GW – 028

2015 Annual Discharge Permit Report

PART 6 OF 16

March 2016

Table 7 - Summary of Groundwater Sampling Analytical Results

Fourth Quarter 2013 Final Report - RO Reject Discharge Fields

[illegible] Artesia Refinery, New Mexico

RO Discharge																															RO Discharge (continued)												Regular Unit			Temporary Unit		
[illegible]/2012		11/15/2012			[illegible]/2013			[illegible]/2013			6/16/2013			9/[illegible]/2013			11/20/2013			[illegible]/19/2014			[illegible]/26/2014			4/15/2015			4/15/2015																		
Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL																
[illegible]																																															
	10	3650		10	3150		10	3300		10	2410		10	2290		10	2770		10	2460		20	2720		40	2900		10	3600		10																

Summary Statistics

# Samples	# Detections	Min	Max	Average	Est max conc at max flow	40 CFR 261.24 TCLP	WQCC Standards
3	0	0	0	NA	0	NA	NA
[illegible]	0	0	0	NA	0	NA	NA
3	1	0.17	0.17	0.17	*0.69*	NA	NA
11	0	0	0	NA	0	NA	[illegible]
11	0	0	0	NA	0	NA	[illegible]
11	0	0	0	NA	0	NA	[illegible]
11	0	0	0	NA	0	NA	0.025
11	0	0	0	NA	0	[illegible]	0.005
11	0	0	0	NA	0	NA	[illegible]
11	0	0	0	NA	0	0.5	[illegible]
11	0	0	0	NA	0	0.5	[illegible]
11	0	0	0	NA	0	0.5	0.01
11	1	0.00062	0.00062	0.00062	0.00248	6	0.1
11	0	0	0	NA	0	NA	0.1
11	0	0	0	NA	0	NA	0.75
9	0	0	0	NA	0	[illegible]	NA
11	0	0	0	NA	0	NA	0.75
11	0	0	0	NA	0	NA	0.62
9	0	0	0	NA	0	0.5	NA
11	0	0	0	NA	0	0.2	0.001
4	0	0	0	NA	0	NA	0.03
11	0	0	0	NA	0	NA	0.03
11	0	0	0	NA	0	NA	0.03
11	0	0	0	NA	0	NA	0.0007
11	6	0.00529	0.0567	0.01698	0.2263	NA	5
11	7	0.001	0.00494	0.00212	*0.01976*	5	0.1
11	11	0.045	0.072	0.05863	0.288	100	1
11	10	0.071	0.143	0.11164	0.572	NA	0.75
11	0	0	0	NA	0	1	0.01
8	8	397	816	543.25	2240	NA	NA
11	2	0.00114	0.0016	0.00137	0.0064	5	0.05
11	0	0	0	NA	0	NA	0.05
9	3	0.00177	0.0887	0.03088	0.3548	NA	1
11	2	0.012	0.113	0.0625	0.452	NA	1
11	0	0	0	NA	0	5	0.05
11	4	0.0013	0.0111	0.00499	0.0444	NA	0.2
10	0	0	0	NA	0	0.2	0.002
11	11	0.00804	0.013	0.00911	0.052	NA	1
11	6	0.0012	0.0175	0.00452	0.07	NA	0.2
6	8	1.4	6.6	3.7575	26.4	NA	NA
11	11	0.00481	0.013	0.00801	*0.052*	1	0.05
11	0	0	0	NA		5	0.05
8	8	39	82.9	55.425	331.6	NA	NA
11	7	0.0034	0.0061	0.00502	0.0244	NA	0.01
11	10	0.00516	0.21	0.03635	0.84	NA	10
8	3	0.32	1.15	0.68863	4.6	NA	NA
8	3	0.294	1.08	0.57333	4.32	NA	NA
3	8	0.32	1.86	0.90439	*7.44*	NA	30
11	11	36	*282*	95.7727	*1128*	NA	250
11	11	2.15	*3.9*	*3.013*	*15.6*	NA	1.0
9	9	0.57	*3.22*	*1.831*	*12.88*	NA	10
11	11	1030	*1930*	*1460*	*7720*	NA	500
11	1	0.00487	0.00487	0.00487	0.01948	NA	[illegible]
11	11	2290	*3850*	*2965*	*15400*	NA	1000

Notes:

CGWSL is the lowest of the following standards:

New Mexico Water Quality Standards found in NMAC 20.6.2.3103

If no value in NMAC 20.6.2.3103 was available, then the EPA Federal MCL was used.

TPH CGWSL is the "unknown oil" groundwater value from Table … 2012 NMED RAS.

Bold italic font with yellow highlighting indicates a result reported above the CGWSL.

RLs shown in italics font with gray highlighting exceed the CGWSL for that compound.

Blank cells indicate that the analyte was not detected at the RL shown, no … available, or that the compound was not analyzed for that sample …

Metals concentration reported for 10/4/2012, 11/15/2012 and 3/21/2013 are … metals.

Screening level for radium is for combined Radium 226 and Radium 228.

Total PAHs are defined in NMAC 20.6.2.3103 as naphthalene plus monomethylnaphthalenes. Although no detected values … have been reported for 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene, … Total PAHs concentration.

Abbreviations

- … = No CGWSL is available
- CGWSL = Critical Groundwater Screening Level
- H = analyzed outside of holding time
- J = estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- LCS = laboratory control sample
- LT = the sample has a detection above the achieved minimum detectable concentration but below the requested
- MCL = maximum contaminant level
- mg/L = milligrams per liter
- NA = not applicable
- NMAC = New Mexico Administrative Code
- NMED RAS = 2012 New Mexico Environment Department Risk Assessment …

- NS = Not Sampled
- PAHs = polycyclic aromatic hydrocarbons
- pCi/L = average picocuries per liter
- Qual = qualifier from laboratory or data validation
- RL = laboratory reporting limit
- SVOC = semivolatile organic compounds
- VOC = volatile organic compounds
- TPH = total petroleum hydrocarbons
- U = indicates the compound was analyzed for but not detected
- USEPA = United States Environmental Protection Agency
- Y1 = Chemical yield … 100 … Quantitation … assumed

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 13, 2015

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

RE: Monthly RO Reject OrderNo.: 1504C24

Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/29/2015 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 qualifers 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 **1504C24**
Date Reported: **5/13/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly RO Reject
Lab ID: 1504C24-001 **Matrix:** AQUEOUS

Client Sample ID: R.O.
Collection Date: 4/28/2015 8:45:00 AM
Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/30/2015 5:33:16 PM	18974
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1221	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1232	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1242	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1248	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1254	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1260	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Surr: Decachlorobiphenyl	115	44.5-110	S	%REC	1	5/5/2015 3:50:42 PM	18997
Surr: Tetrachloro-m-xylene	126	31.8-95.7	S	%REC	1	5/5/2015 3:50:42 PM	18997
EPA METHOD 8015D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/29/2015 4:57:42 PM	18947
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/29/2015 4:57:42 PM	18947
Surr: DNOP	113	76.5-150		%REC	1	4/29/2015 4:57:42 PM	18947
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2015 4:01:53 PM	R25939
Surr: BFB	87.5	80-120		%REC	1	5/4/2015 4:01:53 PM	R25939
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	5/5/2015 11:32:18 AM	18998
1-Methylnaphthalene	ND	2.0		µg/L	1	5/5/2015 11:32:18 AM	18998
2-Methylnaphthalene	ND	2.0		µg/L	1	5/5/2015 11:32:18 AM	18998
Benzo(a)pyrene	ND	0.070		µg/L	1	5/5/2015 11:32:18 AM	18998
Surr: Benzo(e)pyrene	81.0	30.8-125		%REC	1	5/5/2015 11:32:18 AM	18998
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	2.2	0.10		mg/L	1	4/29/2015 3:25:23 PM	R25872
Chloride	37	10		mg/L	20	4/29/2015 4:02:38 PM	R25872
Nitrogen, Nitrate (As N)	1.1	0.10		mg/L	1	4/29/2015 3:25:23 PM	R25872
Sulfate	1100	25		mg/L	50	5/6/2015 12:59:46 AM	R25994
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JLF**	
Aluminum	ND	0.020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Barium	0.041	0.0020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Boron	0.089	0.040		mg/L	1	4/29/2015 6:14:42 PM	R25851
Cadmium	ND	0.0020		mg/L	1	4/30/2015 1:05:27 PM	R25881
Chromium	ND	0.0060		mg/L	1	4/29/2015 6:14:42 PM	R25851
Cobalt	ND	0.0060		mg/L	1	4/29/2015 6:14:42 PM	R25851

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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: R.O.
Project: Monthly RO Reject
Collection Date: 4/28/2015 8:45:00 AM
Lab ID: 1504C24-001 **Matrix:** AQUEOUS **Received Date:** 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JLF**	
Copper	ND	0.0060		mg/L	1	4/29/2015 6:14:42 PM	R25851
Iron	ND	0.020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Manganese	ND	0.0020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Molybdenum	ND	0.0080		mg/L	1	4/30/2015 1:05:27 PM	R25881
Nickel	ND	0.010		mg/L	1	4/29/2015 6:14:42 PM	R25851
Silver	ND	0.0050		mg/L	1	4/30/2015 1:05:27 PM	R25881
Zinc	0.075	0.010		mg/L	1	4/29/2015 6:14:42 PM	R25851
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Arsenic	ND	0.0050		mg/L	5	5/7/2015 2:35:40 PM	R26042
Lead	ND	0.0010		mg/L	1	5/5/2015 11:04:05 AM	R25950
Selenium	0.0053	0.0010		mg/L	1	5/5/2015 11:04:05 AM	R25950
Uranium	0.0042	0.0010		mg/L	1	5/5/2015 11:04:05 AM	R25950
EPA METHOD 245.1: MERCURY						Analyst: **MED**	
Mercury	ND	0.00020		mg/L	1	5/4/2015 2:01:49 PM	18982
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Toluene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Ethylbenzene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Carbon Tetrachloride	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Chloroform	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1-Dichloroethane	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1-Dichloroethene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Methylene Chloride	ND	3.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Vinyl chloride	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Xylenes, Total	ND	1.5		µg/L	1	4/29/2015 6:01:15 PM	R25860
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: 4-Bromofluorobenzene	99.8	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: Dibromofluoromethane	92.8	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: Toluene-d8	103	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	

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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly RO Reject
Lab ID: 1504C24-001 **Matrix:** AQUEOUS

Client Sample ID: R.O.
Collection Date: 4/28/2015 8:45:00 AM
Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/30/2015	18972
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	5/5/2015	R26153
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.09	1.68	H	pH units	1	5/5/2015 5:57:25 PM	R25990
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2190	20.0	*	mg/L	1	5/1/2015 3:30:00 PM	18979

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 Not In Range
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly RO Reject
Collection Date:
Lab ID: 1504C24-002
Matrix: TRIP BLANK
Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	4/30/2015 5:46:54 PM	18974
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Toluene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Ethylbenzene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Carbon Tetrachloride	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Chloroform	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1-Dichloroethane	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1-Dichloroethene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Methylene Chloride	ND	3.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Vinyl chloride	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Xylenes, Total	ND	1.5		µg/L	1	4/29/2015 6:29:57 PM	R25860
Surr: 1,2-Dichloroethane-d4	94.6	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860
Surr: Dibromofluoromethane	99.0	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860
Surr: Toluene-d8	98.0	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860

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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1504C24
Pace Project No.: 30147057

Sample: 1504C24-001H R.O. **Lab ID: 30147057001** Collected: 04/28/15 08:45 Received: 05/01/15 09:35 Matrix: Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	**1.75 ± 0.849 (0.976) C:NA T:60%**	pCi/L	05/13/15 10:06	13982-63-3	
Radium-228	EPA 904.0	**0.398 ± 0.412 (0.851) C:72% T:77%**	pCi/L	05/11/15 17:31	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1504C24
Pace Project No.: 30147057

QC Batch: RADC/24384
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30147057001

METHOD BLANK: 890250
Matrix: Water
Associated Lab Samples: 30147057001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.437 ± 0.426 (0.869) C:70% T:70%	pCi/L	05/11/15 17:33	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1504C24
Pace Project No.: 30147057

QC Batch: RADC/24322
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30147057001

METHOD BLANK: 888781
Matrix: Water
Associated Lab Samples: 30147057001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.256 ± 0.438 (0.767) C:NA T:98%	pCi/L	05/13/15 09:55	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R25851**	RunNo: **25851**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766029** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Zinc	ND	0.010								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R25851**	RunNo: **25851**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	85	115			
Barium	0.47	0.0020	0.5000	0	93.0	85	115			
Boron	0.49	0.040	0.5000	0	97.9	85	115			
Chromium	0.48	0.0060	0.5000	0	95.5	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115			
Copper	0.47	0.0060	0.5000	0	94.3	85	115			
Iron	0.47	0.020	0.5000	0	94.6	85	115			
Manganese	0.44	0.0020	0.5000	0	88.9	85	115			
Nickel	0.48	0.010	0.5000	0	96.6	85	115			
Zinc	0.48	0.010	0.5000	0	95.6	85	115			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R25881**	RunNo: **25881**
Prep Date:	Analysis Date: **4/30/2015**	SeqNo: **767040** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Molybdenum	ND	0.0080								
Silver	ND	0.0050								

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R25881**	RunNo: **25881**
Prep Date:	Analysis Date: **4/30/2015**	SeqNo: **767041** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.51	0.0020	0.5000	0	103	85	115			
Molybdenum	0.49	0.0080	0.5000	0	97.4	85	115			
Silver	0.088	0.0050	0.1000	0	87.9	85	115			

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID: **R25950**			RunNo: **25950**				
Prep Date:		Analysis Date: **5/5/2015**			SeqNo: **769414**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.024	0.0010	0.02500	0	96.4	85	115			
Selenium	0.024	0.0010	0.02500	0	94.9	85	115			
Uranium	0.025	0.0010	0.02500	0	98.7	85	115			

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID: **R25950**			RunNo: **25950**				
Prep Date:		Analysis Date: **5/5/2015**			SeqNo: **769415**	Units: **mg/L**			

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

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID: **R26042**			RunNo: **26042**				
Prep Date:		Analysis Date: **5/7/2015**			SeqNo: **772040**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.4	85	115			

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID: **R26042**			RunNo: **26042**				
Prep Date:		Analysis Date: **5/7/2015**			SeqNo: **772041**	Units: **mg/L**			

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

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-18982**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**PBW**	Batch ID:	**18982**	RunNo:	**25930**				
Prep Date:	**4/30/2015**	Analysis Date:	**5/4/2015**	SeqNo:	**768647**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-18982**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**LCSW**	Batch ID:	**18982**	RunNo:	**25930**				
Prep Date:	**4/30/2015**	Analysis Date:	**5/4/2015**	SeqNo:	**768648**	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	102	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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R25872**	RunNo: **25872**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766806** 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, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R25872**	RunNo: **25872**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766807** 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	92.4	90	110			
Chloride	4.5	0.50	5.000	0	91.0	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.2	90	110			

Sample ID **1504C24-001EMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **R.O.**	Batch ID: **R25872**	RunNo: **25872**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766822** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.10	0.5000	2.238	55.2	66.1	113			S
Nitrogen, Nitrate (As N)	3.3	0.10	2.500	1.147	86.1	84	109			

Sample ID **1504C24-001EMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **R.O.**	Batch ID: **R25872**	RunNo: **25872**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766823** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.10	0.5000	2.238	30.4	66.1	113	5.06	20	S
Nitrogen, Nitrate (As N)	3.3	0.10	2.500	1.147	86.6	84	109	0.363	20	

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R25994**	RunNo: **25994**
Prep Date:	Analysis Date: **5/5/2015**	SeqNo: **770620** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R25994**	RunNo: **25994**
Prep Date:	Analysis Date: **5/5/2015**	SeqNo: **770621** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	97.2	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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-18974**	SampType:	**MBLK**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**PBW**	Batch ID:	**18974**	RunNo:	**25898**					
Prep Date:	**4/30/2015**	Analysis Date:	**4/30/2015**	SeqNo:	**767691**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	**LCS-18974**	SampType:	**LCS**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**LCSW**	Batch ID:	**18974**	RunNo:	**25898**					
Prep Date:	**4/30/2015**	Analysis Date:	**4/30/2015**	SeqNo:	**767692**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	114	70	130			

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB-18947**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **18947**	RunNo: **25835**
Prep Date: **4/29/2015**	Analysis Date: **4/29/2015**	SeqNo: **766304** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		109	76.5	150			

Sample ID **LCS-18947**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **18947**	RunNo: **25835**
Prep Date: **4/29/2015**	Analysis Date: **4/29/2015**	SeqNo: **766305** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2	1.0	5.000	0	104	60.1	156			
Surr: DNOP	0.57		0.5000		115	76.5	150			

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R25939**	RunNo: **25939**
Prep Date:	Analysis Date: **5/4/2015**	SeqNo: **768862** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		88.4	80	120			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R25939**	RunNo: **25939**
Prep Date:	Analysis Date: **5/4/2015**	SeqNo: **768863** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.2	80	120			
Surr: BFB	18		20.00		91.1	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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-18997**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**18997**	RunNo:	**25944**					
Prep Date:	**5/1/2015**	Analysis Date:	**5/5/2015**	SeqNo:	**769049**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.2		2.500		87.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.4		2.500		97.6	31.8	95.7			S

Sample ID	**LCS-18997**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSW**	Batch ID:	**18997**	RunNo:	**25944**					
Prep Date:	**5/1/2015**	Analysis Date:	**5/5/2015**	SeqNo:	**769942**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.9	1.0	5.000	0	98.7	22.6	127			
Aroclor 1260	5.1	1.0	5.000	0	102	20.4	122			
Surr: Decachlorobiphenyl	2.9		2.500		114	44.5	110			S
Surr: Tetrachloro-m-xylene	4.2		2.500		169	31.8	95.7			S

Sample ID	**LCSD-18997**	SampType:	**LCSD**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSS02**	Batch ID:	**18997**	RunNo:	**25944**					
Prep Date:	**5/1/2015**	Analysis Date:	**5/5/2015**	SeqNo:	**769944**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.6	1.0	5.000	0	93.0	22.6	127	6.03	26.9	
Aroclor 1260	5.3	1.0	5.000	0	107	20.4	122	4.45	29.1	
Surr: Decachlorobiphenyl	3.0		2.500		118	44.5	110	0	0	S
Surr: Tetrachloro-m-xylene	3.8		2.500		150	31.8	95.7	0	0	S

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R25860**	RunNo: **25860**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766354** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.6	70	130			
Toluene	20	1.0	20.00	0	98.9	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	108	75.6	144			
Trichloroethene (TCE)	20	1.0	20.00	0	98.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **5mL rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R25860**	RunNo: **25860**
Prep Date:	Analysis Date: **4/29/2015**	SeqNo: **766361** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.9		10.00		99.2	70	130			

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB-18998**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **18998**	RunNo: **25938**
Prep Date: **5/1/2015**	Analysis Date: **5/5/2015**	SeqNo: **769391** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	14		20.00		71.8	30.8	125			

Sample ID **LCS-18998**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **18998**	RunNo: **25938**
Prep Date: **5/1/2015**	Analysis Date: **5/5/2015**	SeqNo: **769392** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	55	2.0	80.00	0	69.3	41	76.8			
1-Methylnaphthalene	57	2.0	80.20	0	71.0	24.7	81			
2-Methylnaphthalene	56	2.0	80.00	0	70.4	17.4	81.9			
Acenaphthylene	60	2.5	80.20	0	75.4	50.3	77.5			
Acenaphthene	57	2.0	80.00	0	71.8	27.7	81.1			
Fluorene	5.8	0.80	8.020	0	72.8	34.2	75.1			
Phenanthrene	2.9	0.60	4.020	0	72.4	44.6	88.3			
Anthracene	2.9	0.60	4.020	0	72.1	41.9	85.3			
Fluoranthene	6.1	0.30	8.020	0	76.2	40.6	88			
Pyrene	6.6	0.30	8.020	0	82.8	41	86.6			
Benz(a)anthracene	0.62	0.070	0.8020	0	77.3	43.8	86.7			
Chrysene	3.1	0.20	4.020	0	76.9	44.5	80.7			
Benzo(b)fluoranthene	0.81	0.10	1.002	0	80.8	44.3	87.1			
Benzo(k)fluoranthene	0.39	0.070	0.5000	0	78.0	39.9	94.3			

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **LCS-18998**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **18998**	RunNo: **25938**							
Prep Date: **5/1/2015**	Analysis Date: **5/5/2015**	SeqNo: **769392**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.39	0.070	0.5020	0	77.7	44	86.5			
Dibenz(a,h)anthracene	0.78	0.12	1.002	0	77.8	48.8	83.6			
Benzo(g,h,i)perylene	0.83	0.12	1.000	0	83.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	77.3	49.2	91.1			
Surr: Benzo(e)pyrene	21		20.00		106	30.8	125			

Sample ID **LCSD-18998**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSS02**	Batch ID: **18998**	RunNo: **25938**							
Prep Date: **5/1/2015**	Analysis Date: **5/5/2015**	SeqNo: **769393**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	58	2.0	80.00	0	72.7	41	76.8	4.75	20	
1-Methylnaphthalene	60	2.0	80.20	0	74.4	24.7	81	4.68	20	
2-Methylnaphthalene	59	2.0	80.00	0	73.8	17.4	81.9	4.70	20	
Acenaphthylene	63	2.5	80.20	0	78.7	50.3	77.5	4.29	20	S
Acenaphthene	60	2.0	80.00	0	74.9	27.7	81.1	4.26	20	
Fluorene	6.1	0.80	8.020	0	75.7	34.2	75.1	3.86	20	S
Phenanthrene	3.1	0.60	4.020	0	76.1	44.6	88.3	5.03	24	
Anthracene	3.0	0.60	4.020	0	75.9	41.9	85.3	5.04	20	
Fluoranthene	6.4	0.30	8.020	0	79.9	40.6	88	4.79	20.9	
Pyrene	7.0	0.30	8.020	0	86.8	41	86.6	4.71	20.8	S
Benz(a)anthracene	0.65	0.070	0.8020	0	81.0	43.8	86.7	4.72	20	
Chrysene	3.3	0.20	4.020	0	80.8	44.5	80.7	5.05	20	S
Benzo(b)fluoranthene	0.84	0.10	1.002	0	83.8	44.3	87.1	3.64	20.6	
Benzo(k)fluoranthene	0.41	0.070	0.5000	0	82.0	39.9	94.3	5.00	20.8	
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	44	86.5	5.00	20	
Dibenz(a,h)anthracene	0.83	0.12	1.002	0	82.8	48.8	83.6	6.21	20	
Benzo(g,h,i)perylene	0.87	0.12	1.000	0	87.0	43.6	84.5	4.71	20	S
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	49.2	91.1	5.03	20	
Surr: Benzo(e)pyrene	22		20.00		112	30.8	125	0		

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-18972**	SampType:	**MBLK**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**PBW**	Batch ID:	**18972**	RunNo:	**25901**					
Prep Date:	**4/30/2015**	Analysis Date:	**4/30/2015**	SeqNo:	**767792**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID	**LCS-18972**	SampType:	**LCS**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**LCSW**	Batch ID:	**18972**	RunNo:	**25901**					
Prep Date:	**4/30/2015**	Analysis Date:	**4/30/2015**	SeqNo:	**767793**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	22	2.5	20.00	0	109	75.7	126			

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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R26153**	SampType:	**MBLK**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**PBW**	Batch ID:	**R26153**	RunNo:	**26153**					
Prep Date:		Analysis Date:	**5/5/2015**	SeqNo:	**775896**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	**LCS-R26153**	SampType:	**LCS**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**LCSW**	Batch ID:	**R26153**	RunNo:	**26153**					
Prep Date:		Analysis Date:	**5/5/2015**	SeqNo:	**775897**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.500		0.5000	0	100	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 Not In Range
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#: **1504C24**

13-May-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB-18979**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **18979**	RunNo: **25912**
Prep Date: **4/30/2015**	Analysis Date: **5/1/2015**	SeqNo: **768004** 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-18979**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **18979**	RunNo: **25912**
Prep Date: **4/30/2015**	Analysis Date: **5/1/2015**	SeqNo: **768005** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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: 1504C24 RcptNo: 1

Received by/date: CS 04/29/15

Logged By: Lindsay Mangin 4/29/2015 9:15:00 AM

Completed By: Lindsay Mangin 4/29/2015 10:14:50 AM

Reviewed By: JA 04/29/15

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 ☐ CS 04/29/15 Sample -002A (2 of 2) has a bubble
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: 5 (1) (<2 or >12 unless noted)

Adjusted? no

Checked by: CS

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	1.0	Good	Yes			

Chain-of-Custody Record

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 ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Monthly RO Reject

Project #: P.O. # 167796

Project Manager:

Scott Denton / Robert Combs

Sampler: Elizabeth Salsberry

On Ice: X Yes ☐ No

Sample Temperature: 1.0° C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1504024
4/28/15	8:45AM	Aq	R.O.	2 - 500ml P	1-unpres 1-H2SO4	-001
4/28/15	8:45AM			3-40ml VOA	HCL	-001
4/28/15	8:45AM			1-500ml P	HNO3	-001
4/28/15	8:45AM			1-125ml P	HNO3	-001
4/28/15	8:45AM			1-500ml P	NaOH	-001
4/28/15	8:45AM			2- 1L P	HNO3	-001
4/28/15	8:45AM			3-40ml VOA	HCL	-001
4/28/15	8:45AM			2 - 1L Glass	unpres	-001
4/28/15	8:45AM			1 - 1L Glass	unpres	-001
4/28/15	8:45AM			2-40ml VOA	unpres	-001
4/28/15	8:45AM		Trip Blank	2-40ml VOA	HCL	-002
		CS 04/29/15				

See Attachment

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/28/15	10:45 am	Elizabeth Salsberry	Celina Sinn	04/29/15	0915
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.

Analyte	CGWSL	CGWSL Source	Date: [illegible]			[illegible]			[illegible]			RO Discharge [illegible]			[illegible]			[illegible]			[illegible]			RO Discharge [illegible]
			Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result
TPH (mg/L)																								
Gasoline Range Organics										U	[illegible]					U	0.05		U	[illegible]		U	[illegible]	
Diesel Range Organics	[illegible]	NMED TPH								U	[illegible]					U	0.052		U	[illegible]		U	[illegible]	
Oil Range Organics	[illegible]	NMED TPH							[illegible]		[illegible]					U	[illegible]		U	[illegible]		U	[illegible]	
VOCs (mg/L)																								
1,1,1-Trichloroethane	6.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	[illegible]		U	[illegible]		U	0.001		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
1,1,2,2-Tetrachloroethane	1.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	[illegible]		U	[illegible]		U	[illegible]		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
1,1,2-Trichloroethane	5.00E-03	EPA MCL		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
1,1-Dichloroethane	2.50E-02	NMED GW Human Health (20.6.2.3103.A)		U	[illegible]		U	[illegible]		U	[illegible]		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
1,1-Dichloroethene	7.00E-03	USEPA MCL		U	[illegible]		U	[illegible]		U	0.001		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
1,2-Dibromoethane	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	0.001		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
1,2-Dichloroethane	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
Benzene	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
Carbon Tetrachloride	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
Chloroform	3.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.005		U	[illegible]		U	0.001		U	0.005		U	[illegible]		U	[illegible]		U	[illegible]	
[illegible]	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
Ethylbenzene	7.00E-01	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	0.01		U	[illegible]		U	[illegible]		U	[illegible]	
Tetrachloroethene	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
Toluene	7.50E-01	NMED GW Human Health (20.6.2.3103.A)		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
Total Xylenes	6.20E-01	NMED GW Human Health (20.6.2.3103.A)		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]		U	[illegible]	
Trichloroethene	5.00E-03	EPA MCL		U	[illegible]		U	[illegible]		U	[illegible]		U	0.015		U	[illegible]		U	[illegible]		U	[illegible]	
Vinyl Chloride	1.00E-03	NMED GW Human Health (20.6.2.3103.A)		U	[illegible]		U	[illegible]		U	[illegible]		U	0.002		U	[illegible]		U	[illegible]		U	[illegible]	
SVOCs (mg/L)																								
1-Methylnaphthalene	3.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.000103		UH	[illegible]		U	0.0002		U	0.000102		U	0.0002		U	0.0002		U	0.0002	
2-Methylnaphthalene	3.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.000103		UH	[illegible]		U	0.0002		U	0.000102		U	0.0002		U	0.0002		U	0.0002	
Naphthalene	3.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.000103		UH	0.000103		U	0.0002		U	0.000102		U	0.0002		U	0.0002		U	0.0002	
Benzo(a)Pyrene	2.00E-04	EPA MCL		U	0.000103		UH	0.000103		U	0.0002		U	0.000102		U	0.0002		U	0.0002		U	0.0002	
Dissolved Metals (mg/L)																								
Aluminum	5.00E+00	NMED GW Irrigation (20.6.2.3103.C)		U	0.01		U	0.01	0.00568	J	0.01	0.0141		0.01	0.00529	J	0.01	0.00804	J	0.01	0.0567		0.01	
Arsenic	1.00E-02	EPA MCL		U	0.005		U	0.005	0.00494	J	0.005		U	0.005	0.0025	J	0.01	0.00244	J	0.005	0.00125	J	0.005	
Barium	1.00E+00	NMED GW Human Health (20.6.2.3103.A)	0.0625		0.005	0.0697		0.005	0.0639		0.005	0.0573		0.005	0.0464		0.005	0.0553		0.005	0.0533		0.005	0.0012
Boron	2.50E-01	NMED GW Irrigation (20.6.2.3103.C)	0.124		0.05	0.134		0.05	0.147		0.1	0.102		0.05	0.104		0.1	0.0934		0.05	0.109		0.05	0.045
Cadmium	5.00E-03	EPA MCL		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002		U	0.002	
Calcium	--								625		25				397		5	410		5	452		5	462
Chromium	5.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.005		U	0.005		U	0.005		U	0.005		U	0.01	0.00114	J	0.005		U	0.005	0.0016
Cobalt	5.00E-02	NMED GW Irrigation (20.6.2.3103.C)		U	0.005		U	0.005		U	0.005		U	0.005		U	0.01		U	0.005		U	0.005	
Copper	1.00E+00	NMED GW Irrigation (20.6.2.3103.C)		U	0.005		U	0.005	0.00177	J	0.005		U	0.005		U	0.2		U	0.005	0.00218	J	0.005	
Iron	1.00E+00	NMED GW Irrigation (20.6.2.3103.C)		U	0.2		U	0.2		U	0.2		U	0.2		U	0.4		U	0.2	0.117	J	0.2	
Lead	1.50E-02	EPA MCL		U	0.005		U	0.005		U	0.005		U	0.005		U	0.01		U	0.005		U	0.005	
Manganese	2.00E-01	NMED GW Domestic (20.6.2.3103.B)		U	0.005		U	0.005		U	0.005		U	0.005		U	0.01		U	0.005	0.0111		0.005	0.0013
Mercury	2.00E-03	NMED GW Human Health (20.6.2.3103.A)		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002		U	0.0002				
Molybdenum	1.00E+00	NMED GW Irrigation (20.6.2.3103.C)	0.00733		0.005	0.00981		0.005	0.0125		0.005	0.00902		0.005	0.00622		0.005	0.00604		0.005	0.00815		0.005	0.0684
Nickel	2.00E-01	NMED GW Irrigation (20.6.2.3103.C)		U	0.005		U	0.005	0.00264	J	0.005		U	0.005		U	0.01	0.00329	J	0.005	0.00127	J	0.005	0.0013
Potassium	--								4.41		0.2				2.91		0.2	2.72		0.2	3.04		0.2	1.4
Selenium	5.00E-02	NMED GW Human Health (20.6.2.3103.A)	0.00993		0.005	0.00622		0.005	0.013		0.005	0.00926		0.005	0.0075	J	0.01	0.00669		0.005	0.00461	J	0.005	0.0036
Silver	5.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.005		U	0.005		U	0.005		U	0.005		J	0.025		U	0.005		U	0.008	
Sodium	--								65.4		2.2				40.4		0.2	45.7		0.2	83.9		0.2	79
Uranium	3.00E-02	NMED GW Human Health (20.6.2.3103.A)		U	0.005	0.00532		0.005	0.00601		0.005	0.00508		0.005		U	0.01		U	0.005		U	0.005	0.0024
Zinc	1.00E+01	NMED GW Domestic (20.6.2.3103.B)	0.0117		0.005	0.011		0.005	0.0132		0.005	0.0085		0.005	0.00516	J	0.01	0.00672		0.005	0.00409		0.005	2.21
Radium (pCi/L)																								
Radium-226	--		0.58	LT	0.16	0.32	LT	0.21	NS			1.15		0.15	0.49	LT	0.24	0.46	LT	0.22	0.79	LT	0.1	0.599
Radium-228	--			U	0.55		U	0.62	NS				U	0.91		U	0.52		U	0.57	1.08		0.66	0.357
Radium-226 & Radium-228	5.00E+00	USEPA MCL	0.58			0.32			NS			1.15			0.49		0.76	0.46		3.8	1.86		0.78	0.951
Anions (mg/L)																								
Chloride	2.50E+02	NMED GW Domestic (20.6.2.3103.B)	47.7		0.5	282		2.5	67.5		0.5	233		25	29.2		0.5	61.1		0.5	134		25	7
Fluoride (F-, Anion)	1.60E+00	NMED GW Human Health (20.6.2.3103.A)	3.41		0.1	3.3		0.1	3.32		0.1	3.33		0.1	2.15		0.1	2.26		0.1	2.67		0.1	2.3
Nitrate/Nitrite	1.00E+00	NMED GW Human Health (20.6.2.3103.A)		U	0.1		U	0.1	3.22	H	0.1	2.12		0.1	2.11		2	1.56	H	0.03	2.06		1	1.2
Sulfate	6.00E+02	NMED GW Domestic (20.6.2.3103.B)	1620		50	1930		50	1680		25	1570		25	1080		50	1020		25	1240		25	1200
Cyanide	2.00E-01	EPA MCL		U	0.02		U	0.02		U	0.02		U	0.02	0.00487	J	0.02		U	0.02		U	0.02	
Total Dissolved Solids (mg/L)																								
Total Dissolved Solids	1.00E+03	NMED GW Domestic (20.6.2.3103.B)	3160		10	3850		10	3150		10	3300		10	2410		10	2280		10	2770		10	2440

Notes:

CGWSL is the lowest of the following sources:

New Mexico Water Quality Standards found in NMAC 20.6.2.3[illegible]

If no value in NMAC 20.6.2.3103 was available, then the EPA [illegible]

TPH CGWSL is the "unknown oil" groundwater value from [illegible]

Bold, italic font with yellow highlighting indicates a result [illegible]

RLs shown in italics font with gray highlighting exceed the CGWSL [illegible]

Blank cells indicate that the analyte was not detected at the RL shown. [illegible]

Metals concentration reported for 10/4/2012, 11/15/2012 and 3/21/2013 [illegible]

Screening level for radium is for combined Radium-226 and Radium-228 [illegible]

Total PAHs are defined in NMAC 20.6.2.3103 as naphthalene plus mono[illegible]

Total PAHs concentrations.

-- = No CGWSL is available

CGWSL = Critical Groundwater Screening Level

H = analyzed outside of holding time

J = estimated value. The result is less than the reporting limit [illegible] method detection limit (MDL)

LCS = laboratory control sample

LT = the sample has a detection above the achieved minimum [illegible] below the requested

MCL = maximum contaminant level

mg/L = milligrams per liter

NA = not applicable

NMAC = New Mexico Administrative Code

NMED [illegible] = 2012 New Mexico Environment Department [illegible]

Table 7 - Summary of Groundwater Sampling Analytical Results

Fourth Quarter 2013 Final Report - RO Reject Discharge Fields

Navajo Refining Company, Artesia Refinery, New Mexico

	RO Discharge																							RO Discharge (continued)												Regular Unit			Temporary Unit		
	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Summary Statistics

# Samples	# Detections	Min	Max	Average
9	0	0	0	NA
6	0	0	0	NA
3	1	0.17	0.17	0.17
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	1	0.00062	0.00062	0.00062
11	0	0	0	NA
11	0	0	0	NA
9	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
9	0	0	0	NA
11	0	0	0	NA
9	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	0	0	0	NA
11	6	0.00529	0.0567	0.01698
11	7	0.001	0.00494	0.00212
11	11	0.045	0.072	0.05863
11	10	0.071	0.143	0.11184
11	0	0	0	NA
8	9	397	810	543.25
11	2	0.00114	0.0016	0.00137
11	0	0	0	NA
9	3	0.00177	0.0887	0.03088
11	2	0.012	0.113	0.0625
11	0	0	0	NA
11	4	0.0013	0.0111	0.00499
10	0	0	0	NA
11	11	0.00694	0.013	0.00911
11	6	0.0012	0.0175	0.00452
6	8	1.4	6.6	3.7575
11	11	0.00481	0.013	0.00801
11	0	0	0	NA
8	8	39	82.9	55.425
11	7	0.0034	0.0061	0.00502
11	10	0.00515	0.21	0.03635
8	8	0.32	1.15	0.68867
9	3	0.294	1.08	0.57321
3	8	0.32	1.86	0.90439
11	11	36	**282**	95.7727
11	11	2.15	**3.9**	**3.013**
9	9	0.57	**3.22**	**1.831**
11	11	1020	**1930**	**1460**
11	1	0.00487	0.00487	0.00487
11	11	2290	**3850**	**2965**

Est max conc at max flow	40 CFR 261.24 TCLP	WQCC Standards
0	NA	NA
0	NA	NA
0.69	NA	NA
0	NA	0.01
0	NA	0.01
0	NA	0.03
0	NA	0.024
0	0.7	0.005
0	NA	0.0007
0	0.5	0.01
0	0.5	0.01
0	0.5	0.01
0.00248	6	0.1
0	NA	0.1
0	NA	0.75
0	0.7	NA
0	NA	0.75
0	NA	0.62
0	0.5	NA
0	0.2	0.001
0	NA	0.03
0	NA	0.03
0	NA	0.03
0	NA	0.0007
0.2269	NA	5
0.01976	5	0.1
0.288	100	1
0.572	NA	0.75
0	1	0.01
2240	NA	NA
0.0064	5	0.05
0	NA	0.05
0.2546	NA	1
0.452	NA	1
0	5	0.05
0.0444	NA	0.2
0	0.2	0.002
0.052	NA	1
0.07	NA	0.2
25.4	NA	NA
0.052	1	0.05
	5	0.05
235.6	NA	NA
0.0244	NA	0.03
0.84	NA	10
4.6	NA	NA
4.32	NA	NA
7.44	NA	30
1128	NA	250
15.6	NA	1.6
12.88	NA	10
7720	NA	500
0.01948	NA	0.2
15400	NA	1000

Notes:

CGWSL is the lowest of the following sources:

New Mexico Water Quality Standards found in NMAC 20.6.2.3103

If no value in NMAC 20.6.2.3103 was available, then the EPA Region MCL was used

TPH CGWSL is the "unknown oil" groundwater value from Table ... 2012 NMED RAG

Bold: bold font with yellow highlighting indicates a result reported above the CGWSL

RLs shown in italics font with gray highlighting exceed the CGWSL for that compound.

Blank cells indicate that the analyte was not detected at the RL shown, no greater than, or that the compound was not analyzed for that sample or no RL is shown.

Metals concentration reported for 10/4/2012, 11/15/2012 and 3/21/2013 are total metals

Screening level for radium is for combined Radium-226 and Radium-228

Total PAHs are defined in NMAC 20.6.2.3103 as naphthalene plus monomethylnaphthalenes. Although no detected values were present, if concentrations had been reported for 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene, the values would have been added to obtain the Total PAHs concentration.

Abbreviations

-- = No CGWSL is available

CGWSL = Critical Groundwater Screening Level

H = analyzed outside of holding time

J = estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL)

LCS = laboratory control sample

LT = the sample has a detection above the achieved minimum detectable concentration but below the requested

MCL = maximum contaminant level

mg/L = milligrams per liter

NA = not applicable

NMAC = New Mexico Administrative Code

NMED RAG = 2012 New Mexico Environment Department Risk Assessment Guidance

NS = Not Sampled

PAHs = polycyclic aromatic hydrocarbons

pCi/L = average picocuries per liter

Qual = qualifier from laboratory or data validation

RL = laboratory reporting limit

SVOC = semivolatile organic compounds

VOC = volatile organic compounds

TPH = total petroleum hydrocarbons

U = indicates the compound was analyzed for but not detected

USEPA = United States Environmental Protection Agency

Y2 = Chemical yield is in control at 100-110%. Quantitative yield is assumed.

HOLLYFRONTIER.

July 15, 2015

Submitted electronically via email to jim.griswold@state.nm.us and carlj.chavez@state.nm.us

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: WQA-OCD-CO-2015-002
Monthly Report – June 2015 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's July 2015 monthly report, for the period of June 1-30, under the Order.

Specifically, this report covers the June 2015 reporting period and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a – c:

- Daily discharge flow measurements for each reverse osmosis (RO) unit and for all RO units together.
- Calculation of stipulated penalties, if any, required under Section III, Paragraph 2 of the Order.
- Results of the monthly discharge sample results.
- Updates on any new developments related to the treatment and disposal of RO reject fluid at the facility.

A discussion of each topic is provided below and the associated data is provided in Attachments 1 through 3.

Daily RO Reject Fluid Discharge Flow Measurements

Flow rate for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge volumes are provided in Attachment 1.

Stipulated Penalties

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted the GW-028 discharge permit modification request on May 22, 2015, prior to 30 days from April 27, 2015, the date of the Order. Therefore, for the entire June reporting period, Paragraph III.2.b.i.2 of the Order is applicable. Stipulated penalties were calculated for each day following Navajo's submittal of the permit modification request, and prior to OCD action on that request, as follows:

- $100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from June 1 through June 30.
- $500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from June 1 through June 30.

Navajo has calculated a penalty of $2,600 for June 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 26 days in June. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

Payment of the stipulated penalty will be sent to the OCD Director's mailing address within 30 days after the date of this monthly report pursuant to Paragraph III.2.b. of the Order.

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on June 5, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Options under consideration include the installation of a third permanent RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced. Navajo is also evaluating options for the underground injection of RO reject fluid. In addition, Navajo is conducting a study of background groundwater concentrations of key chemical constituents of the RO reject fluid discharged under its groundwater discharge permit to determine whether concentrations of these constituents exceed background levels.

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted a GW-028 discharge permit modification request on May 22, 2015. The requested modifications include operating a temporary RO unit at the Navajo Refinery and increasing the total maximum volume of RO reject fluids that can be applied to the surface of Navajo's discharge fields from approximately 10,000 bbl/day to approximately 20,000 bbl/day calculated on a rolling 12-month average. OCD notified Navajo that the application for the requested permit modification is administratively complete by letter dated July 1, 2015.

Navajo is currently evaluating alternative locations for the permitting and construction of a new non-hazardous waste injection well for use in disposal of Refinery fluids, including RO reject water. Navajo previously submitted an application for a Discharge Permit for the new injection well (WDW-4) on November 7, 2014. OCD notified Navajo that the application was administratively complete by letter dated April 23, 2015. On June 25, 2015, Navajo withdrew the OCD permit application to allow for further technical review regarding well locations and injection zones to confirm sufficient injection capacity to meet the refinery's needs. Navajo will provide a new application to OCD when the review is complete, and well location(s) are selected.

Navajo is committed to proactively meeting the requirements of the Order and working cooperatively with OCD. If you have any questions or comments, please contact me at 575-746-5487.

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates
Attachment 2: Stipulated Penalty Calculation
Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder
OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
6/1/2015	142	107	249	8537	61	2096	10633
6/2/2015	139	106	245	8400	60	2069	10469
6/3/2015	139	114	253	8674	60	2065	10739
6/4/2015	137	104	241	8263	79	2709	10972
6/5/2015	101	83	184	6309	116	3962	10271
6/6/2015	0	124	124	4251	70	2387	6638
6/7/2015	130	108	238	8160	62	2137	10297
6/8/2015	132	95	227	7783	63	2147	9930
6/9/2015	135	113	248	8503	59	2022	10525
6/10/2015	129	109	238	8160	51	1735	9895
6/11/2015	133	117	250	8571	52	1783	10354
6/12/2015	139	108	247	8469	52	1799	10268
6/13/2015	133	107	240	8229	56	1911	10140
6/14/2015	130	109	239	8194	57	1961	10155
6/15/2015	132	111	243	8331	59	2027	10358
6/16/2015	140	112	252	8640	60	2057	10697
6/17/2015	135	114	249	8537	60	2057	10594
6/18/2015	141	112	253	8674	61	2081	10755
6/19/2015	135	104	239	8194	61	2091	10285
6/20/2015	131	117	248	8503	64	2200	10703
6/21/2015	137	115	252	8640	64	2196	10836
6/22/2015	133	103	236	8091	65	2241	10332
6/23/2015	137	107	244	8366	60	2049	10415
6/24/2015	125	107	232	7954	55	1902	9856
6/25/2015	131	106	237	8126	59	2031	10157
6/26/2015	123	111	234	8023	63	2156	10179
6/27/2015	131	114	245	8400	63	2160	10560
6/28/2015	123	110	233	7989	63	2160	10149
6/29/2015	122	109	231	7920	64	2179	10099
6/30/2015	129	105	234	8023	64	2194	10217

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - June 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	--	--	--
2.b.i.1	- **Prior** to Navajo submitting a discharge permit modification application	$1,000		$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels **after** Navajo submits discharge permit modification application	$100	26	$2,600
2.b.i.2	- If the daily volume exceeds 15,000 barrels **after** Navajo submits discharge permit modification application	$500		$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	$2,000		$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	$1,000		$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	$1,000		$0
		Total Amount:		**$2,600**

Attachment 3
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 22, 2015

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

RE: Monthly Temporary RO Reject OrderNo.: 1506316

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/6/2015 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 qualifers 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 **1506316**
Date Reported: **6/22/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary RO Reject
Lab ID: 1506316-001 **Matrix:** AQUEOUS

Client Sample ID: South Field RO Reject Discharge
Collection Date: 6/5/2015 1:54:00 PM
Received Date: 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Arsenic	ND	0.0050		mg/L	5	6/17/2015 7:44:15 PM	R26904
Lead	ND	0.0010		mg/L	1	6/16/2015 7:43:36 PM	R26876
Selenium	0.0099	0.0010		mg/L	1	6/16/2015 7:43:36 PM	R26876
Uranium	0.0082	0.0010		mg/L	1	6/16/2015 7:43:36 PM	R26876
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	2.04	0.578		pCi/L	1	6/16/2015	R26972
Radium-226 ±	0.849	0.578		pCi/L	1	6/16/2015	R26972
Radium-228	0.384	0.696		pCi/L	1	6/16/2015	R26972
Radium-228 ±	0.345	0.696		pCi/L	1	6/16/2015	R26972
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	4.6	2.0	*	mg/L	20	6/8/2015 1:22:42 PM	R26695
Chloride	460	50		mg/L	100	6/10/2015 1:28:53 AM	R26721
Sulfate	2300	50		mg/L	100	6/10/2015 1:28:53 AM	R26721
Nitrate+Nitrite as N	1.8	1.0		mg/L	5	6/9/2015 4:16:18 AM	R26695
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4710	20.0	*	mg/L	1	6/10/2015 12:32:00 PM	19636
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	6/18/2015	R26972
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.03	1.68	H	pH units	1	6/9/2015 9:57:39 PM	R26740
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **JLF**	
Aluminum	ND	0.020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Barium	0.080	0.0020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Boron	0.098	0.040		mg/L	1	6/16/2015 5:05:13 PM	R26882
Cadmium	ND	0.0020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Chromium	0.0067	0.0060		mg/L	1	6/16/2015 5:05:13 PM	R26882
Cobalt	ND	0.0060		mg/L	1	6/16/2015 5:05:13 PM	R26882
Copper	ND	0.0060		mg/L	1	6/16/2015 5:05:13 PM	R26882
Iron	0.040	0.020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Manganese	0.012	0.0020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Molybdenum	ND	0.0080		mg/L	1	6/16/2015 5:05:13 PM	R26882
Nickel	ND	0.010		mg/L	1	6/16/2015 5:05:13 PM	R26882
Silver	ND	0.0050		mg/L	1	6/16/2015 5:05:13 PM	R26882
Zinc	0.030	0.010		mg/L	1	6/16/2015 5:05:13 PM	R26882
EPA METHOD 245.1: MERCURY						Analyst: **MED**	
Mercury	ND	0.00020		mg/L	1	6/9/2015 3:13:06 PM	19630

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

Qualifiers:

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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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: South Field RO Reject Discharge
Project: Monthly Temporary RO Reject
Collection Date: 6/5/2015 1:54:00 PM
Lab ID: 1506316-001 **Matrix:** AQUEOUS **Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	6/11/2015 5:16:00 PM	19674
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1221	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1232	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1242	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1248	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1254	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1260	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Surr: Decachlorobiphenyl	93.6	44.5-110		%REC	1	6/12/2015 2:49:54 PM	19626
Surr: Tetrachloro-m-xylene	82.8	31.8-95.7		%REC	1	6/12/2015 2:49:54 PM	19626
EPA METHOD 8015D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/9/2015 10:08:27 PM	19616
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/9/2015 10:08:27 PM	19616
Surr: DNOP	105	76.5-150		%REC	1	6/9/2015 10:08:27 PM	19616
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/10/2015 6:06:50 PM	R26753
Surr: BFB	90.7	57.8-137		%REC	1	6/10/2015 6:06:50 PM	R26753
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	6/16/2015 12:08:51 PM	19627
1-Methylnaphthalene	ND	2.0		µg/L	1	6/16/2015 12:08:51 PM	19627
2-Methylnaphthalene	ND	2.0		µg/L	1	6/16/2015 12:08:51 PM	19627
Benzo(a)pyrene	ND	0.070		µg/L	1	6/16/2015 12:08:51 PM	19627
Surr: Benzo(e)pyrene	66.6	37.2-136		%REC	1	6/16/2015 12:08:51 PM	19627
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Toluene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Ethylbenzene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Carbon Tetrachloride	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Chloroform	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1-Dichloroethane	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1-Dichloroethene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Methylene Chloride	ND	3.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817

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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: South Field RO Reject Discharge
Project: Monthly Temporary RO Reject
Collection Date: 6/5/2015 1:54:00 PM
Lab ID: 1506316-001 **Matrix:** AQUEOUS **Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Vinyl chloride	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Xylenes, Total	ND	1.5		µg/L	1	6/13/2015 8:29:41 AM	R26817
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
Surr: Dibromofluoromethane	96.9	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
Surr: Toluene-d8	100	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	6/18/2015	19794

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

Qualifiers:

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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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly Temporary RO Reject
Collection Date:
Lab ID: 1506316-002 **Matrix:** TRIP BLANK **Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Toluene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Ethylbenzene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Carbon Tetrachloride	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Chloroform	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1-Dichloroethane	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1-Dichloroethene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Methylene Chloride	ND	3.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Vinyl chloride	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Xylenes, Total	ND	1.5		µg/L	1	6/13/2015 9:25:05 AM	R26817
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817
Surr: 4-Bromofluorobenzene	98.6	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817
Surr: Dibromofluoromethane	95.4	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817
Surr: Toluene-d8	98.5	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817

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

Qualifiers:

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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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R26882**	RunNo: **26882**
Prep Date:	Analysis Date: **6/16/2015**	SeqNo: **802272** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R26882**	RunNo: **26882**
Prep Date:	Analysis Date: **6/16/2015**	SeqNo: **802273** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	107	85	115			
Barium	0.50	0.0020	0.5000	0	99.3	85	115			
Boron	0.53	0.040	0.5000	0	105	85	115			
Cadmium	0.54	0.0020	0.5000	0	107	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Cobalt	0.52	0.0060	0.5000	0	103	85	115			
Copper	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.50	0.020	0.5000	0	99.7	85	115			
Manganese	0.48	0.0020	0.5000	0	96.4	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.50	0.010	0.5000	0	100	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	101	85	115			

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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID: **R26876**			RunNo: **26876**				
Prep Date:		Analysis Date: **6/16/2015**			SeqNo: **802096**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	101	85	115			
Selenium	0.025	0.0010	0.02500	0	99.4	85	115			
Uranium	0.013	0.00050	0.01250	0	102	85	115			

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID: **R26876**			RunNo: **26876**				
Prep Date:		Analysis Date: **6/16/2015**			SeqNo: **802099**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012	0.00050	0.01250	0	96.3	85	115			
Selenium	0.025	0.0010	0.02500	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	96.9	85	115			

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID: **R26876**			RunNo: **26876**				
Prep Date:		Analysis Date: **6/16/2015**			SeqNo: **802100**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID: **R26876**			RunNo: **26876**				
Prep Date:		Analysis Date: **6/16/2015**			SeqNo: **802101**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID: **R26904**			RunNo: **26904**				
Prep Date:		Analysis Date: **6/17/2015**			SeqNo: **803447**	Units: **mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.9	85	115			

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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**LCS**	SampType: **LCS**			TestCode: **EPA 200.8: Dissolved Metals**					
Client ID:	**LCSW**	Batch ID: **R26904**			RunNo: **26904**					
Prep Date:		Analysis Date: **6/17/2015**			SeqNo: **803448**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.8	85	115			

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA 200.8: Dissolved Metals**					
Client ID:	**PBW**	Batch ID: **R26904**			RunNo: **26904**					
Prep Date:		Analysis Date: **6/17/2015**			SeqNo: **803449**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID	**MB**	SampType: **MBLK**			TestCode: **EPA 200.8: Dissolved Metals**					
Client ID:	**PBW**	Batch ID: **R26904**			RunNo: **26904**					
Prep Date:		Analysis Date: **6/17/2015**			SeqNo: **803450**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-19630**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**PBW**	Batch ID:	**19630**	RunNo:	**26705**				
Prep Date:	**6/9/2015**	Analysis Date:	**6/9/2015**	SeqNo:	**795807**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-19630**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**LCSW**	Batch ID:	**19630**	RunNo:	**26705**				
Prep Date:	**6/9/2015**	Analysis Date:	**6/9/2015**	SeqNo:	**795808**	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.	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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26695**	RunNo: **26695**
Prep Date:	Analysis Date: **6/8/2015**	SeqNo: **795454** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R26695**	RunNo: **26695**
Prep Date:	Analysis Date: **6/8/2015**	SeqNo: **795455** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	95.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R26721**	RunNo: **26721**
Prep Date:	Analysis Date: **6/9/2015**	SeqNo: **796475** 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: **R26721**	RunNo: **26721**
Prep Date:	Analysis Date: **6/9/2015**	SeqNo: **796476** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0	103	90	110			
Sulfate	11	0.50	10.00	0	106	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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-19674**	SampType:	**MBLK**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**PBW**	Batch ID:	**19674**	RunNo:	**26780**					
Prep Date:	**6/11/2015**	Analysis Date:	**6/11/2015**	SeqNo:	**798570**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	**LCS-19674**	SampType:	**LCS**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**LCSW**	Batch ID:	**19674**	RunNo:	**26780**					
Prep Date:	**6/11/2015**	Analysis Date:	**6/11/2015**	SeqNo:	**798571**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	109	70	130			

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 Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-19616**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **19616**	RunNo: **26673**
Prep Date: **6/8/2015**	Analysis Date: **6/9/2015**	SeqNo: **796030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.94		1.000		94.1	76.5	150			

Sample ID **LCS-19616**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **19616**	RunNo: **26673**
Prep Date: **6/8/2015**	Analysis Date: **6/9/2015**	SeqNo: **796031** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.3	60.1	156			
Surr: DNOP	0.45		0.5000		89.8	76.5	150			

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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R26753**	RunNo: **26753**
Prep Date:	Analysis Date: **6/10/2015**	SeqNo: **797263** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		88.9	57.8	137			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R26753**	RunNo: **26753**
Prep Date:	Analysis Date: **6/10/2015**	SeqNo: **797264** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.5	80	120			
Surr: BFB	21		20.00		103	57.8	137			

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 Not In Range
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#: **1506316**

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	**MB-19626**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**19626**	RunNo:	**26808**					
Prep Date:	**6/9/2015**	Analysis Date:	**6/12/2015**	SeqNo:	**799539**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		72.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		63.2	31.8	95.7			

Sample ID	**MB-19672**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**19672**	RunNo:	**26808**					
Prep Date:	**6/11/2015**	Analysis Date:	**6/12/2015**	SeqNo:	**799540**	Units:	**%REC**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.3		2.500		92.0	44.5	110			
Surr: Tetrachloro-m-xylene	1.9		2.500		75.2	31.8	95.7			

Sample ID	**LCS-19672**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSW**	Batch ID:	**19672**	RunNo:	**26808**					
Prep Date:	**6/11/2015**	Analysis Date:	**6/12/2015**	SeqNo:	**799541**	Units:	**%REC**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.0		2.500		82.0	44.5	110			
Surr: Tetrachloro-m-xylene	1.8		2.500		70.4	31.8	95.7			

Sample ID	**LCSD-19626**	SampType:	**LCSD**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSS02**	Batch ID:	**19626**	RunNo:	**26808**					
Prep Date:	**6/9/2015**	Analysis Date:	**6/12/2015**	SeqNo:	**799543**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	61.8	22.6	127	4.98	26.9	
Aroclor 1260	4.7	1.0	5.000	0	94.3	20.4	122	8.96	29.1	
Surr: Decachlorobiphenyl	1.7		2.500		69.2	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		58.4	31.8	95.7	0	0	

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316**

22-Jun-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**LCS-19626**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**
Client ID:	**LCSW**	Batch ID:	**19626**	RunNo:	**26808**
Prep Date:	**6/9/2015**	Analysis Date:	**6/12/2015**	SeqNo:	**799548**
Units:	**µg/L**				

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	58.8	22.6	127			
Aroclor 1260	5.2	1.0	5.000	0	103	20.4	122			
Surr: Decachlorobiphenyl	1.9		2.500		74.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.4	31.8	95.7			

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 Not In Range
RL	Reporting Detection Limit