-120	0.05071	2.18	15	
Cobalt	0.05156	0.0050	0.05	0.001202	101	80-120	0.05107	0.955	15	
Copper	0.0586	0.0050	0.05	0.009049	99.1	80-120	0.05812	0.822	15	
Iron	11.46	0.20	5	6.396	101	80-120	11.42	0.35	15	
Lead	0.05208	0.0050	0.05	0.001434	101	80-120	0.0531	1.94	15	
Magnesium	35.87	0.20	5	30.84	101	80-120	35.73	0.391	15	O
Manganese	2.33	0.0050	0.05	2.259	142	80-120	2.244	3.76	15	SEO
Molybdenum	0.05327	0.0050	0.05	0.001892	103	80-120	0.05426	1.84	15	
Nickel	0.05521	0.0050	0.05	0.005352	99.7	80-120	0.0565	2.31	15	
Potassium	5.734	0.20	5	0.6167	102	80-120	5.699	0.612	15	
Selenium	0.0541	0.0050	0.05	-0.000454	109	80-120	0.05374	0.668	15	
Silver	0.04907	0.0050	0.05	0.0001281	97.9	80-120	0.04964	1.15	15	
Sodium	125.6	0.20	5	119.4	124	80-120	124.3	1.04	15	SO
Vanadium	0.05574	0.0050	0.05	0.003428	105	80-120	0.05495	1.43	15	
Zinc	0.05891	0.0050	0.05	0.007692	102	80-120	0.06082	3.19	15	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39668 Instrument ID ICPMS02 Method: SW6020

DUP Sample ID: 0911561-01CDUP Units: mg/L Analysis Date: 11/25/2009 05:32 PM

Client ID: Run ID: ICPMS02_091125A SeqNo: 1822841 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.01445	0.010	0	0	0	0-0	0.01542	6.49	25	
Arsenic	0.01365	0.0050	0	0	0	0-0	0.01469	7.34	25	
Barium	0.1571	0.0050	0	0	0	0-0	0.1662	5.63	25	
Beryllium	0.0005435	0.0020	0	0	0	0-0	0.0006254	0	25	J
Boron	0.1579	0.050	0	0	0	0-0	0.1727	8.95	25	
Cadmium	ND	0.0020	0	0	0	0-0	0.0002283	0	25	
Calcium	146.9	0.50	0	0	0	0-0	159.6	8.29	25	
Chromium	0.0006784	0.0050	0	0	0	0-0	0.0009071	0	25	J
Cobalt	0.001083	0.0050	0	0	0	0-0	0.001202	0	25	J
Copper	0.008754	0.0050	0	0	0	0-0	0.009049	3.31	25	
Iron	5.969	0.20	0	0	0	0-0	6.396	6.91	25	
Lead	0.001357	0.0050	0	0	0	0-0	0.001434	0	25	J
Magnesium	28.2	0.20	0	0	0	0-0	30.84	8.94	25	
Molybdenum	0.001759	0.0050	0	0	0	0-0	0.001892	0	25	J
Nickel	0.004974	0.0050	0	0	0	0-0	0.005352	0	25	J
Potassium	0.5687	0.20	0	0	0	0-0	0.6167	8.1	25	
Selenium	ND	0.0050	0	0	0	0-0	-0.000454	0	25	
Silver	ND	0.0050	0	0	0	0-0	0.0001281	0	25	
Sodium	110	0.20	0	0	0	0-0	119.4	8.2	25	
Vanadium	0.003084	0.0050	0	0	0	0-0	0.003428	0	25	J
Zinc	0.007174	0.0050	0	0	0	0-0	0.007692	6.97	25	

DUP Sample ID: 0911561-01CDUP Units: mg/L Analysis Date: 11/30/2009 02:00 PM

Client ID: Run ID: ICPMS02_091130A SeqNo: 1823801 Prep Date: 11/25/2009 DF: 50

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Manganese	2.136	0.25	0	0	0	0-0	2.085	2.42	25	

The following samples were analyzed in this batch:

0911524-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39677 Instrument ID Mercury Method: SW7470

MBLK Sample ID: GBLKW1-112509-39677 Units: mg/L Analysis Date: 11/25/2009 02:42 PM

Client ID: Run ID: MERCURY_091125A SeqNo: 1822654 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: GLCSW1-112509-39677 Units: mg/L Analysis Date: 11/25/2009 02:44 PM

Client ID: Run ID: MERCURY_091125A SeqNo: 1822655 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00462	0.00020	0.005	0	92.4	85-115	0			

MS Sample ID: 0911515-01EMS Units: mg/L Analysis Date: 11/25/2009 02:50 PM

Client ID: Run ID: MERCURY_091125A SeqNo: 1822658 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00464	0.00020	0.005	-0.000008	93	85-115	0			

MSD Sample ID: 0911515-01EMSD Units: mg/L Analysis Date: 11/25/2009 02:52 PM

Client ID: Run ID: MERCURY_091125A SeqNo: 1822659 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.0046	0.00020	0.005	-0.000008	92.2	85-115	0.00464	0.866	20	

DUP Sample ID: 0911515-01EDUP Units: mg/L Analysis Date: 11/25/2009 02:48 PM

Client ID: Run ID: MERCURY_091125A SeqNo: 1822657 Prep Date: 11/25/2009 DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020	0	0	0	0-0	-0.000008	0	20	

The following samples were analyzed in this batch:

0911524-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **39646** Instrument ID **SV-3** Method: **SW8270**

MBLK Sample ID: **SBLKW1-091124-39646** Units: **µg/L** Analysis Date: **12/1/2009 03:06 PM**

Client ID: Run ID: **SV-3_091201B** SeqNo: **1826603** Prep Date: **11/24/2009** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3-Nitroaniline	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Aniline	ND	5.0								
Anthracene	ND	5.0								
Benz(a)anthracene	ND	5.0								
Benzidine	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	5.0								
Isophorone	ND	5.0								
N-Nitrosodi-n-propylamine	ND	5.0								
N-Nitrosodimethylamine	ND	5.0								
N-Nitrosodiphenylamine	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	5.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
Surr: 2,4,6-Tribromophenol	57.56	5.0	100	0	57.6	42-124	0			
Surr: 2-Fluorobiphenyl	53.67	5.0	100	0	53.7	48-120	0			
Surr: 2-Fluorophenol	45.47	5.0	100	0	45.5	20-120	0			
Surr: 4-Terphenyl-d14	64.86	5.0	100	0	64.9	51-135	0			
Surr: Nitrobenzene-d5	52.73	5.0	100	0	52.7	41-120	0			
Surr: Phenol-d6	47.51	5.0	100	0	47.5	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39646 Instrument ID SV-3 Method: SW8270

LCS		Sample ID: SLCSW1-091124-39646		Units: µg/L		Analysis Date: 12/1/2009 03:30 PM				
Client ID:		Run ID: SV-3_091201B		SeqNo: 1826604		Prep Date: 11/24/2009		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	37.44	5.0	50	0	74.9	50-120	0			
2,4,5-Trichlorophenol	77.97	5.0	100	0	78	50-120	0			
2,4,6-Trichlorophenol	79.97	5.0	100	0	80	50-120	0			
2-Methylnaphthalene	40.26	5.0	50	0	80.5	55-120	0			
2-Methylphenol	68.39	5.0	100	0	68.4	50-120	0			
2-Nitroaniline	46.89	5.0	50	0	93.8	55-120	0			
2-Nitrophenol	79.99	5.0	100	0	80	55-120	0			
3&4-Methylphenol	125.1	5.0	150	0	83.4	55-120	0			
3-Nitroaniline	34.38	5.0	50	0	68.8	40-120	0			
4-Nitroaniline	36.85	5.0	50	0	73.7	50-120	0			
4-Nitrophenol	99.41	5.0	100	0	99.4	45-120	0			
Acenaphthene	37.81	5.0	50	0	75.6	55-120	0			
Acenaphthylene	37.54	5.0	50	0	75.1	55-120	0			
Aniline	27.63	5.0	50	0	55.3	30-120	0			
Anthracene	37.51	5.0	50	0	75	55-120	0			
Benz(a)anthracene	41.04	5.0	50	0	82.1	55-120	0			
Benzidine	20.3	5.0	50	0	40.6	10-120	0			
Hexachloroethane	36.9	5.0	50	0	73.8	55-120	0			
Indeno(1,2,3-cd)pyrene	40.52	5.0	50	0	81	55-120	0			
Isophorone	38.1	5.0	50	0	76.2	55-120	0			
N-Nitrosodi-n-propylamine	35.74	5.0	50	0	71.5	50-120	0			
N-Nitrosodimethylamine	35.97	5.0	50	0	71.9	45-120	0			
N-Nitrosodiphenylamine	36.89	5.0	50	0	73.8	55-120	0			
Naphthalene	36.91	5.0	50	0	73.8	55-120	0			
Nitrobenzene	38.99	5.0	50	0	78	55-120	0			
Pentachlorophenol	81.1	5.0	100	0	81.1	55-120	0			
Phenanthrene	37.23	5.0	50	0	74.5	55-120	0			
Phenol	68.65	5.0	100	0	68.6	50-120	0			
Pyrene	38.26	5.0	50	0	76.5	55-120	0			
Surr: 2,4,6-Tribromophenol	79.88	5.0	100	0	79.9	42-124	0			
Surr: 2-Fluorobiphenyl	70.53	5.0	100	0	70.5	48-120	0			
Surr: 2-Fluorophenol	66.97	5.0	100	0	67	20-120	0			
Surr: 4-Terphenyl-d14	67.45	5.0	100	0	67.4	51-135	0			
Surr: Nitrobenzene-d5	69.44	5.0	100	0	69.4	41-120	0			
Surr: Phenol-d6	63.24	5.0	100	0	63.2	20-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: 39646 Instrument ID SV-3 Method: SW8270

LCSD		Sample ID: SLCSDW1-091124-39646			Units: µg/L		Analysis Date: 12/1/2009 03:54 PM			
Client ID:		Run ID: SV-3_091201B			SeqNo: 1826605		Prep Date: 11/24/2009		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,2,4-Trichlorobenzene	39.08	5.0	50	0	78.2	50-120	37.44	4.3	20	
2,4,5-Trichlorophenol	80.18	5.0	100	0	80.2	50-120	77.97	2.8	20	
2,4,6-Trichlorophenol	84.77	5.0	100	0	84.8	50-120	79.97	5.84	20	
2-Methylnaphthalene	39.5	5.0	50	0	79	55-120	40.26	1.91	20	
2-Methylphenol	65.93	5.0	100	0	65.9	50-120	68.39	3.66	20	
2-Nitroaniline	49.72	5.0	50	0	99.4	55-120	46.89	5.85	20	
2-Nitrophenol	78.88	5.0	100	0	78.9	55-120	79.99	1.4	20	
3&4-Methylphenol	124.3	5.0	150	0	82.9	55-120	125.1	0.611	20	
3-Nitroaniline	36.77	5.0	50	0	73.5	40-120	34.38	6.7	20	
4-Nitroaniline	39.33	5.0	50	0	78.7	50-120	36.85	6.52	20	
4-Nitrophenol	97.68	5.0	100	0	97.7	45-120	99.41	1.76	20	
Acenaphthene	39.85	5.0	50	0	79.7	55-120	37.81	5.25	20	
Acenaphthylene	39.14	5.0	50	0	78.3	55-120	37.54	4.16	20	
Aniline	27.18	5.0	50	0	54.4	30-120	27.63	1.66	20	
Anthracene	38.25	5.0	50	0	76.5	55-120	37.51	1.96	20	
Benz(a)anthracene	39.85	5.0	50	0	79.7	55-120	41.04	2.95	20	
Benzidine	18.09	5.0	50	0	36.2	10-120	20.3	11.5	20	
Hexachloroethane	36.14	5.0	50	0	72.3	55-120	36.9	2.07	20	
Indeno(1,2,3-cd)pyrene	39.39	5.0	50	0	78.8	55-120	40.52	2.83	20	
Isophorone	38.07	5.0	50	0	76.1	55-120	38.1	0.0801	20	
N-Nitrosodi-n-propylamine	35.45	5.0	50	0	70.9	50-120	35.74	0.829	20	
N-Nitrosodimethylamine	35.02	5.0	50	0	70	45-120	35.97	2.68	20	
N-Nitrosodiphenylamine	36.68	5.0	50	0	73.4	55-120	36.89	0.553	20	
Naphthalene	37.07	5.0	50	0	74.1	55-120	36.91	0.423	20	
Nitrobenzene	38.82	5.0	50	0	77.6	55-120	38.99	0.443	20	
Pentachlorophenol	80.93	5.0	100	0	80.9	55-120	81.1	0.203	20	
Phenanthrene	37.41	5.0	50	0	74.8	55-120	37.23	0.474	20	
Phenol	64.83	5.0	100	0	64.8	50-120	68.65	5.72	20	
Pyrene	41.53	5.0	50	0	83.1	55-120	38.26	8.2	20	
Surr: 2,4,6-Tribromophenol	85.03	5.0	100	0	85	42-124	79.88	6.24	20	
Surr: 2-Fluorobiphenyl	71.35	5.0	100	0	71.4	48-120	70.53	1.15	20	
Surr: 2-Fluorophenol	60.09	5.0	100	0	60.1	20-120	66.97	10.8	20	
Surr: 4-Terphenyl-d14	71.05	5.0	100	0	71.1	51-135	67.45	5.2	20	
Surr: Nitrobenzene-d5	66.32	5.0	100	0	66.3	41-120	69.44	4.59	20	
Surr: Phenol-d6	61.26	5.0	100	0	61.3	20-120	63.24	3.18	20	

The following samples were analyzed in this batch:

0911524-01E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R84328 Instrument ID VOA2 Method: SW8260

MBLK Sample ID: VBLKW-112509-R84328 Units: µg/L Analysis Date: 11/25/2009 05:31 PM

Client ID: Run ID: VOA2_091125A SeqNo: 1823486 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	5.0								
1,1,2,2-Tetrachloroethane	ND	5.0								
1,1,2-Trichloroethane	ND	5.0								
1,1-Dichloroethane	ND	5.0								
1,1-Dichloroethene	ND	5.0								
1,2-Dichloroethane	ND	5.0								
2-Butanone	ND	10								
2-Chloroethyl vinyl ether	ND	10								
2-Hexanone	ND	10								
4-Methyl-2-pentanone	ND	10								
Acetone	ND	10								
Benzene	ND	5.0								
Bromodichloromethane	ND	5.0								
Bromoform	ND	5.0								
Bromomethane	ND	5.0								
Carbon disulfide	ND	10								
Carbon tetrachloride	ND	5.0								
Chlorobenzene	ND	5.0								
Chloroethane	ND	5.0								
Chloroform	ND	5.0								
Chloromethane	ND	5.0								
cis-1,3-Dichloropropene	ND	5.0								
Dibromochloromethane	ND	5.0								
Ethylbenzene	ND	5.0								
m,p-Xylene	ND	10								
Methylene chloride	ND	10								
Styrene	ND	5.0								
Tetrachloroethene	ND	5.0								
Toluene	ND	5.0								
trans-1,3-Dichloropropene	ND	5.0								
Trichloroethene	ND	5.0								
Vinyl acetate	ND	10								
Vinyl chloride	ND	2.0								
Xylenes, Total	ND	15								
Surr: 1,2-Dichloroethane-d4	51.62	5.0	50	0	103	70-125	0			
Surr: 4-Bromofluorobenzene	49.16	5.0	50	0	98.3	72-125	0			
Surr: Dibromofluoromethane	44.86	5.0	50	0	89.7	71-125	0			
Surr: Toluene-d8	49.15	5.0	50	0	98.3	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R84328 Instrument ID VOA2 Method: SW8260

LCS Sample ID: VLCSW-112509-R84328 Units: µg/L Analysis Date: 11/25/2009 04:18 PM

Client ID: Run ID: VOA2_091125A SeqNo: 1823484 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	47.04	5.0	50	0	94.1	80-120	0			
1,1,2,2-Tetrachloroethane	47.97	5.0	50	0	95.9	72-120	0			
1,1,2-Trichloroethane	48.14	5.0	50	0	96.3	80-120	0			
1,1-Dichloroethane	46.8	5.0	50	0	93.6	76-120	0			
1,1-Dichloroethene	48.09	5.0	50	0	96.2	73-124	0			
1,2-Dichloroethane	46.4	5.0	50	0	92.8	78-120	0			
2-Butanone	92.2	10	100	0	92.2	58-132	0			
2-Chloroethyl vinyl ether	97.97	10	100	0	98	74-120	0			
2-Hexanone	93.78	10	100	0	93.8	61-130	0			
4-Methyl-2-pentanone	96.12	10	100	0	96.1	65-127	0			
Acetone	97.31	10	100	0	97.3	59-137	0			
Benzene	47.07	5.0	50	0	94.1	73-121	0			
Bromodichloromethane	48.85	5.0	50	0	97.7	80-120	0			
Bromoform	46.92	5.0	50	0	93.8	79-120	0			
Bromomethane	51.43	5.0	50	0	103	66-137	0			
Carbon disulfide	97.46	10	100	0	97.5	68-141	0			
Carbon tetrachloride	46.5	5.0	50	0	93	75-124	0			
Chlorobenzene	47.27	5.0	50	0	94.5	80-120	0			
Chloroethane	45.92	5.0	50	0	91.8	76-121	0			
Chloroform	44.92	5.0	50	0	89.8	80-120	0			
Chloromethane	46.8	5.0	50	0	93.6	67-123	0			
cis-1,3-Dichloropropene	49.43	5.0	50	0	98.9	80-120	0			
Dibromochloromethane	44.9	5.0	50	0	89.8	80-120	0			
Ethylbenzene	48.04	5.0	50	0	96.1	80-120	0			
m,p-Xylene	95.34	10	100	0	95.3	78-121	0			
Methylene chloride	46.3	10	50	0	92.6	65-133	0			
Styrene	47.43	5.0	50	0	94.9	80-120	0			
Tetrachloroethene	47.82	5.0	50	0	95.6	79-120	0			
Toluene	46.57	5.0	50	0	93.1	80-120	0			
trans-1,3-Dichloropropene	45.46	5.0	50	0	90.9	80-120	0			
Trichloroethene	47.27	5.0	50	0	94.5	80-120	0			
Vinyl acetate	103.1	10	100	0	103	67-139	0			
Vinyl chloride	46.73	2.0	50	0	93.5	70-127	0			
Xylenes, Total	143	15	150	0	95.3	80-120	0			
Surr: 1,2-Dichloroethane-d4	49.44	5.0	50	0	98.9	70-125	0			
Surr: 4-Bromofluorobenzene	49.44	5.0	50	0	98.9	72-125	0			
Surr: Dibromofluoromethane	49.18	5.0	50	0	98.4	71-125	0			
Surr: Toluene-d8	49.22	5.0	50	0	98.4	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R84328** Instrument ID **VOA2** Method: **SW8260**

MS	Sample ID: 0911621-01AMS			Units: µg/L			Analysis Date: 11/25/2009 07:09 PM			
Client ID:	Run ID: VOA2_091125A			SeqNo: 1823493			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	46.75	5.0	50	0	93.5	80-120	0			
1,1,2,2-Tetrachloroethane	48.65	5.0	50	0	97.3	72-120	0			
1,1,2-Trichloroethane	49.59	5.0	50	0	99.2	80-120	0			
1,1-Dichloroethane	47.47	5.0	50	0	94.9	76-120	0			
1,1-Dichloroethene	45.96	5.0	50	0	91.9	73-124	0			
1,2-Dichloroethane	47.8	5.0	50	0	95.6	78-120	0			
2-Butanone	92.97	10	100	0	93	58-132	0			
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0			S
2-Hexanone	94.67	10	100	0	94.7	61-130	0			
4-Methyl-2-pentanone	97.29	10	100	0	97.3	65-127	0			
Acetone	93.97	10	100	0	94	59-137	0			
Benzene	47.49	5.0	50	0	95	73-121	0			
Bromodichloromethane	50.51	5.0	50	0	101	80-120	0			
Bromoform	47.32	5.0	50	0	94.6	79-120	0			
Bromomethane	52.68	5.0	50	0	105	66-137	0			
Carbon disulfide	95.81	10	100	0	95.8	68-141	0			
Carbon tetrachloride	45.02	5.0	50	0	90	75-124	0			
Chlorobenzene	48.26	5.0	50	0	96.5	80-120	0			
Chloroethane	46.89	5.0	50	0	93.8	76-121	0			
Chloroform	53.31	5.0	50	0	107	80-120	0			
Chloromethane	46.89	5.0	50	0	93.8	67-123	0			
cis-1,3-Dichloropropene	50.6	5.0	50	0	101	80-120	0			
Dibromochloromethane	45.43	5.0	50	0	90.9	80-120	0			
Ethylbenzene	47.92	5.0	50	0	95.8	80-120	0			
m,p-Xylene	95.79	10	100	0	95.8	78-121	0			
Methylene chloride	47.59	10	50	0	95.2	65-133	0			
Styrene	48.35	5.0	50	0	96.7	80-120	0			
Tetrachloroethene	45.97	5.0	50	0	91.9	79-120	0			
Toluene	47.57	5.0	50	0	95.1	80-120	0			
trans-1,3-Dichloropropene	47.01	5.0	50	0	94	80-120	0			
Trichloroethene	46.68	5.0	50	0	93.4	80-120	0			
Vinyl acetate	95.44	10	100	0	95.4	67-139	0			
Vinyl chloride	46.3	2.0	50	0	92.6	70-127	0			
Xylenes, Total	144.1	15	150	0	96.1	80-120	0			
<i>Surr: 1,2-Dichloroethane-d4</i>	50.22	5.0	50	0	100	70-125	0			
<i>Surr: 4-Bromofluorobenzene</i>	50.89	5.0	50	0	102	72-125	0			
<i>Surr: Dibromofluoromethane</i>	49.72	5.0	50	0	99.4	71-125	0			
<i>Surr: Toluene-d8</i>	50.18	5.0	50	0	100	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R84328 Instrument ID VOA2 Method: SW8260

MSD		Sample ID: 0911621-01AMSD		Units: µg/L		Analysis Date: 11/25/2009 07:33 PM				
Client ID:		Run ID: VOA2_091125A		SeqNo: 1823496		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	45.45	5.0	50	0	90.9	80-120	46.75	2.83	20	
1,1,2,2-Tetrachloroethane	48.38	5.0	50	0	96.8	72-120	48.65	0.554	20	
1,1,2-Trichloroethane	48.6	5.0	50	0	97.2	80-120	49.59	2.01	20	
1,1-Dichloroethane	48.24	5.0	50	0	96.5	76-120	47.47	1.61	20	
1,1-Dichloroethene	43.23	5.0	50	0	86.5	73-124	45.96	6.12	20	
1,2-Dichloroethane	48.47	5.0	50	0	96.9	78-120	47.8	1.38	20	
2-Butanone	94.81	10	100	0	94.8	58-132	92.97	1.96	20	
2-Chloroethyl vinyl ether	ND	10	100	0	0	74-120	0	0	20	S
2-Hexanone	94.23	10	100	0	94.2	61-130	94.67	0.46	20	
4-Methyl-2-pentanone	94.57	10	100	0	94.6	65-127	97.29	2.84	20	
Acetone	95.01	10	100	0	95	59-137	93.97	1.1	20	
Benzene	46.88	5.0	50	0	93.8	73-121	47.49	1.3	20	
Bromodichloromethane	51.77	5.0	50	0	104	80-120	50.51	2.48	20	
Bromoform	49.65	5.0	50	0	99.3	79-120	47.32	4.81	20	
Bromomethane	53.01	5.0	50	0	106	66-137	52.68	0.633	20	
Carbon disulfide	92.31	10	100	0	92.3	68-141	95.81	3.73	20	
Carbon tetrachloride	42.64	5.0	50	0	85.3	75-124	45.02	5.42	20	
Chlorobenzene	47.2	5.0	50	0	94.4	80-120	48.26	2.21	20	
Chloroethane	45.64	5.0	50	0	91.3	76-121	46.89	2.71	20	
Chloroform	53.85	5.0	50	0	108	80-120	53.31	1	20	
Chloromethane	46.79	5.0	50	0	93.6	67-123	46.89	0.197	20	
cis-1,3-Dichloropropene	52.17	5.0	50	0	104	80-120	50.6	3.05	20	
Dibromochloromethane	46.96	5.0	50	0	93.9	80-120	45.43	3.32	20	
Ethylbenzene	45.8	5.0	50	0	91.6	80-120	47.92	4.51	20	
m,p-Xylene	92.62	10	100	0	92.6	78-121	95.79	3.36	20	
Methylene chloride	48.17	10	50	0	96.3	65-133	47.59	1.23	20	
Styrene	47.86	5.0	50	0	95.7	80-120	48.35	1.03	20	
Tetrachloroethene	42.2	5.0	50	0	84.4	79-120	45.97	8.55	20	
Toluene	46.34	5.0	50	0	92.7	80-120	47.57	2.61	20	
trans-1,3-Dichloropropene	47.76	5.0	50	0	95.5	80-120	47.01	1.59	20	
Trichloroethene	45.91	5.0	50	0	91.8	80-120	46.68	1.65	20	
Vinyl acetate	98.62	10	100	0	98.6	67-139	95.44	3.28	20	
Vinyl chloride	42.98	2.0	50	0	86	70-127	46.3	7.44	20	
Xylenes, Total	139.5	15	150	0	93	80-120	144.1	3.28	20	
Surr: 1,2-Dichloroethane-d4	49.45	5.0	50	0	98.9	70-125	50.22	1.54	20	
Surr: 4-Bromofluorobenzene	48.82	5.0	50	0	97.6	72-125	50.89	4.14	20	
Surr: Dibromofluoromethane	49.57	5.0	50	0	99.1	71-125	49.72	0.309	20	
Surr: Toluene-d8	48.83	5.0	50	0	97.7	75-125	50.18	2.74	20	

The following samples were analyzed in this batch:

0911524-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R84114 Instrument ID WetChem Method: SM4500H+ B

LCS Sample ID: WLCSW1-112009-R84114 Units: pH units Analysis Date: 11/20/2009 07:00 PM

Client ID: Run ID: WETCHEM_091120H SeqNo: 1818552 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	6.03	0.10	6	0	100	90-110	0			

DUP Sample ID: 0911537-01bdup Units: pH units Analysis Date: 11/20/2009 07:00 PM

Client ID: Run ID: WETCHEM_091120H SeqNo: 1818556 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	9.02	0.10	0	0	0	0-0	9.05	0.332	20	H

The following samples were analyzed in this batch:

0911524-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R84165** Instrument ID **Balance1** Method: **M2540C**

MBLK Sample ID: **BLANK-R84165** Units: **mg/L** Analysis Date: **11/21/2009 12:00 PM**

Client ID: Run ID: **BALANCE1_091121C** SeqNo: **1819986** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	ND	10								

LCS Sample ID: **LCS-R84165** Units: **mg/L** Analysis Date: **11/21/2009 12:00 PM**

Client ID: Run ID: **BALANCE1_091121C** SeqNo: **1819987** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	1000	10	1000	0	100	85-115	0			

DUP Sample ID: **0911511-03ADUP** Units: **mg/L** Analysis Date: **11/21/2009 12:00 PM**

Client ID: Run ID: **BALANCE1_091121C** SeqNo: **1819983** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Total Dissolved Solids (Residue, Fil	5070	10	0	0	0	0-0	5070	0	20	

The following samples were analyzed in this batch: 0911524-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R84178 Instrument ID WetChem Method: SM2320B

MBLK Sample ID: WBLKW1-112109-R84178 Units: mg/L Analysis Date: 11/21/2009 01:00 PM

Client ID: Run ID: WETCHEM_091121E SeqNo: 1820135 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	ND	5.0								
Alkalinity, Carbonate (As CaCO3)	ND	5.0								
Alkalinity, Hydroxide (As CaCO3)	ND	5.0								
Alkalinity, Total (As CaCO3)	ND	5.0								

LCS Sample ID: WLCSW1-112109-R84178 Units: mg/L Analysis Date: 11/21/2009 01:00 PM

Client ID: Run ID: WETCHEM_091121E SeqNo: 1820136 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	1010	5.0	1000	0	101	80-120	0			
Alkalinity, Total (As CaCO3)	1010	5.0	1000	0	101	80-120	0			

DUP Sample ID: 0911292-01bdup Units: mg/L Analysis Date: 11/21/2009 01:00 PM

Client ID: Run ID: WETCHEM_091121E SeqNo: 1820150 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (As CaCO3)	32.3	5.0	0	0	0	0-0	32.3	0	20	
Alkalinity, Carbonate (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Hydroxide (As CaCO3)	ND	5.0	0	0	0	0-0	0	0	20	
Alkalinity, Total (As CaCO3)	32.3	5.0	0	0	0	0-0	32.3	0	20	

The following samples were analyzed in this batch:

0911524-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
 Work Order: 0911524
 Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: R84234 Instrument ID ICS3000 Method: E300

MBLK Sample ID: WBLKW1-112309-R84234 Units: mg/L Analysis Date: 11/23/2009 02:56 PM

Client ID: Run ID: ICS3000_091123A SeqNo: 1821422 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	0.446	0.50								J
Sulfate	ND	0.50								
Surr: Selenate (surr)	5.063	0.10	5	0	101	85-115	0			

LCS Sample ID: WLCSW1-112309-R84234 Units: mg/L Analysis Date: 11/23/2009 03:20 PM

Client ID: Run ID: ICS3000_091123A SeqNo: 1821423 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	19.73	0.50	20	0	98.7	90-110	0			
Sulfate	19.52	0.50	20	0	97.6	90-110	0			
Surr: Selenate (surr)	4.947	0.10	5	0	98.9	85-115	0			

MS Sample ID: 0911505-01AMS Units: mg/L Analysis Date: 11/23/2009 04:55 PM

Client ID: Run ID: ICS3000_091123A SeqNo: 1821427 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.28	0.50	10	11.4	98.8	80-120	0			
Sulfate	30.25	0.50	10	20.56	96.9	80-120	0			
Surr: Selenate (surr)	5.353	0.10	5	0	107	85-115	0			

MSD Sample ID: 0911505-01AMSD Units: mg/L Analysis Date: 11/23/2009 05:19 PM

Client ID: Run ID: ICS3000_091123A SeqNo: 1821428 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chloride	21.31	0.50	10	11.4	99	80-120	21.28	0.127	20	
Sulfate	30.29	0.50	10	20.56	97.3	80-120	30.25	0.126	20	
Surr: Selenate (surr)	5.362	0.10	5	0	107	85-115	5.353	0.168	20	

The following samples were analyzed in this batch:

0911524-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R84416** Instrument ID **WetChem** Method: **M2510 B**

MBLK Sample ID: **WBLKW1-12109-R84416** Units: **µmhos/cm** Analysis Date: **12/1/2009 04:00 PM**

Client ID: Run ID: **WETCHEM_091201C** SeqNo: **1824944** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	ND	1.0								

LCS Sample ID: **WLCSW1-12109-R84416** Units: **µmhos/cm** Analysis Date: **12/1/2009 04:00 PM**

Client ID: Run ID: **WETCHEM_091201C** SeqNo: **1824945** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	1420	1.0	1413	0	100	80-120	0			

DUP Sample ID: **0911590-01BDUP** Units: **µmhos/cm** Analysis Date: **12/1/2009 04:00 PM**

Client ID: Run ID: **WETCHEM_091201C** SeqNo: **1824961** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Specific Conductivity	371	1.0	0	0	0		368	0.812	20	

The following samples were analyzed in this batch:

0911524-01D

Client: Navajo Refining Company
Work Order: 0911524
Project: Injection Well Quarterly

QC BATCH REPORT

Batch ID: **R84558** Instrument ID **WetChem** Method: **SW1010**

LCS Sample ID: **WLCSW1-120409-R84558** Units: °F Analysis Date: **12/4/2009 01:30 PM**

Client ID: Run ID: **WETCHEM_091204C** SeqNo: **1827634** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	80	50	83	0	96.4	80-120	0			

DUP Sample ID: **0911524-01CDUP** Units: °F Analysis Date: **12/4/2009 01:30 PM**

Client ID: **Injection Well** Run ID: **WETCHEM_091204C** SeqNo: **1827637** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ignitability	ND	50	0	0	0	0-0	0	0	25	

The following samples were analyzed in this batch:

0911524-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Laboratory Group

Date: 08-Dec-09

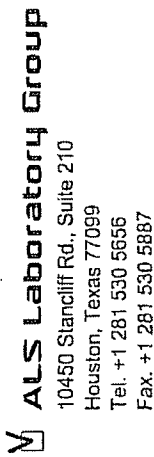
Client: Navajo Refining Company
Project: Injection Well Quarterly
WorkOrder: 0911524

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution
SDL	Sample Detection Limit
TRRP	Texas Risk Reduction Program

<u>Units Reported</u>	<u>Description</u>
°F	Fahrenheit degrees
µmhos/cm	
mg/Kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
pH units	



Chain of Custody Form

☐ **ALS Laboratory Group**

3352 128th Ave.
Holland, MI 49424-9263
Tel: +1 616 399 6070
Fax: +1 616 399 6185

Page 1 of 1

Customer Information				Project Information				Parameter/Method Request for Analysis											
Purchase Order	Project Name	Project Number	Injection Well Quarterly	A	B	C	D	E	F	G	H	I	J	Hold					
Work Order																			
Company Name	Navajo Refining Company	Navajo Refining Company																	
Send Report To	Aaron Strange	Invoice Attn	Aaron Strange																
Address	P.O. Box 159	Address	P.O. Box 159																
City/State/Zip	Artesia, NM 88211	City/State/Zip	Artesia, NM 88211																
Phone	575 748-3311	Phone	575 748-3311																
Fax	575 746-5421	Fax	575 746-5421																
e-Mail Address		e-Mail Address																	
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	Injection Well	11-19-09	1358	L	Y	9	X	X	X	X	X	X	X	X	X	X			
2	Trip blank																		
3	Temp. Blank																		
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Sampler(s) Please Print & Sign				Shipmont Method				Required Turnaround Time (Check Box)				Results Due Date:							
Aaron Strange				Fed Ex				1-3 Wk Days				11/20/09							
Relinquished by:				Received by:				Notes:				10 WORK DAYS TAT.							
Aaron Strange				[Signature]				Cooler Temp.				Cooler Temp.							
Relinquished by:				Checked by (Laboratory):				Level II Std CC				Level II Std CC							
Relinquished by:				16-15				Level III Std CC				Level III Std CC							
Date:				Date:				Level IV				Level IV							
11-19-09				16.15				Other				Other							
Date:				Date:				QC Package: (Check One Box Below)				QC Package: (Check One Box Below)							
11-19-09				16.15				Level II Std CC				Level II Std CC							
Date:				Date:				Level III Std CC				Level III Std CC							
11-19-09				16.15				Level IV				Level IV							
Date:				Date:				Other				Other							
11-19-09				16.15				Other				Other							
Date:				Date:				Preservative Key:				Preservative Key:							
11-19-09				16.15				1-HCl				1-HCl							
Date:				Date:				2-HNO3				2-HNO3							
11-19-09				16.15				3-H2SO4				3-H2SO4							
Date:				Date:				4-NaOH				4-NaOH							
11-19-09				16.15				5-Na2S2O8				5-Na2S2O8							
Date:				Date:				6-NaHSO4				6-NaHSO4							
11-19-09				16.15				7-Other				7-Other							
Date:				Date:				8-4°C				8-4°C							
11-19-09				16.15				9-5035				9-5035							
Date:				Date:				10-Blank				10-Blank							
11-19-09				16.15				11-Blank				11-Blank							
Date:				Date:				12-Blank				12-Blank							
11-19-09				16.15				13-Blank				13-Blank							
Date:				Date:				14-Blank				14-Blank							
11-19-09				16.15				15-Blank				15-Blank							
Date:				Date:				16-Blank				16-Blank							
11-19-09				16.15				17-Blank				17-Blank							
Date:				Date:				18-Blank				18-Blank							
11-19-09				16.15				19											

Note: 1. Any changes must be made in writing once samples and COC form have been submitted to ALS Laboratory Group.

2. Unless otherwise agreed in a formal contract, services provided by ALS Laboratory Group are expressly limited to the terms and conditions stated on the reverse.

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Sample Receipt Checklist

Client Name: NAVAJO REFINING

Date/Time Received: 20-Nov-09 09:20

Work Order: 0911524

Received by: RNG

Checklist completed by Raymond N Garza
eSignature

20-Nov-09
Date

Reviewed by: Leo T. Hill
eSignature

23-Nov-09
Date

Matrices: Water

Carrier name: Client

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>1.4c</u> <u>002</u>		
Cooler(s)/Kit(s):	<u>3262</u>		
Water - VOA vials have zero headspace?	Yes ☒	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:	<u></u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

W.O. # 0911524

SIN ID: ROWA (000) 148-3311
OJO REFINING
OJO REFINING COMPANY
E. MAIN STREET

Ship Date: 19NOV09
ActWgt: 59.0 LB MAN
System#: 185697/CAFE2353
Account: S 113684186

ESIA, NM 88210
UNITED STATES US

AMPLE RECEIVING

(281) 530-5656

LAB/ALS

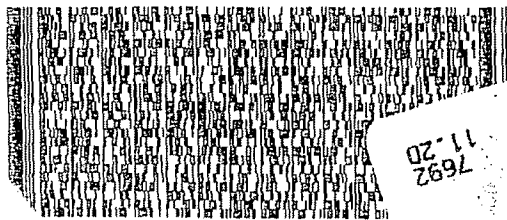
FedEx
Express

10450 STANCLIFF RD. SUITE 210



CLS050107/22/23

HOUSTON, TX 77099



Delivery Address
Barcode

02-11
7692

0
0

ITY OVERNIGHT

FRI

Deliver By:
20NOV09

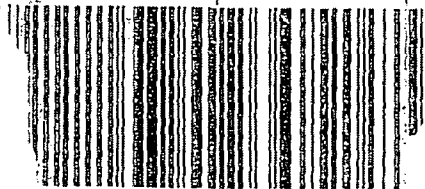
'91 8023-7692 Form 0201

IAH

A2

-TX-US

AB JGQA



ALS Laboratory Group

10450 Stancliff Rd., Suite 210
Houston, Texas 77099
Tel. +1 281 530 5656
Fax. +1 281 530 5887

CUSTODY SEAL

Date: 11-19-09 Time: 1615
Name: AAO STA 4A
Company: Nova Refining Co.

Seal Broken By:

11-70509

ALS Laboratory Group

Date: 25-Nov-09

Client: ALS Laboratory Group

Project: 0911524

Work Order: 0911500

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
0911500-01	0911524-01F	Water		11/19/2009 13:58	11/21/2009 10:40	☐

ALS Laboratory Group

Date: 25-Nov-09

Client: ALS Laboratory Group
Project: 0911524
WorkOrder: 0911500

QUALIFIERS, ACRONYMS, UNITS

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte detected below quantitation limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MBLK	Method Blank
MDL	Method Detection Limit
MQL	Method Quantitation Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PQL	Practical Quantitation Limit
SD	Serial Dilution

<u>Units Reported</u>	<u>Description</u>
mg/Kg	Milligrams per Kilogram

ALS Laboratory Group

Date: 25-Nov-09

Client: ALS Laboratory Group

Project: 0911524

Work Order: 0911500

Sample ID: 0911524-01F

Lab ID: 0911500-01

Collection Date: 11/19/2009 01:58 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
CYANIDE, REACTIVE			SW7.3.3.2			Analyst: AJK
Cyanide, Reactive	ND		40.0	mg/Kg	1	11/24/2009 10:15 AM
SULFIDE, REACTIVE			SW7.3.4.2			Analyst: AJK
Sulfide, Reactive	ND		40.0	mg/Kg	1	11/24/2009 10:15 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Laboratory Group

Date: 25-Nov-09

Client: ALS Laboratory Group
Work Order: 0911500
Project: 0911524

QC BATCH REPORT

Batch ID: R73058 Instrument ID WETCHEM Method: SW7.3.3.2

MBLK Sample ID: WBLKW1-112309-R73058 Units: mg/Kg Analysis Date: 11/23/2009 11:00 AM
Client ID: Run ID: WETCHEM_091123J SeqNo: 1248304 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	ND	40								

LCS Sample ID: WLC SW1-112309-R73058 Units: mg/Kg Analysis Date: 11/23/2009 11:00 AM
Client ID: Run ID: WETCHEM_091123J SeqNo: 1248305 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	75-125	0			

LCSD Sample ID: WLCSDW1-112309-R73058 Units: mg/Kg Analysis Date: 11/23/2009 11:00 AM
Client ID: Run ID: WETCHEM_091123J SeqNo: 1248314 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	234.9	40	250	0	94	75-125	220.2	6.45	35	

MS Sample ID: 0911413-01 MS Units: mg/Kg Analysis Date: 11/23/2009 11:00 AM
Client ID: Run ID: WETCHEM_091123J SeqNo: 1248315 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	249.6	40	250	0	99.8	50-150	0			

MSD Sample ID: 0911413-01 MSD Units: mg/Kg Analysis Date: 11/23/2009 11:00 AM
Client ID: Run ID: WETCHEM_091123J SeqNo: 1248316 Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Cyanide, Reactive	220.2	40	250	0	88.1	50-150	249.6	12.5	35	

The following samples were analyzed in this batch:

0911500-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: ALS Laboratory Group
Work Order: 0911500
Project: 0911524

QC BATCH REPORT

Batch ID: **R73059** Instrument ID **WETCHEM** Method: **SW7.3.4.2**

MBLK Sample ID: **WBLKW1-112309-R73059** Units: mg/Kg Analysis Date: 11/23/2009 11:00 AM

Client ID: Run ID: **WETCHEM_091123K** SeqNo: **1248317** Prep Date: DF: 1

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide, Reactive	ND	40								

The following samples were analyzed in this batch:

0911500-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Sample Receipt Checklist

Client Name: ALS - HOUSTON

Date/Time Received: 21-Nov-09 10:40

Work Order: 0911500

Received by: TBB

Checklist completed by Joseph Ribar
eSignature

21-Nov-09
Date

Reviewed by: Ann Preston
eSignature

23-Nov-09
Date

Matrices: water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☒	No ☐	
Temperature(s)/Thermometer(s):	<u>3.9 c</u>		
Cooler(s)/Kit(s):			
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☒	N/A ☐
pH adjusted by:			

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

SHIP ID: JGQA (281) 530-5656
SHIPPING DEPT
ALS LABORATORY GROUP
10450 STANCLIFF
SUITE 210
HOUSTON, TX 77099
UNITED STATES US

Ship Date: 20NOV09
ActWgt: 12.9 LB MAN
System#: 300130/CAFE2361
Account: S *****

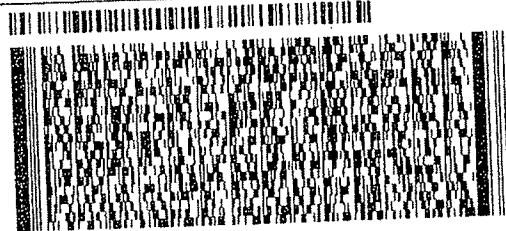
TO RECEIVING
ALS LABORATORY
3352 128TH AVE.

(616) 399-6070
FedEx
Express



HOLLAND, MI 49424

Ref: Subcontract



BILL SENDER

PRIORITY SATURDAY

Deliver By:
21NOV09

TRK# 4340 2157 9830 Form 0201

GRR AA

49424 -MI-US

X0 GRRRA

Per # 156148-124 NRT VS 00-06





REFINING COMPANY, LLC

FAX
(575) 746-5283 DIV. ORDERS
(575) 746-5481 TRUCKING
(575) 746-5458 PERSONNEL

2009 NOV 2 PM 1 51
501 EAST MAIN STREET • P. O. BOX 159
ARTESIA, NEW MEXICO 88211-0159
TELEPHONE (575) 748-3311

FAX
(575) 746-5419 ACCOUNTING
(575) 746-5451 ENV/PURCH/MKTG
(575) 746-5421 ENGINEERING

October 30, 2009

Mr. Carl Chavez
NM Oil Conservation Division
Environmental Bureau
1220 S. St. Francis
Santa Fe, NM 87505-5472

**RE: 2009 Third Quarterly Injection Report for Wells WDW-1, WDW-2 and WDW-3
Navajo Refining Company, L.L.C.**

Dear Mr. Chavez,

Enclosed, please find the sampling results for the second quarter of 2009 from the injected fluids and a spread sheet showing various volumes and pressures as requested in your October 6, 1999 letter. You will notice that the annular pressure on wells WDW-1 and WDW-2 continues to vary unpredictably. This is due to the wide range of temperatures we are seeing at the wells. A better gauge to determine if the tubing is leaking is a volume measurement of the fluid in the annular space via the graduated tanks located at the well head. We track this fluid level and have found it to be dropping at a very slow rate in WDW-3. We are closely monitoring the fluid level for this well. A Mechanical Integrity Test (MIT) on all the wells was last done in August 2009. All of the wells passed. Our consultants have stated that the loss rate is so small that we would not be able to find the leak. The volumes for these three tanks are reported in the attached Well Annulus Measurement System (WAMS) table.

You will also notice that the injection pressure for the Mewbourne well (WDW-1) appears to be reading low in July and August 2009. We have investigated the low reading. The conduit to the pressure transmitter had a crack in it that allowed rain water to collect in the transmitter, resulting in a false (low) pressure reading. The transmitter and conduit were replaced on August 8, 2009 and we have added low level alarms set at 150 psi. The low level alarms will help operations to identify transmitter problems to enable timely repair. The transmitter is now sending the correct pressure readings.

This report covers the period from July 1, 2009 to September 30, 2009. We have disposed a total of 44,829,447 barrels of fluid into the three wells as of September 30, 2009. The volume per well is:

- 27,199,719 barrels into WDW-1
- 13,717,586 barrels into WDW-2
- 3,912,141 barrels into WDW-3

This report is signed and certified in accordance with WQCC section 5101.G. If there are any questions, please call me at 575-748-3311.

Respectfully,
NAVAJO REFINING COMPANY

Johnny Lackey
Environmental Manager, Navajo Refinery

M:\Injection Wells\Reports\2009\3rd QRTLY INJ.doc

An Independent Refinery Serving . . .
NEW MEXICO • ARIZONA • WEST TEXAS • NORTHERN MEXICO

Encl.
ccc: DGM, JEL
File; REF:ART: 4 A 02 D

2009 THIRD QUARTER MONTHLY INJECTION PRESSURES, RATES, AND VOLUMES

	Average Pressure (psig)	Maximum Pressure (psig)	Minimum Pressure (psig)	Average Flow (gpm)	Maximum Flow (gpm)	Minimum Flow (gpm)	Average Annular Pressure (psig)	Maximum Annular Pressure (psig)	Minimum Annular Pressure (psig)	Average Volume (bpd)	Maximum Volume (bpd)	Minimum Volume (bpd)	Volume (barrels)	TOTAL CUMMULATIVE Volume (barrels)
WDW-1														
Jul-09	9	69	1	99	105	82	86	154	58	3,378	3,586	2,806	104,706	26,876,380
Aug-09	333	610	0	85	99	50	87	140	56	2,903	3,390	1,711	89,987	26,981,086
Sep-09	431	486	153	125	138	115	356	755	32	4,288	4,727	3,939	128,647	27,071,073
WDW-2														
Jul-09	150	159	127	99	113	89	144	228	93	3,395	3,869	3,068	105,260	13,399,252
Aug-09	419	616	160	84	124	49	145	213	79	2,885	4,264	1,697	89,440	13,504,512
Sep-09	531	802	468	120	180	99	647	919	206	4,121	6,164	3,380	123,634	13,593,952
WDW-3														
Jul-09	485	531	381	192	215	160	283	368	227	6,576	7,357	5,501	203,871	3,292,755
Aug-09	484	832	162	199	305	156	204	307	19	6,819	10,441	5,332	211,401	3,496,626
Sep-09	440	519	177	198	209	187	332	404	236	6,804	7,150	6,414	204,114	3,708,027
													Total Injected fluids:	
													44,829,447	

2009 THIRD QUARTER WEEKLY WAMS LEVEL TABLE

	7/2/09	7/9/09	7/14/09	7/20/09	7/27/09	8/4/09	8/12/09	8/19/09	8/26/09	9/2/09	9/9/09	9/18/09	9/24/09
WDW -1'	135	135	135	135	135	135	135	135	135	135	135	135	130
WDW-2'	150	150	150	150	150	150	150	150	150	150	150	150	150
WDW-3'	235	225	215	200	185	170	155	140	245	240	230	225	220
Comments: Added 110 gallons of antifreeze to WDW-3 on 8/19/09.													

¹ Graduated tank gauged weekly in the field. Reading is in gallons.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, September 25, 2009 3:05 PM
To: 'Bob Patterson'; 'lmoleur@keyenergy.com'; 'Schmaltz, Randy'; DARRELL MOORE; Lackey, Johnny
Cc: Sanchez, Daniel J., EMNRD; Jones, William V., EMNRD; VonGonten, Glenn, EMNRD
Subject: New Mexico Oil Conservation Division Class I (non-hazardous) Disposal Well Operator Notice--QUARTERLY & ANNUAL REPORTING

Gentlemen:

Re: UIC Class I Disposal Well **Quarterly and Annual Reporting**

You are receiving this message because you are currently operating a Underground Injection Control (UIC) Class I (non-hazardous) Disposal Well in New Mexico under an Oil Conservation Division (OCD) Discharge Permit. You may be aware of the most recent events related to OCD Class III Wells in New Mexico and can find out more by visiting the OCD's Brine Well Webpage at <http://www.emnrd.state.nm.us/OCD/brinewells.htm> and OCD Brine Well Work Group Website at <http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pCJC0906359521>.

The OCD is writing to inform you that it will be monitoring more closely the receipt of your "Quarterly Reports" and "Annual Reports" required under the applicable section(s) of your OCD Discharge Permit. After reexamining our UIC Program subsequent to the UIC Class III Solution Mining Wells that collapsed in July and November of 2008, the OCD identified that it has been deficient in tracking reporting obligations in the past; however, the OCD has recently upgraded its online electronic system to better track operators who are not meeting the reporting requirements as specified in their OCD Discharge Permits. Please plan on submitting reports with required information by the date specified in your discharge permit. Operators undergoing permit renewal will notice changes to the OCD's discharge permit, which will include "Annual Reports" in addition to the Quarterly Reporting requirement(s).

To access your OCD Discharge Permit Online for the date of submittal and required contents of the report(s), please go to OCD Online at <http://ocdimage.emnrd.state.nm.us/imaging/AEOrderCriteria.aspx> (enter "Order Type" as UIC and your "Order Number"). The OCD has placed a "Quarterly Reporting" and "Annual Reports" thumbnails into each of your online well files and will be scanning all received reports into them upon receipt from now on.

If you have been delinquent in submitting your Quarterly (more recent permits require Annual Reports), a historical review of your production or disposal records will be required in order to provide cumulative injection or disposal information in this year's report.

Please contact me if you have questions or need assistance.

Thank you in advance for your cooperation in this matter.

Copy: Class I (non-hazardous) Disposal Well Files UIC- 5, 9, 8, 8-1 & 8-0 (Quarterly Reporting & Annual Reports)

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")