

GW – 028

2015 AGWMR

PART 11 OF 25

03 / 2016

Chain-of-Custody Record

Client: Navajo Refinery

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

X Standard

☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name

Monthly R.O. Reject

Project #: P.O. # 167796

Project Manager:

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.	8260B: WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470 Mercury	8015 GRO, DRO, ORO	8082 PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1: EDB
8-3-15	10:10	liquid	R.O. Reject	2 - 500ml P	1-unpres H2SO4	1508045-001									X		X	X	X	X	
8-3-15	10:10	liquid	R.O. Reject	3-40ml VOA	HCL		X														
8-3-15	10:10	liquid	R.O. Reject	1-500ml P	HNO3						X										
8-3-15	10:10	liquid	R.O. Reject	1-125ml P	HNO3				X												
8-3-15	10:10	liquid	R.O. Reject	1-500ml P	NaOH					X											
8-3-15	10:10	liquid	R.O. Reject	2- 1L P	HNO3									X							
8-3-15	10:10	liquid	R.O. Reject	3-40ml VOA	Na2S2O3								X								X
8-3-15	10:10	liquid	R.O. Reject	2 - 1L Glass	unpres								X								
8-3-15	10:10	liquid	R.O. Reject	1 - 1L Glass	unpres			X													
8-3-15	10:10	liquid	R.O. Reject	3-40ml VOA	HCL							X									
8-3-15	10:10	liquid	R.O. Reject	1-250ml Glas	unpres							X									
8-3-15	10:10	liquid	R.O. Reject	1 - 1L Glass	H2SO4										X						
8-3-15	10:10	liquid	Trip Blank	2-40ml VOA	HCL	-002															

Date: 8-3-15 Time: 10:30 Relinquished by: Elizabeth Salsberry

Received by: Colin Smith Date: 08/04/15 Time: 0913

Date: Relinquished by:

Received by: Date: Time:

Remarks:

Metals: As, Al, Be, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn
VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,3-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethylene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride
SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene



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

October 06, 2015

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

RE: Monthly Temporary R.O. Reject

OrderNo.: 1509214

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 9/3/2015 8:50:00 AM

Lab ID: 1509214-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	ND	0.0050		mg/L	5	9/18/2015 2:59:55 PM	B28981
Lead	ND	0.0025		mg/L	5	9/18/2015 2:59:55 PM	B28981
Selenium	0.0086	0.0050		mg/L	5	9/18/2015 2:59:55 PM	B28981
Uranium	0.0056	0.0025		mg/L	5	9/18/2015 2:59:55 PM	B28981
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.7	0.563		pCi/L	1	9/28/2015	R29270
Radium-226 ±	0.701	0.563		pCi/L	1	9/28/2015	R29270
Radium-228	0.308	0.574		pCi/L	1	9/28/2015	R29270
Radium-228 ±	0.283	0.574		pCi/L	1	9/28/2015	R29270
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.2	2.0		mg/L	20	9/4/2015 11:00:00 PM	R28686
Chloride	300	10		mg/L	20	9/4/2015 11:00:00 PM	R28686
Nitrogen, Nitrate (As N)	2.0	0.10		mg/L	1	9/4/2015 10:47:35 PM	R28686
Sulfate	1800	50		mg/L	100	9/15/2015 12:07:52 AM	R28852
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3720	20.0	*	mg/L	1	9/10/2015 5:38:00 PM	21204
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	9/15/2015	R29270
SM4500-H+B: PH							Analyst: JRR
pH	7.89	1.68	H	pH units	1	9/8/2015 6:24:49 PM	R28726
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Barium	0.059	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Boron	0.098	0.040		mg/L	1	9/10/2015 2:52:57 PM	B28759
Cadmium	ND	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Chromium	0.0067	0.0060		mg/L	1	9/11/2015 1:33:20 PM	A28781
Cobalt	0.0061	0.0060		mg/L	1	9/11/2015 1:33:20 PM	A28781
Copper	ND	0.0060		mg/L	1	9/10/2015 2:52:57 PM	B28759
Iron	0.048	0.020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Manganese	ND	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Molybdenum	ND	0.0080		mg/L	1	9/11/2015 1:33:20 PM	A28781
Nickel	ND	0.010		mg/L	1	9/10/2015 2:52:57 PM	B28759
Silver	ND	0.0050		mg/L	1	9/11/2015 1:33:20 PM	A28781
Zinc	0.019	0.010		mg/L	1	9/11/2015 1:33:20 PM	A28781
EPA METHOD 245.1: MERCURY							Analyst: JLF
Mercury	ND	0.00020		mg/L	1	9/15/2015 3:50:01 PM	21298

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 9/3/2015 8:50:00 AM

Lab ID: 1509214-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 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	9/9/2015 2:48:42 PM	21198
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1221	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1232	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1242	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1248	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1254	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1260	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Surr: Decachlorobiphenyl	74.0	17.7-151		%REC	1	9/11/2015 10:58:41 AM	21192
Surr: Tetrachloro-m-xylene	67.6	20.6-151		%REC	1	9/11/2015 10:58:41 AM	21192
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/9/2015 4:47:41 PM	21183
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/9/2015 4:47:41 PM	21183
Surr: DNOP	108	72-136		%REC	1	9/9/2015 4:47:41 PM	21183
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/10/2015 1:16:54 PM	R28761
Surr: BFB	94.5	57.8-137		%REC	1	9/10/2015 1:16:54 PM	R28761
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	9/11/2015 8:09:56 AM	21193
1-Methylnaphthalene	ND	2.0		µg/L	1	9/11/2015 8:09:56 AM	21193
2-Methylnaphthalene	ND	2.0		µg/L	1	9/11/2015 8:09:56 AM	21193
Benzo(a)pyrene	ND	0.070		µg/L	1	9/11/2015 8:09:56 AM	21193
Surr: Benzo(e)pyrene	41.3	37.2-136		%REC	1	9/11/2015 8:09:56 AM	21193
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Toluene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Ethylbenzene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Carbon Tetrachloride	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Chloroform	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Methylene Chloride	ND	3.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 9/3/2015 8:50:00 AM

Lab ID: 1509214-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Vinyl chloride	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Xylenes, Total	ND	1.5		µg/L	1	9/8/2015 2:48:27 PM	R28707
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: 4-Bromofluorobenzene	99.5	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: Dibromofluoromethane	97.9	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: Toluene-d8	99.1	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
TOTAL PHENOLICS BY SW-846 9067				Analyst: SCC			
Phenolics, Total Recoverable	ND	2.5		µg/L	1	9/30/2015	21585

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1509214-002

Matrix: TRIP BLANK

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/10/2015 1:42:19 PM	R28761
Surr: BFB	93.2	57.8-137		%REC	1	9/10/2015 1:42:19 PM	R28761
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Toluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Ethylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Naphthalene	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1-Methylnaphthalene	ND	4.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Methylnaphthalene	ND	4.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Acetone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromoform	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromomethane	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Butanone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Carbon disulfide	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Carbon Tetrachloride	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloroethane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloroform	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloromethane	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Chlorotoluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Chlorotoluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
cis-1,2-DCE	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Dibromomethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707

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
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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1509214-002

Matrix: TRIP BLANK

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,2-Dichloropropane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3-Dichloropropane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Hexachlorobutadiene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Hexanone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Isopropylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Isopropyltoluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Methyl-2-pentanone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Methylene Chloride	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
n-Butylbenzene	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
n-Propylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
sec-Butylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Styrene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
tert-Butylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
trans-1,2-DCE	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Trichlorofluoromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Vinyl chloride	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Xylenes, Total	ND	1.5		µg/L	1	9/8/2015 3:17:15 PM	R28707
Surr: 1,2-Dichloroethane-d4	93.0	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707
Surr: 4-Bromofluorobenzene	98.0	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707
Surr: Dibromofluoromethane	97.2	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707
Surr: Toluene-d8	100	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID LCS	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: B28759			RunNo: 28759						
Prep Date:	Analysis Date: 9/10/2015			SeqNo: 871972		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	99.8	85	115			
Barium	0.49	0.0020	0.5000	0	98.9	85	115			
Boron	0.53	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Copper	0.47	0.0060	0.5000	0	94.2	85	115			
Iron	0.53	0.020	0.5000	0	107	85	115			
Manganese	0.49	0.0020	0.5000	0	97.9	85	115			
Nickel	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: B28759			RunNo: 28759						
Prep Date:	Analysis Date: 9/10/2015			SeqNo: 871973		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	104	50	150			
Barium	ND	0.0020	0.002000	0	90.0	50	150			
Boron	ND	0.040	0.04000	0	95.7	50	150			
Cadmium	ND	0.0020	0.002000	0	93.5	50	150			
Copper	ND	0.0060	0.006000	0	98.2	50	150			
Iron	0.021	0.020	0.02000	0	105	50	150			
Manganese	0.0022	0.0020	0.002000	0	108	50	150			
Nickel	ND	0.010	0.005000	0	119	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: B28759			RunNo: 28759						
Prep Date:	Analysis Date: 9/10/2015			SeqNo: 871977		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								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID	1509214-001IMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B28759		RunNo:	28759			
Prep Date:			Analysis Date:	9/10/2015		SeqNo:	872105		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0.004060	106	70	130			
Barium	0.50	0.0020	0.5000	0.05899	88.1	70	130			
Boron	0.64	0.040	0.5000	0.09823	108	70	130			
Cadmium	0.47	0.0020	0.5000	0	93.9	70	130			
Copper	0.47	0.0060	0.5000	0	94.4	70	130			
Iron	0.50	0.020	0.5000	0.04757	90.7	70	130			
Manganese	0.46	0.0020	0.5000	0.001650	91.3	70	130			
Nickel	0.41	0.010	0.5000	0	82.0	70	130			

Sample ID	1509214-001IMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B28759		RunNo:	28759			
Prep Date:			Analysis Date:	9/10/2015		SeqNo:	872106		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0.004060	106	70	130	0.150	20	
Barium	0.50	0.0020	0.5000	0.05899	88.6	70	130	0.493	20	
Boron	0.65	0.040	0.5000	0.09823	110	70	130	1.05	20	
Cadmium	0.47	0.0020	0.5000	0	94.6	70	130	0.694	20	
Copper	0.47	0.0060	0.5000	0	94.4	70	130	0.0890	20	
Iron	0.51	0.020	0.5000	0.04757	92.7	70	130	1.99	20	
Manganese	0.46	0.0020	0.5000	0.001650	91.8	70	130	0.605	20	
Nickel	0.41	0.010	0.5000	0	82.1	70	130	0.178	20	

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	A28781		RunNo:	28781			
Prep Date:			Analysis Date:	9/11/2015		SeqNo:	872822		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	98.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.7	85	115			
Molybdenum	0.50	0.0080	0.5000	0	99.3	85	115			
Silver	0.089	0.0050	0.1000	0	89.1	85	115			
Zinc	0.49	0.010	0.5000	0	97.9	85	115			

Sample ID	LLCS		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	A28781		RunNo:	28781			
Prep Date:			Analysis Date:	9/11/2015		SeqNo:	872823		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060	0.006000	0	82.5	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID LLLCS	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: A28781		RunNo: 28781							
Prep Date:	Analysis Date: 9/11/2015		SeqNo: 872823		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060	0.006000	0	86.0	50	150			
Molybdenum	ND	0.0080	0.008000	0	53.8	50	150			
Silver	ND	0.0050	0.005000	0	86.8	50	150			
Zinc	ND	0.010	0.005000	0	103	50	150			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: A28781		RunNo: 28781							
Prep Date:	Analysis Date: 9/11/2015		SeqNo: 872843		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Molybdenum	ND	0.0080								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID 1509214-001IMS	SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: Temporary R.O. Rej	Batch ID: A28781		RunNo: 28781							
Prep Date:	Analysis Date: 9/11/2015		SeqNo: 873630		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0.006680	96.5	70	130			
Cobalt	0.46	0.0060	0.5000	0.006090	91.2	70	130			
Molybdenum	0.47	0.0080	0.5000	0	93.9	70	130			
Silver	0.072	0.0050	0.1000	0	71.5	70	130			
Zinc	0.50	0.010	0.5000	0.01942	97.0	70	130			

Sample ID 1509214-001IMSD	SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: Temporary R.O. Rej	Batch ID: A28781		RunNo: 28781							
Prep Date:	Analysis Date: 9/11/2015		SeqNo: 873631		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0.006680	98.3	70	130	1.84	20	
Cobalt	0.47	0.0060	0.5000	0.006090	93.3	70	130	2.27	20	
Molybdenum	0.47	0.0080	0.5000	0	93.6	70	130	0.403	20	
Silver	0.074	0.0050	0.1000	0	74.4	70	130	3.93	20	
Zinc	0.50	0.010	0.5000	0.01942	97.0	70	130	0.0436	20	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID	1509214-001IMS		SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879521		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.001661	99.8	70	130			
Lead	0.061	0.0025	0.06250	0	97.7	70	130			
Selenium	0.12	0.0050	0.1250	0.008634	92.3	70	130			
Uranium	0.072	0.0025	0.06250	0.005627	106	70	130			

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879546		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	95.3	85	115			
Lead	0.012	0.00050	0.01250	0	99.4	85	115			
Selenium	0.023	0.0010	0.02500	0	91.2	85	115			
Uranium	0.013	0.00050	0.01250	0	100	85	115			

Sample ID	LLLCS		SampType:	LCSLL		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879550		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	93.3	50	150			
Lead	0.00054	0.00050	0.0005000	0	109	50	150			
Selenium	ND	0.0010	0.001000	0	89.0	50	150			
Uranium	0.00052	0.00050	0.0005000	0	104	50	150			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879554		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21298		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	21298		RunNo:	28872				
Prep Date:	9/15/2015		Analysis Date:	9/15/2015		SeqNo:	875782		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-21298		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 21298		RunNo: 28872					
Prep Date:	9/15/2015		Analysis Date: 9/15/2015		SeqNo: 875785		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.4	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R28686		RunNo: 28686							
Prep Date:	Analysis Date: 9/4/2015		SeqNo: 869229		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: R28686		RunNo: 28686							
Prep Date:	Analysis Date: 9/4/2015		SeqNo: 869230		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.5	90	110			
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R28852		RunNo: 28852							
Prep Date:	Analysis Date: 9/14/2015		SeqNo: 875093		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R28852		RunNo: 28852							
Prep Date:	Analysis Date: 9/14/2015		SeqNo: 875094		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21198		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	21198		RunNo:	28723				
Prep Date:	9/9/2015		Analysis Date:	9/9/2015		SeqNo:	870483		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-21198		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 21198		RunNo: 28723					
Prep Date:	9/9/2015		Analysis Date: 9/9/2015		SeqNo: 870484		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.078	0.010	0.1000	0	78.0	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID	MB-21183	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range						
Client ID:	PBW	Batch ID: 21183		RunNo: 28717						
Prep Date:	9/8/2015	Analysis Date: 9/9/2015		SeqNo: 870900			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	1.0		1.000		102	72	136			

Sample ID	LCS-21183		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 21183		RunNo: 28717					
Prep Date:	9/8/2015		Analysis Date: 9/9/2015		SeqNo: 870912		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154			
Surr: DNOP	0.52		0.5000		104	72	136			

Sample ID	1509214-001BMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	Temporary R.O. Rej		Batch ID: 21183		RunNo: 28717					
Prep Date:	9/8/2015		Analysis Date: 9/9/2015		SeqNo: 870914		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.1	1.0	5.000	0	123	41.3	177			
Surr: DNOP	0.61		0.5000		122	72	136			

Sample ID	1509214-001BMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	Temporary R.O. Rej		Batch ID: 21183		RunNo: 28717					
Prep Date:	9/8/2015		Analysis Date: 9/9/2015		SeqNo: 870915		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	-94.6	317	18.0	22.1	
Surr: DNOP	0.54		0.5000		108	72	136	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: R28761		RunNo: 28761					
Prep Date:			Analysis Date: 9/10/2015		SeqNo: 872128		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		90.2	57.8	137			

Sample ID	2.5UG GRO LCS	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID: R28761			RunNo: 28761					
Prep Date:		Analysis Date: 9/10/2015			SeqNo: 872129		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	98.9	80	120			
Surr: BFB	19		20.00		94.5	57.8	137			

Sample ID	1509214-001AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	Temporary R.O. Rej		Batch ID: R28761		RunNo: 28761					
Prep Date:			Analysis Date: 9/10/2015		SeqNo: 872139		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.43	0.050	0.5000	0	85.6	70	130			
Surr: BFB	20		20.00		99.4	57.8	137			

Sample ID	1509214-001AMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	Temporary R.O. Rej		Batch ID: R28761		RunNo: 28761					
Prep Date:			Analysis Date: 9/10/2015		SeqNo: 872140		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.0	70	130	9.31	20	
Surr: BFB	21		20.00		104	57.8	137	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID	MB-21192	SampType: MBLK		TestCode: EPA Method 8082: PCB's						
Client ID:	PBW	Batch ID: 21192		RunNo: 28758						
Prep Date:	9/9/2015	Analysis Date: 9/11/2015		SeqNo: 872597		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	1.6		2.500		62.8	17.7	151			
Surr: Tetrachloro-m-xylene	1.3		2.500		50.4	20.6	151			

Sample ID	LCS-21192		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 21192		RunNo: 28758					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 873603		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	44.8	9.01	142			
Aroclor 1260	3.3	1.0	5.000	0	65.3	25.6	164			
Surr: Decachlorobiphenyl	1.4		2.500		58.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.3		2.500		52.0	20.6	151			

Sample ID	LCSD-21192		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 21192		RunNo: 28758					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 873604		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.0	1.0	5.000	0	39.0	9.01	142	13.7	26.9	
Aroclor 1260	3.0	1.0	5.000	0	59.2	25.6	164	9.84	29.1	
Surr: Decachlorobiphenyl	1.3		2.500		53.2	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.1		2.500		42.8	20.6	151	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R28707			RunNo: 28707						
Prep Date:	Analysis Date: 9/8/2015			SeqNo: 870059		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	21	1.0	20.00	0	104	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R28707			RunNo: 28707						
Prep Date:	Analysis Date: 9/8/2015			SeqNo: 870063		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28707			RunNo: 28707					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870063	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28707			RunNo: 28707					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870063		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.5	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary R.O. Reject

Sample ID	MB-21193		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	21193		RunNo:	28760			
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872124	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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	7.7		20.00		38.7	37.2	136			

Sample ID	LCS-21193		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	21193		RunNo:	28760			
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872224	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.8	57.8	83.9			
1-Methylnaphthalene	60	2.0	80.20	0	75.2	43.5	88.5			
2-Methylnaphthalene	60	2.0	80.00	0	74.6	34.2	94.5			
Benzo(a)pyrene	0.38	0.070	0.5020	0	75.7	56.3	98.6			
Surr: Benzo(e)pyrene	9.9		20.00		49.3	37.2	136			

Sample ID	LCSD-21193		SampType:	LCSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSS02		Batch ID:	21193		RunNo:	28760			
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872225	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	59	2.0	80.00	0	73.6	57.8	83.9	1.55	20	
1-Methylnaphthalene	59	2.0	80.20	0	73.8	43.5	88.5	1.94	20	
2-Methylnaphthalene	58	2.0	80.00	0	72.8	34.2	94.5	2.46	20	
Benzo(a)pyrene	0.37	0.070	0.5020	0	73.7	56.3	98.6	2.67	20	
Surr: Benzo(e)pyrene	9.3		20.00		46.4	37.2	136	0		

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21585	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	21585	RunNo:	29183					
Prep Date:	9/30/2015	Analysis Date:	9/30/2015	SeqNo:	886370	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-21585	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	21585	RunNo:	29183					
Prep Date:	9/30/2015	Analysis Date:	9/30/2015	SeqNo:	886371	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	17	2.5	20.00	0	83.6	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R29270		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R29270		RunNo:	29270				
Prep Date:			Analysis Date:	9/15/2015		SeqNo:	889324		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R29270		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R29270		RunNo: 29270					
Prep Date:			Analysis Date: 9/15/2015		SeqNo: 889325		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.478		0.5000	0	95.6	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R29270		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R29270		RunNo: 29270					
Prep Date:			Analysis Date: 9/28/2015		SeqNo: 889327		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.461	0.612								
Radium-226 ±	0.431	0.612								
Radium-228	0.202	0.549								
Radium-228 ±	0.259	0.549								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21204	SampType: MBLK			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID: 21204			RunNo: 28757					
Prep Date:	9/9/2015	Analysis Date: 9/10/2015			SeqNo: 871932		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-21204		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 21204		RunNo: 28757					
Prep Date:	9/9/2015		Analysis Date: 9/10/2015		SeqNo: 871933		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name **NAVAJO REFINING CO**

Work Order Number: **1509214**

RcptNo: **1**

Received by/date:

LM

09/04/15

Logged By: **Celina Sessa**

9/4/2015 10:20:00 AM

Celina Sessa

Completed By: **Celina Sessa**

9/4/2015 12:54:16 PM

Celina Sessa

Reviewed By:

[Signature]

celoulis

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

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?

Yes ☒

No ☐

(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

6/1

(≤2 or ≥12 unless noted)

Adjusted:

No

Checked by:

mg

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes			



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

Monthly Temporary RO Reject Sample Details



Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salisbury
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/3/2015 @ 8:45
End Date and Time	8/3/2015 @ 9:05

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

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

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

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

Field Data (Weather, Observations, Etc):	9/3/2015 Temp: 77 °F, Humidity: 47% Wind Dir: NNW, Wind Speed: 5.8 mph Conditions: Clear
Date and Time:	
Field Temp: 25.3°C	Field pH: 7.70

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐
Shipping Media	
Ice	☒
Other	☐



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

October 06, 2015

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

RE: Monthly R.O. Reject

OrderNo.: 1509219

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509219

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 9/3/2015 9:10:00 AM

Lab ID: 1509219-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	ND	0.0050		mg/L	5	9/18/2015 5:45:40 PM	D28981
Lead	ND	0.00050		mg/L	1	9/18/2015 4:47:06 PM	D28981
Selenium	0.0079	0.0010		mg/L	1	9/18/2015 4:47:06 PM	D28981
Uranium	0.0060	0.00050		mg/L	1	9/18/2015 4:47:06 PM	D28981
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	2.57	0.768		pCi/L	1	9/28/2015	R29271
Radium-226 ±	0.954	0.768		pCi/L	1	9/28/2015	R29271
Radium-228	0.751	0.621		pCi/L	1	9/28/2015	R29271
Radium-228 ±	0.362	0.621		pCi/L	1	9/28/2015	R29271
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.9	2.0		mg/L	20	9/4/2015 11:24:48 PM	R28686
Chloride	260	10		mg/L	20	9/4/2015 11:24:48 PM	R28686
Nitrogen, Nitrate (As N)	1.7	0.10		mg/L	1	9/4/2015 11:12:24 PM	R28686
Sulfate	1800	25		mg/L	50	9/15/2015 12:20:17 AM	R28852
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3440	20.0	*	mg/L	1	9/10/2015 5:38:00 PM	21204
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	9/11/2015	R29271
SM4500-H+B: PH							Analyst: JRR
pH	7.91	1.68	H	pH units	1	9/8/2015 6:28:53 PM	R28726
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	9/10/2015 3:13:49 PM	B28759
Barium	0.058	0.0020		mg/L	1	9/10/2015 3:13:49 PM	B28759
Boron	0.093	0.040		mg/L	1	9/10/2015 3:13:49 PM	B28759
Cadmium	ND	0.0020		mg/L	1	9/10/2015 3:13:49 PM	B28759
Chromium	0.0070	0.0060		mg/L	1	9/11/2015 3:52:52 PM	A28781
Cobalt	ND	0.0060		mg/L	1	9/11/2015 3:52:52 PM	A28781
Copper	ND	0.0060		mg/L	1	9/10/2015 3:13:49 PM	B28759
Iron	ND	0.020		mg/L	1	9/10/2015 3:13:49 PM	B28759
Manganese	ND	0.0020		mg/L	1	9/11/2015 3:52:52 PM	A28781
Molybdenum	ND	0.0080		mg/L	1	9/11/2015 3:52:52 PM	A28781
Nickel	ND	0.010		mg/L	1	9/10/2015 3:13:49 PM	B28759
Silver	ND	0.0050		mg/L	1	9/10/2015 3:13:49 PM	B28759
Zinc	0.021	0.010		mg/L	1	9/11/2015 3:52:52 PM	A28781
EPA METHOD 245.1: MERCURY							Analyst: JLF
Mercury	ND	0.00020		mg/L	1	9/15/2015 4:16:45 PM	21298

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509219

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 9/3/2015 9:10:00 AM

Lab ID: 1509219-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 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	9/9/2015 3:02:31 PM	21198
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Aroclor 1221	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Aroclor 1232	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Aroclor 1242	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Aroclor 1248	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Aroclor 1254	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Aroclor 1260	ND	1.0		µg/L	1	9/11/2015 11:45:50 AM	21192
Surr: Decachlorobiphenyl	52.8	17.7-151		%REC	1	9/11/2015 11:45:50 AM	21192
Surr: Tetrachloro-m-xylene	41.2	20.6-151		%REC	1	9/11/2015 11:45:50 AM	21192
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/9/2015 5:52:34 PM	21183
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/9/2015 5:52:34 PM	21183
Surr: DNOP	115	72-136		%REC	1	9/9/2015 5:52:34 PM	21183
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/10/2015 2:07:41 PM	R28761
Surr: BFB	91.3	57.8-137		%REC	1	9/10/2015 2:07:41 PM	R28761
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	9/11/2015 8:39:09 AM	21193
1-Methylnaphthalene	ND	2.0		µg/L	1	9/11/2015 8:39:09 AM	21193
2-Methylnaphthalene	ND	2.0		µg/L	1	9/11/2015 8:39:09 AM	21193
Benzo(a)pyrene	ND	0.070		µg/L	1	9/11/2015 8:39:09 AM	21193
Surr: Benzo(e)pyrene	49.1	37.2-136		%REC	1	9/11/2015 8:39:09 AM	21193
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Toluene	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Ethylbenzene	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Carbon Tetrachloride	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Chloroform	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Methylene Chloride	ND	3.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509219

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 9/3/2015 9:10:00 AM

Lab ID: 1509219-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: BCN	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Vinyl chloride	ND	1.0		µg/L	1	9/8/2015 8:43:58 PM	R28705
Xylenes, Total	ND	1.5		µg/L	1	9/8/2015 8:43:58 PM	R28705
Surr: 1,2-Dichloroethane-d4	98.1	70-130		%REC	1	9/8/2015 8:43:58 PM	R28705
Surr: 4-Bromofluorobenzene	99.2	70-130		%REC	1	9/8/2015 8:43:58 PM	R28705
Surr: Dibromofluoromethane	101	70-130		%REC	1	9/8/2015 8:43:58 PM	R28705
Surr: Toluene-d8	94.9	70-130		%REC	1	9/8/2015 8:43:58 PM	R28705
TOTAL PHENOLICS BY SW-846 9067						Analyst: SCC	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	9/30/2015	21585

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509219

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1509219-002

Matrix: TRIP BLANK

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/10/2015 2:33:01 PM	R28761
Surr: BFB	90.7	57.8-137		%REC	1	9/10/2015 2:33:01 PM	R28761
EPA METHOD 8260B: VOLATILES							Analyst: BCN
Benzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Toluene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Ethylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Naphthalene	ND	2.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1-Methylnaphthalene	ND	4.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
2-Methylnaphthalene	ND	4.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Acetone	ND	10		µg/L	1	9/8/2015 9:12:38 PM	R28705
Bromobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Bromoform	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Bromomethane	ND	3.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
2-Butanone	ND	10		µg/L	1	9/8/2015 9:12:38 PM	R28705
Carbon disulfide	ND	10		µg/L	1	9/8/2015 9:12:38 PM	R28705
Carbon Tetrachloride	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Chlorobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Chloroethane	ND	2.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Chloroform	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Chloromethane	ND	3.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
2-Chlorotoluene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
4-Chlorotoluene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
cis-1,2-DCE	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Dibromomethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509219

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1509219-002

Matrix: TRIP BLANK

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: BCN			
1,2-Dichloropropane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,3-Dichloropropane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
2,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Hexachlorobutadiene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
2-Hexanone	ND	10		µg/L	1	9/8/2015 9:12:38 PM	R28705
Isopropylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
4-Isopropyltoluene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
4-Methyl-2-pentanone	ND	10		µg/L	1	9/8/2015 9:12:38 PM	R28705
Methylene Chloride	ND	3.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
n-Butylbenzene	ND	3.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
n-Propylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
sec-Butylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Styrene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
tert-Butylbenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
trans-1,2-DCE	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Trichlorofluoromethane	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Vinyl chloride	ND	1.0		µg/L	1	9/8/2015 9:12:38 PM	R28705
Xylenes, Total	ND	1.5		µg/L	1	9/8/2015 9:12:38 PM	R28705
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%REC	1	9/8/2015 9:12:38 PM	R28705
Surr: 4-Bromofluorobenzene	96.2	70-130		%REC	1	9/8/2015 9:12:38 PM	R28705
Surr: Dibromofluoromethane	97.9	70-130		%REC	1	9/8/2015 9:12:38 PM	R28705
Surr: Toluene-d8	95.0	70-130		%REC	1	9/8/2015 9:12:38 PM	R28705

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: B28759			RunNo: 28759					
Prep Date:	Analysis Date: 9/10/2015			SeqNo: 871972			Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.50	0.020	0.5000	0	99.8	85	115				
Barium	0.49	0.0020	0.5000	0	98.9	85	115				
Boron	0.53	0.040	0.5000	0	105	85	115				
Cadmium	0.51	0.0020	0.5000	0	102	85	115				
Copper	0.47	0.0060	0.5000	0	94.2	85	115				
Iron	0.53	0.020	0.5000	0	107	85	115				
Nickel	0.48	0.010	0.5000	0	95.4	85	115				
Silver	0.089	0.0050	0.1000	0	88.8	85	115				

Sample ID	LLCS		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B28759		RunNo: 28759					
Prep Date:			Analysis Date: 9/10/2015		SeqNo: 871973		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	104	50	150			
Barium	ND	0.0020	0.002000	0	90.0	50	150			
Boron	ND	0.040	0.04000	0	95.7	50	150			
Cadmium	ND	0.0020	0.002000	0	93.5	50	150			
Copper	ND	0.0060	0.006000	0	98.2	50	150			
Iron	0.021	0.020	0.02000	0	105	50	150			
Nickel	ND	0.010	0.005000	0	119	50	150			
Silver	ND	0.0050	0.005000	0	86.0	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: B28759			RunNo: 28759					
Prep Date:		Analysis Date: 9/10/2015			SeqNo: 871977		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								
Copper	ND	0.0060								
Iron	ND	0.020								
Nickel	ND	0.010								
Silver	ND	0.0050								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID: A28781			RunNo: 28781				
Prep Date:	Analysis Date: 9/11/2015			SeqNo: 872822		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	98.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.7	85	115			
Manganese	0.46	0.0020	0.5000	0	92.4	85	115			
Molybdenum	0.50	0.0080	0.5000	0	99.3	85	115			
Zinc	0.49	0.010	0.5000	0	97.9	85	115			

Sample ID	LLCS		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A28781		RunNo: 28781					
Prep Date:			Analysis Date: 9/11/2015		SeqNo: 872823		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060	0.006000	0	82.5	50	150			
Cobalt	ND	0.0060	0.006000	0	86.0	50	150			
Manganese	ND	0.0020	0.002000	0	93.0	50	150			
Molybdenum	ND	0.0080	0.008000	0	53.8	50	150			
Zinc	ND	0.010	0.005000	0	103	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A28781			RunNo: 28781					
Prep Date:		Analysis Date: 9/11/2015			SeqNo: 872843		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Zinc	ND	0.010								

Sample ID	1509219-001IMS			SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	R.O. Reject			Batch ID: A28781		RunNo: 28781				
Prep Date:				Analysis Date: 9/11/2015		SeqNo: 873693		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.47	0.0060	0.5000	0.006970	93.0	70	130			
Cobalt	0.46	0.0060	0.5000	0.004610	91.3	70	130			
Manganese	0.46	0.0020	0.5000	0.0006400	92.4	70	130			
Molybdenum	0.45	0.0080	0.5000	0	89.3	70	130			
Zinc	0.48	0.010	0.5000	0.02073	92.3	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	1509219-001IMSD		SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	R.O. Reject		Batch ID: A28781		RunNo: 28781					
Prep Date:			Analysis Date: 9/11/2015		SeqNo: 873697		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.46	0.0060	0.5000	0.006970	90.9	70	130	2.26	20	
Cobalt	0.45	0.0060	0.5000	0.004610	88.4	70	130	3.15	20	
Manganese	0.45	0.0020	0.5000	0.0006400	89.8	70	130	2.77	20	
Molybdenum	0.43	0.0080	0.5000	0	86.5	70	130	3.20	20	
Zinc	0.47	0.010	0.5000	0.02073	89.6	70	130	2.86	20	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: D28981		RunNo: 28981					
Prep Date:			Analysis Date: 9/18/2015		SeqNo: 879547		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	94.7	85	115			
Lead	0.012	0.00050	0.01250	0	94.8	85	115			
Selenium	0.023	0.0010	0.02500	0	91.9	85	115			
Uranium	0.012	0.00050	0.01250	0	94.9	85	115			

Sample ID	LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: D28981			RunNo: 28981					
Prep Date:		Analysis Date: 9/18/2015			SeqNo: 879551		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	92.1	50	150			
Lead	0.00052	0.00050	0.0005000	0	104	50	150			
Selenium	ND	0.0010	0.001000	0	95.2	50	150			
Uranium	ND	0.00050	0.0005000	0	99.7	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: D28981			RunNo: 28981					
Prep Date:		Analysis Date: 9/18/2015			SeqNo: 879555		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21298	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	21298	RunNo:	28872					
Prep Date:	9/15/2015	Analysis Date:	9/15/2015	SeqNo:	875782	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-21298	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	21298	RunNo:	28872					
Prep Date:	9/15/2015	Analysis Date:	9/15/2015	SeqNo:	875785	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.4	80	120			

Sample ID	1509219-001HMS	SampType:	MS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	R.O. Reject	Batch ID:	21298	RunNo:	28872					
Prep Date:	9/15/2015	Analysis Date:	9/15/2015	SeqNo:	875801	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	91.4	75	125			

Sample ID	1509219-001HMSD	SampType:	MSD	TestCode:	EPA Method 245.1: Mercury					
Client ID:	R.O. Reject	Batch ID:	21298	RunNo:	28872					
Prep Date:	9/15/2015	Analysis Date:	9/15/2015	SeqNo:	875802	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.5	75	125	2.30	20	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28686	RunNo:	28686					
Prep Date:		Analysis Date:	9/4/2015	SeqNo:	869229	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:	R28686	RunNo:	28686					
Prep Date:		Analysis Date:	9/4/2015	SeqNo:	869230	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.5	90	110			
Chloride	4.9	0.50	5.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28852	RunNo:	28852					
Prep Date:		Analysis Date:	9/14/2015	SeqNo:	875093	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R28852	RunNo:	28852					
Prep Date:		Analysis Date:	9/14/2015	SeqNo:	875094	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21198		SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	PBW		Batch ID: 21198		RunNo: 28723					
Prep Date:	9/9/2015		Analysis Date: 9/9/2015		SeqNo: 870483		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-21198		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 21198		RunNo: 28723					
Prep Date:	9/9/2015		Analysis Date: 9/9/2015		SeqNo: 870484		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.078	0.010	0.1000	0	78.0	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21183		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 21183		RunNo: 28717					
Prep Date:	9/8/2015		Analysis Date: 9/9/2015		SeqNo: 870900		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	1.0		1.000		102	72	136			

Sample ID	LCS-21183		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 21183		RunNo: 28717					
Prep Date:	9/8/2015		Analysis Date: 9/9/2015		SeqNo: 870912		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154			
Surr: DNOP	0.52		0.5000		104	72	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R28761	RunNo:	28761					
Prep Date:		Analysis Date:	9/10/2015	SeqNo:	872128	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		90.2	57.8	137			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R28761	RunNo:	28761					
Prep Date:		Analysis Date:	9/10/2015	SeqNo:	872129	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	98.9	80	120			
Surr: BFB	19		20.00		94.5	57.8	137			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21192		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 21192		RunNo: 28758					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 872597		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	1.6		2.500		62.8	17.7	151			
Surr: Tetrachloro-m-xylene	1.3		2.500		50.4	20.6	151			

Sample ID	LCS-21192		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSSW		Batch ID: 21192		RunNo: 28758					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 873603		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	44.8	9.01	142			
Aroclor 1260	3.3	1.0	5.000	0	65.3	25.6	164			
Surr: Decachlorobiphenyl	1.4		2.500		58.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.3		2.500		52.0	20.6	151			

Sample ID	LCSD-21192		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 21192		RunNo: 28758					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 873604		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.0	1.0	5.000	0	39.0	9.01	142	13.7	26.9	
Aroclor 1260	3.0	1.0	5.000	0	59.2	25.6	164	9.84	29.1	
Surr: Decachlorobiphenyl	1.3		2.500		53.2	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.1		2.500		42.8	20.6	151	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R28705		RunNo: 28705					
Prep Date:			Analysis Date: 9/8/2015		SeqNo: 870016		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	120	70	130			
Toluene	23	1.0	20.00	0	115	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	26	1.0	20.00	0	129	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.8	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.2		10.00		92.1	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28705			RunNo: 28705					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870017		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28705			RunNo: 28705					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870017	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28705			RunNo: 28705					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870017		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.0	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.8	70	130			
Surr: Dibromofluoromethane	9.4		10.00		93.7	70	130			
Surr: Toluene-d8	9.5		10.00		94.9	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21193		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	21193		RunNo:	28760			
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872124	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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	7.7		20.00		38.7	37.2	136			

Sample ID	LCS-21193		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	21193		RunNo:	28760			
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872224	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	60	2.0	80.00	0	74.8	57.8	83.9			
1-Methylnaphthalene	60	2.0	80.20	0	75.2	43.5	88.5			
2-Methylnaphthalene	60	2.0	80.00	0	74.6	34.2	94.5			
Benzo(a)pyrene	0.38	0.070	0.5020	0	75.7	56.3	98.6			
Surr: Benzo(e)pyrene	9.9		20.00		49.3	37.2	136			

Sample ID	LCSD-21193		SampType:	LCSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSS02		Batch ID:	21193		RunNo:	28760			
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872225	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	59	2.0	80.00	0	73.6	57.8	83.9	1.55	20	
1-Methylnaphthalene	59	2.0	80.20	0	73.8	43.5	88.5	1.94	20	
2-Methylnaphthalene	58	2.0	80.00	0	72.8	34.2	94.5	2.46	20	
Benzo(a)pyrene	0.37	0.070	0.5020	0	73.7	56.3	98.6	2.67	20	
Surr: Benzo(e)pyrene	9.3		20.00		46.4	37.2	136	0		

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21585	SampType: MBLK			TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID: 21585			RunNo: 29183					
Prep Date:	9/30/2015	Analysis Date: 9/30/2015			SeqNo: 886370		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-21585		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 21585		RunNo: 29183					
Prep Date:	9/30/2015		Analysis Date: 9/30/2015		SeqNo: 886371		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	17	2.5	20.00	0	83.6	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R29271		SampType: MBLK		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	PBW		Batch ID: R29271		RunNo: 29271					
Prep Date:			Analysis Date: 9/11/2015		SeqNo: 889329		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	LCS-R29271		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R29271		RunNo: 29271					
Prep Date:			Analysis Date: 9/11/2015		SeqNo: 889330		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.462		0.5000	0	92.4	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R29271	SampType: MBLK			TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW	Batch ID: R29271			RunNo: 29271					
Prep Date:		Analysis Date: 9/28/2015			SeqNo: 889332		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.461	0.612								
Radium-226 ±	0.431	0.612								
Radium-228	0.202	0.549								
Radium-228 ±	0.259	0.549								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-21204		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 21204		RunNo: 28757					
Prep Date:	9/9/2015		Analysis Date: 9/10/2015		SeqNo: 871932		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-21204		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 21204		RunNo: 28757					
Prep Date:	9/9/2015		Analysis Date: 9/10/2015		SeqNo: 871933		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1509219

RcptNo: 1

Received by/date: LM 09/04/15

Logged By: Celina Sessa

9/4/2015 10:20:00 AM

Celina Sessa

Completed By: Celina Sessa

9/4/2015 1:36:01 PM

Celina Sessa

Reviewed By: *[Signature]*

09/04/15

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

of preserved bottles checked for pH: *06/12* or *12* unless noted)

Adjusted? *NO*

Checked by: *mg*

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes			



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

Monthly RO Reject Sample Details Attachment



Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salisbury
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	9/3/2015 @ 9:06
End Date and Time	8/3/2015 @ 9:20

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

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

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

Container	Size	Material	# of Containers	Neat (None)	Preservatives						Analysis and/or Method Requested pH, Cl, F, SO ₄ , NO ₂ /NO ₃ , TDS
					HCL	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	NaHSO ₄	
1	500ml	Plastic	2	X			X				8015 GRC
2	40ml	VOA	3		X						6020 total metals, 7470 Hg
3	500ml	Plastic	1			X					6020 Dissolved Metals
4	125ml	Plastic	1			X					Cyanide
5	500ml	Plastic	2			X		X			Radium 226/228
6	1L	Plastic	3								8260 see attached list
7	40ml	VOA	2		X						8270 see attached list
8	1L	Glass	1	X							8092 PCBs
9	1L	Glass	2	X							8015 DRC
10	40ml	VOA	2	X							Radium 226/228
11	40ml	VOA	2		X						

Field Data (Weather, Observations, Etc):	9/3/2015 Tmp: 78.6 °F Humidity: 44% Wind Dir: North Wind Speed: 8.1 mph Conditions: Clear
Date and Time:	
Field Temp: 25.5°C	Field pH: 7.72

Storage Method	Ice ☒
Refrigerated	☐
Other	☐
Shipping Media	Ice ☒
Other	☐



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

November 02, 2015

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

RE: Monthly RO Reject

OrderNo.: 1510410

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/8/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510410

Date Reported: 11/2/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 10/7/2015 9:35:00 AM

Lab ID: 1510410-001

Matrix: AQUEOUS

Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	ND	0.0050		mg/L	5	10/20/2015 6:34:09 PM	B29683
Lead	ND	0.00050		mg/L	1	10/20/2015 3:59:03 PM	B29683
Selenium	0.0066	0.0010		mg/L	1	10/20/2015 3:59:03 PM	B29683
Uranium	0.0050	0.00050		mg/L	1	10/20/2015 3:59:03 PM	B29683
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.991	0.658		pCi/L	1	10/21/2015	R29838
Radium-226 ±	0.6	0.658		pCi/L	1	10/21/2015	R29838
Radium-228	0.579	0.666		pCi/L	1	10/21/2015	R29838
Radium-228 ±	0.357	0.666		pCi/L	1	10/21/2015	R29838
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.3	2.0		mg/L	20	10/8/2015 9:28:28 PM	R29414
Chloride	270	10		mg/L	20	10/8/2015 9:28:28 PM	R29414
Sulfate	1600	25		mg/L	50	10/20/2015 1:03:49 AM	R29666
Nitrate+Nitrite as N	1.4	1.0		mg/L	5	10/20/2015 1:28:39 AM	R29666
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3290	20.0	*	mg/L	1	10/12/2015 3:12:00 PM	21779
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	10/20/2015	R29838
SM4500-H+B: PH							Analyst: MRA
pH	7.79	1.68	H	pH units	1	10/9/2015 2:16:27 PM	R29457
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	10/15/2015 5:30:04 PM	C29574
Barium	0.054	0.0020		mg/L	1	10/13/2015 9:14:53 PM	B29512
Boron	0.10	0.040		mg/L	1	10/13/2015 9:14:53 PM	B29512
Cadmium	ND	0.0020		mg/L	1	10/13/2015 9:14:53 PM	B29512
Chromium	ND	0.0060		mg/L	1	10/13/2015 9:14:53 PM	B29512
Cobalt	ND	0.0060		mg/L	1	10/13/2015 9:14:53 PM	B29512
Copper	ND	0.0060		mg/L	1	10/13/2015 9:14:53 PM	B29512
Iron	ND	0.020		mg/L	1	10/14/2015 8:21:34 PM	C29542
Manganese	ND	0.0020		mg/L	1	10/13/2015 9:14:53 PM	B29512
Molybdenum	ND	0.0080		mg/L	1	10/13/2015 9:14:53 PM	B29512
Nickel	ND	0.010		mg/L	1	10/13/2015 9:14:53 PM	B29512
Silver	ND	0.0050		mg/L	1	10/13/2015 9:14:53 PM	B29512
Zinc	0.020	0.010		mg/L	1	10/30/2015 2:13:20 PM	A29914
EPA METHOD 245.1: MERCURY							Analyst: JLF
Mercury	ND	0.00020		mg/L	1	10/15/2015 12:43:15 PM	21848

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510410

Date Reported: 11/2/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 10/7/2015 9:35:00 AM

Lab ID: 1510410-001

Matrix: AQUEOUS

Received Date: 10/8/2015 9:07:00 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	10/15/2015 3:18:03 PM	21803
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Aroclor 1221	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Aroclor 1232	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Aroclor 1242	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Aroclor 1248	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Aroclor 1254	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Aroclor 1260	ND	1.0		µg/L	1	10/15/2015 1:42:00 AM	21811
Surr: Decachlorobiphenyl	78.0	17.7-151		%REC	1	10/15/2015 1:42:00 AM	21811
Surr: Tetrachloro-m-xylene	74.4	20.6-151		%REC	1	10/15/2015 1:42:00 AM	21811
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/12/2015 4:51:13 PM	21793
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/12/2015 4:51:13 PM	21793
Surr: DNOP	127	72-136		%REC	1	10/12/2015 4:51:13 PM	21793
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/9/2015 3:46:02 PM	R29422
Surr: BFB	89.3	57.8-137		%REC	1	10/9/2015 3:46:02 PM	R29422
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	10/14/2015 4:04:15 PM	21812
1-Methylnaphthalene	ND	2.0		µg/L	1	10/14/2015 4:04:15 PM	21812
2-Methylnaphthalene	ND	2.0		µg/L	1	10/14/2015 4:04:15 PM	21812
Benzo(a)pyrene	ND	0.070		µg/L	1	10/14/2015 4:04:15 PM	21812
Surr: Benzo(e)pyrene	88.6	37.2-136		%REC	1	10/14/2015 4:04:15 PM	21812
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Toluene	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Ethylbenzene	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Carbon Tetrachloride	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Chloroform	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
1,1-Dichloroethane	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
1,1-Dichloroethene	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Methylene Chloride	ND	3.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510410

Date Reported: 11/2/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 10/7/2015 9:35:00 AM

Lab ID: 1510410-001

Matrix: AQUEOUS

Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: AG	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Vinyl chloride	ND	1.0		µg/L	1	10/8/2015 6:03:57 PM	R29397
Xylenes, Total	ND	1.5		µg/L	1	10/8/2015 6:03:57 PM	R29397
Surr: 1,2-Dichloroethane-d4	88.5	70-130		%REC	1	10/8/2015 6:03:57 PM	R29397
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	10/8/2015 6:03:57 PM	R29397
Surr: Dibromofluoromethane	96.9	70-130		%REC	1	10/8/2015 6:03:57 PM	R29397
Surr: Toluene-d8	103	70-130		%REC	1	10/8/2015 6:03:57 PM	R29397
TOTAL PHENOLICS BY SW-846 9067						Analyst: SCC	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	10/20/2015	21920

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510410

Date Reported: 11/2/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1510410-002

Matrix: TRIP BLANK

Received Date: 10/8/2015 9:07:00 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	10/15/2015 3:32:00 PM	21803
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Toluene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Ethylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Naphthalene	ND	2.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1-Methylnaphthalene	ND	4.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
2-Methylnaphthalene	ND	4.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Acetone	ND	10		µg/L	1	10/8/2015 6:32:41 PM	R29397
Bromobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Bromodichloromethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Bromoform	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Bromomethane	ND	3.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
2-Butanone	ND	10		µg/L	1	10/8/2015 6:32:41 PM	R29397
Carbon disulfide	ND	10		µg/L	1	10/8/2015 6:32:41 PM	R29397
Carbon Tetrachloride	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Chlorobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Chloroethane	ND	2.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Chloroform	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Chloromethane	ND	3.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
2-Chlorotoluene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
4-Chlorotoluene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
cis-1,2-DCE	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Dibromochloromethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Dibromomethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1-Dichloroethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1-Dichloroethene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2-Dichloropropane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510410

Date Reported: 11/2/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1510410-002

Matrix: TRIP BLANK

Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,3-Dichloropropane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
2,2-Dichloropropane	ND	2.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Hexachlorobutadiene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
2-Hexanone	ND	10		µg/L	1	10/8/2015 6:32:41 PM	R29397
Isopropylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
4-Isopropyltoluene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
4-Methyl-2-pentanone	ND	10		µg/L	1	10/8/2015 6:32:41 PM	R29397
Methylene Chloride	ND	3.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
n-Butylbenzene	ND	3.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
n-Propylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
sec-Butylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Styrene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
tert-Butylbenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
trans-1,2-DCE	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Trichlorofluoromethane	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Vinyl chloride	ND	1.0		µg/L	1	10/8/2015 6:32:41 PM	R29397
Xylenes, Total	ND	1.5		µg/L	1	10/8/2015 6:32:41 PM	R29397
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%REC	1	10/8/2015 6:32:41 PM	R29397
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	10/8/2015 6:32:41 PM	R29397
Surr: Dibromofluoromethane	96.7	70-130		%REC	1	10/8/2015 6:32:41 PM	R29397
Surr: Toluene-d8	102	70-130		%REC	1	10/8/2015 6:32:41 PM	R29397

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-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: B29512		RunNo: 29512							
Prep Date:	Analysis Date: 10/13/2015		SeqNo: 897649		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B29512		RunNo: 29512							
Prep Date:	Analysis Date: 10/13/2015		SeqNo: 897650		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	103	85	115			
Boron	0.51	0.040	0.5000	0	103	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.7	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.3	85	115			
Copper	0.48	0.0060	0.5000	0	95.9	85	115			
Manganese	0.47	0.0020	0.5000	0	94.9	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.48	0.010	0.5000	0	95.9	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			

Sample ID LLLCS	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B29512		RunNo: 29512							
Prep Date:	Analysis Date: 10/13/2015		SeqNo: 897651		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	91.0	50	150			
Boron	ND	0.040	0.04000	0	98.5	50	150			
Cadmium	0.0026	0.0020	0.002000	0	128	50	150			
Chromium	0.0077	0.0060	0.006000	0	128	50	150			
Cobalt	0.0061	0.0060	0.006000	0	102	50	150			
Copper	0.0087	0.0060	0.006000	0	144	50	150			
Manganese	0.0023	0.0020	0.002000	0	116	50	150			
Molybdenum	0.014	0.0080	0.008000	0	178	50	150			S

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LLLCS	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID: B29512			RunNo: 29512					
Prep Date:		Analysis Date: 10/13/2015			SeqNo: 897651		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	100	50	150			
Silver	ND	0.0050	0.005000	0	87.6	50	150			

Sample ID	MB-C		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: C29542		RunNo: 29542					
Prep Date:			Analysis Date: 10/14/2015		SeqNo: 898765		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID	LCS-C		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: C29542		RunNo: 29542					
Prep Date:			Analysis Date: 10/14/2015		SeqNo: 898766		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.8	85	115			

Sample ID	LLLCS-C	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID: C29542			RunNo: 29542					
Prep Date:		Analysis Date: 10/14/2015			SeqNo: 898767		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020	0.02000	0	97.4	50	150			

Sample ID	MB-C		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: C29574		RunNo: 29574					
Prep Date:			Analysis Date: 10/15/2015		SeqNo: 900085		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								

Sample ID	LCS-C		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: C29574		RunNo: 29574					
Prep Date:			Analysis Date: 10/15/2015		SeqNo: 900086		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			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LLLCS-C		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: C29574		RunNo: 29574					
Prep Date:			Analysis Date: 10/15/2015		SeqNo: 900087		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	102	50	150			

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A29914			RunNo: 29914					
Prep Date:		Analysis Date: 10/30/2015			SeqNo: 911188		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A29914		RunNo: 29914					
Prep Date:			Analysis Date: 10/30/2015		SeqNo: 911189		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.49	0.010	0.5000	0	98.0	85	115			

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A29914		RunNo: 29914					
Prep Date:			Analysis Date: 10/30/2015		SeqNo: 911190		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010	0.005000	0	70.2	50	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-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: B29683		RunNo: 29683					
Prep Date:			Analysis Date: 10/20/2015		SeqNo: 903929		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	95.2	85	115			
Lead	0.012	0.00050	0.01250	0	98.6	85	115			
Selenium	0.023	0.0010	0.02500	0	90.5	85	115			
Uranium	0.012	0.00050	0.01250	0	96.7	85	115			

Sample ID	LLCS			SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals				
Client ID:	BatchQC			Batch ID: B29683		RunNo: 29683				
Prep Date:				Analysis Date: 10/20/2015		SeqNo: 903932		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	96.3	50	150			
Lead	0.00051	0.00050	0.0005000	0	102	50	150			
Selenium	ND	0.0010	0.001000	0	88.7	50	150			
Uranium	ND	0.00050	0.0005000	0	99.8	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B29683			RunNo: 29683					
Prep Date:		Analysis Date: 10/20/2015			SeqNo: 903934		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21848	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	21848	RunNo:	29565					
Prep Date:	10/14/2015	Analysis Date:	10/15/2015	SeqNo:	899831	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-21848	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	21848	RunNo:	29565					
Prep Date:	10/14/2015	Analysis Date:	10/15/2015	SeqNo:	899832	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-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:	R29414	RunNo:	29414					
Prep Date:		Analysis Date:	10/8/2015	SeqNo:	894692	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								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R29414	RunNo:	29414					
Prep Date:		Analysis Date:	10/8/2015	SeqNo:	894693	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R29666	RunNo:	29666					
Prep Date:		Analysis Date:	10/19/2015	SeqNo:	903381	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R29666	RunNo:	29666					
Prep Date:		Analysis Date:	10/19/2015	SeqNo:	903382	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	99.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21803		SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	PBW		Batch ID: 21803		RunNo: 29577					
Prep Date:	10/12/2015		Analysis Date: 10/15/2015		SeqNo: 900397		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-21803		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 21803		RunNo: 29577					
Prep Date:	10/12/2015		Analysis Date: 10/15/2015		SeqNo: 900399		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	112	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21793		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 21793		RunNo: 29489					
Prep Date:	10/12/2015		Analysis Date: 10/12/2015		SeqNo: 896837		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	1.3		1.000		128	72	136			

Sample ID	LCS-21793		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 21793		RunNo: 29489					
Prep Date:	10/12/2015		Analysis Date: 10/12/2015		SeqNo: 896840		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	107	52.4	154			
Surr: DNOP	0.55		0.5000		110	72	136			

Sample ID	1510410-001BMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	R.O. Reject		Batch ID: 21793		RunNo: 29489					
Prep Date:	10/12/2015		Analysis Date: 10/12/2015		SeqNo: 896858		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.5	1.0	5.000	0	109	41.3	177			
Surr: DNOP	0.57		0.5000		113	72	136			

Sample ID	1510410-001BMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	R.O. Reject		Batch ID: 21793		RunNo: 29489					
Prep Date:	10/12/2015		Analysis Date: 10/12/2015		SeqNo: 896861		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.7	1.0	5.000	0	114	-94.6	317	4.71	22.1	
Surr: DNOP	0.59		0.5000		117	72	136	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-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: R29422			RunNo: 29422					
Prep Date:		Analysis Date: 10/9/2015			SeqNo: 895544		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		88.1	57.8	137			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R29422		RunNo: 29422					
Prep Date:			Analysis Date: 10/9/2015		SeqNo: 895545		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.6	80	120			
Surr: BFB	19		20.00		93.0	57.8	137			

Sample ID	1510410-001AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	R.O. Reject		Batch ID: R29422		RunNo: 29422					
Prep Date:			Analysis Date: 10/9/2015		SeqNo: 895547		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	70	130			
Surr: BFB	19		20.00		95.6	57.8	137			

Sample ID	1510410-001AMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	R.O. Reject		Batch ID: R29422		RunNo: 29422					
Prep Date:			Analysis Date: 10/9/2015		SeqNo: 895548		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	92.6	70	130	0.433	20	
Surr: BFB	19		20.00		96.6	57.8	137	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21811	SampType: MBLK			TestCode: EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID: 21811			RunNo: 29529					
Prep Date:	10/13/2015	Analysis Date: 10/14/2015			SeqNo: 899307		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	2.1		2.500		85.2	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		82.8	20.6	151			

Sample ID	LCS-21811		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 21811		RunNo: 29529					
Prep Date:	10/13/2015		Analysis Date: 10/14/2015		SeqNo: 899308		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	58.9	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	83.5	25.6	164			
Surr: Decachlorobiphenyl	1.8		2.500		74.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.8		2.500		74.0	20.6	151			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-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: R29397		RunNo: 29397					
Prep Date:			Analysis Date: 10/8/2015		SeqNo: 894163		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	21	1.0	20.00	0	103	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	113	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R29397			RunNo: 29397					
Prep Date:		Analysis Date: 10/8/2015			SeqNo: 894164		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES				
Client ID:	PBW	Batch ID: R29397				RunNo: 29397				
Prep Date:		Analysis Date: 10/8/2015				SeqNo: 894164	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R29397	RunNo:	29397					
Prep Date:		Analysis Date:	10/8/2015	SeqNo:	894164	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21812	SampType: MBLK		TestCode: EPA Method 8310: PAHs						
Client ID:	PBW	Batch ID: 21812		RunNo: 29527						
Prep Date:	10/13/2015	Analysis Date: 10/14/2015		SeqNo: 898372		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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	21		20.00		103	37.2	136			

Sample ID	LCS-21812			SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW			Batch ID:	21812		RunNo:	29527			
Prep Date:	10/13/2015			Analysis Date:	10/14/2015		SeqNo:	898374		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Naphthalene	65	2.0	80.00	0	80.7	57.8	83.9				
1-Methylnaphthalene	67	2.0	80.20	0	83.1	43.5	88.5				
2-Methylnaphthalene	65	2.0	80.00	0	81.0	34.2	94.5				
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	56.3	98.6				
Surr: Benzo(e)pyrene	21		20.00		107	37.2	136				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21920	SampType: MBLK			TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID: 21920			RunNo: 29663					
Prep Date:	10/20/2015	Analysis Date: 10/20/2015			SeqNo: 903297		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-21920		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 21920		RunNo: 29663					
Prep Date:	10/20/2015		Analysis Date: 10/20/2015		SeqNo: 903298		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	19	2.5	20.00	0	96.2	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R29838		SampType: MBLK		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	PBW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/20/2015		SeqNo: 908961		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	LCS-R29838		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/20/2015		SeqNo: 908962		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.451		0.5000	0	90.2	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R29838		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/21/2015		SeqNo: 908965		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.209	0.513								
Radium-226 ±	0.319	0.513								
Radium-228	0.221	0.666								
Radium-228 ±	0.31	0.666								

Sample ID	MB-R29838		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/21/2015		SeqNo: 908967		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.411	0.965								
Radium-226 ±	0.571	0.965								
Radium-228	0.403	0.785								
Radium-228 ±	0.384	0.785								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21779		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 21779		RunNo: 29476					
Prep Date:	10/11/2015		Analysis Date: 10/12/2015		SeqNo: 896502		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-21779		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 21779		RunNo: 29476					
Prep Date:	10/11/2015		Analysis Date: 10/12/2015		SeqNo: 896503		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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO**

Work Order Number: **1510410**

RcptNo: **1**

Received by/date:	<i>CS</i>	<i>10/08/15</i>
Logged By:	Lindsay Margin	10/8/2015 9:07:00 AM
Completed By:	Lindsay Margin	10/8/2015 12:40:53 PM
Reviewed By:	<i>CS</i>	<i>10/08/15</i>

Chain of Custody

1. Custody seals intact on sample bottles?
2. Is Chain of Custody complete?
3. How was the sample delivered?

Yes ☒ No ☐ Not Present ☒
 Yes ☒ No ☐ Not Present ☐
 Courier

Log In

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

Yes ☒ No ☐ NA ☐
 Yes ☒ No ☐ NA ☐
 Yes ☒ No ☐
 Yes ☒ No ☐
 Yes ☐ No ☒ NA ☐
 Yes ☒ No ☐ No VOA Vials ☐
 Yes ☐ No ☒
 Yes ☒ No ☐
 Yes ☒ No ☐
 Yes ☒ No ☐
 Yes ☒ No ☐

of preserved bottles checked for pH: *7*
 Adjusted? *NO*
 Checked by: *DA*

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	10	Good	Yes			



Navajo Refining Company, LLC
501 E. Main
Antesita, NM 88210
(Tel) 575 748 3311
(Fax) 575 746 5458

Monthly RO Reject Sample Details Attachment



The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/7/2015 @ 9:35 am
End Date and Time	10/7/2015 @ 9:50 am

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

Physical Property	
Solid	☐
Liquid	☒
Sudge	☐

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

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

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

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

Field Data (Weather, Observations, Etc):	10/7/2015 Temp 62.6 °F, Humidity 88%, Wind Dir North, Wind Speed 8.1 mph, Conditions Partly Cloudy
Date and Time:	
Field Temp, 24.9C	Field pH 7.92

Storage Method	Ice ☒
Refrigerated	☐
Other	☐

Shipping Media	Ice ☒
Other	☐



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

October 30, 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.: 1510416

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/8/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 10/7/2015 8:55:00 AM

Lab ID: 1510416-001

Matrix: AQUEOUS

Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	ND	0.0050		mg/L	5	10/20/2015 6:39:18 PM	B29683
Lead	ND	0.00050		mg/L	1	10/20/2015 4:04:11 PM	B29683
Selenium	0.0094	0.0010		mg/L	1	10/20/2015 4:04:11 PM	B29683
Uranium	0.0059	0.00050		mg/L	1	10/20/2015 4:04:11 PM	B29683
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.75	0.678		pCi/L	1	10/21/2015	R29838
Radium-226 ±	0.852	0.678		pCi/L	1	10/21/2015	R29838
Radium-228	1	0.662		pCi/L	1	10/21/2015	R29838
Radium-228 ±	0.416	0.662		pCi/L	1	10/21/2015	R29838
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.8	2.0		mg/L	20	10/8/2015 9:53:17 PM	R29414
Chloride	68	10		mg/L	20	10/8/2015 9:53:17 PM	R29414
Sulfate	1800	25		mg/L	50	10/20/2015 1:16:14 AM	R29666
Nitrate+Nitrite as N	1.5	1.0		mg/L	5	10/20/2015 1:41:03 AM	R29666
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3220	20.0	*	mg/L	1	10/12/2015 3:12:00 PM	21779
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	10/20/2015	R29838
SM4500-H+B: PH							Analyst: MRA
pH	7.80	1.68	H	pH units	1	10/9/2015 2:20:53 PM	R29457
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	10/15/2015 5:32:19 PM	C29574
Barium	0.069	0.0020		mg/L	1	10/14/2015 8:23:38 PM	C29542
Boron	0.11	0.040		mg/L	1	10/15/2015 5:32:19 PM	C29574
Cadmium	ND	0.0020		mg/L	1	10/15/2015 5:32:19 PM	C29574
Chromium	ND	0.0060		mg/L	1	10/14/2015 8:23:38 PM	C29542
Cobalt	ND	0.0060		mg/L	1	10/14/2015 8:23:38 PM	C29542
Copper	ND	0.0060		mg/L	1	10/14/2015 8:23:38 PM	C29542
Iron	0.039	0.020		mg/L	1	10/14/2015 8:23:38 PM	C29542
Manganese	0.012	0.0020		mg/L	1	10/14/2015 8:23:38 PM	C29542
Molybdenum	ND	0.0080		mg/L	1	10/15/2015 5:32:19 PM	C29574
Nickel	ND	0.010		mg/L	1	10/14/2015 8:23:38 PM	C29542
Silver	ND	0.0050		mg/L	1	10/14/2015 8:23:38 PM	C29542
Zinc	0.023	0.010		mg/L	1	10/16/2015 7:52:40 PM	B29618
EPA METHOD 245.1: MERCURY							Analyst: JLF
Mercury	ND	0.00020		mg/L	1	10/15/2015 12:45:19 PM	21848

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 10/7/2015 8:55:00 AM

Lab ID: 1510416-001

Matrix: AQUEOUS

Received Date: 10/8/2015 9:07:00 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	10/15/2015 3:45:45 PM	21803
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1221	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1232	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1242	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1248	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1254	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1260	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Surr: Decachlorobiphenyl	82.0	17.7-151		%REC	1	10/15/2015 2:28:06 AM	21811
Surr: Tetrachloro-m-xylene	76.4	20.6-151		%REC	1	10/15/2015 2:28:06 AM	21811
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/12/2015 5:55:41 PM	21793
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/12/2015 5:55:41 PM	21793
Surr: DNOP	126	72-136		%REC	1	10/12/2015 5:55:41 PM	21793
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/9/2015 4:55:33 PM	R29422
Surr: BFB	90.2	57.8-137		%REC	1	10/9/2015 4:55:33 PM	R29422
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	10/14/2015 5:02:42 PM	21812
1-Methylnaphthalene	ND	2.0		µg/L	1	10/14/2015 5:02:42 PM	21812
2-Methylnaphthalene	ND	2.0		µg/L	1	10/14/2015 5:02:42 PM	21812
Benzo(a)pyrene	ND	0.070		µg/L	1	10/14/2015 5:02:42 PM	21812
Surr: Benzo(e)pyrene	75.2	37.2-136		%REC	1	10/14/2015 5:02:42 PM	21812
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Toluene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Ethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Carbon Tetrachloride	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Chloroform	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1-Dichloroethane	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1-Dichloroethene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Methylene Chloride	ND	3.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 10/7/2015 8:55:00 AM

Lab ID: 1510416-001

Matrix: AQUEOUS

Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Vinyl chloride	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Xylenes, Total	ND	1.5		µg/L	1	10/8/2015 5:06:31 PM	R29397
Surr: 1,2-Dichloroethane-d4	92.1	70-130		%REC	1	10/8/2015 5:06:31 PM	R29397
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	10/8/2015 5:06:31 PM	R29397
Surr: Dibromofluoromethane	97.3	70-130		%REC	1	10/8/2015 5:06:31 PM	R29397
Surr: Toluene-d8	101	70-130		%REC	1	10/8/2015 5:06:31 PM	R29397
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	10/20/2015	21920

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1510416-002

Matrix: TRIP BLANK

Received Date: 10/8/2015 9:07:00 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	10/15/2015 4:27:08 PM	21803
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Toluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Ethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Naphthalene	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1-Methylnaphthalene	ND	4.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Methylnaphthalene	ND	4.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Acetone	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromodichloromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromoform	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromomethane	ND	3.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Butanone	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Carbon disulfide	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Carbon Tetrachloride	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chloroethane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chloroform	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chloromethane	ND	3.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Chlorotoluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
4-Chlorotoluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
cis-1,2-DCE	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Dibromochloromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Dibromomethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1-Dichloroethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1-Dichloroethene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dichloropropane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1510416-002

Matrix: TRIP BLANK

Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,3-Dichloropropane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2,2-Dichloropropane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Hexachlorobutadiene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Hexanone	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Isopropylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
4-Isopropyltoluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
4-Methyl-2-pentanone	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Methylene Chloride	ND	3.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
n-Butylbenzene	ND	3.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
n-Propylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
sec-Butylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Styrene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
tert-Butylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
trans-1,2-DCE	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1,1-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1,2-Trichloroethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Trichloroethene (TCE)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Trichlorofluoromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2,3-Trichloropropane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Vinyl chloride	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Xylenes, Total	ND	1.5		µg/L	1	10/8/2015 5:35:16 PM	R29397
Surr: 1,2-Dichloroethane-d4	96.3	70-130		%REC	1	10/8/2015 5:35:16 PM	R29397
Surr: 4-Bromofluorobenzene	103	70-130		%REC	1	10/8/2015 5:35:16 PM	R29397
Surr: Dibromofluoromethane	98.2	70-130		%REC	1	10/8/2015 5:35:16 PM	R29397
Surr: Toluene-d8	97.9	70-130		%REC	1	10/8/2015 5:35:16 PM	R29397

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-C	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: C29542		RunNo: 29542							
Prep Date:	Analysis Date: 10/14/2015		SeqNo: 898765		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID LCS-C	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: C29542		RunNo: 29542							
Prep Date:	Analysis Date: 10/14/2015		SeqNo: 898766		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	103	85	115			
Chromium	0.50	0.0060	0.5000	0	100	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.6	85	115			
Copper	0.47	0.0060	0.5000	0	94.0	85	115			
Iron	0.49	0.020	0.5000	0	98.8	85	115			
Manganese	0.47	0.0020	0.5000	0	93.6	85	115			
Nickel	0.48	0.010	0.5000	0	96.9	85	115			
Silver	0.091	0.0050	0.1000	0	90.6	85	115			

Sample ID LLCS-C	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: C29542		RunNo: 29542							
Prep Date:	Analysis Date: 10/14/2015		SeqNo: 898767		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	96.0	50	150			
Chromium	ND	0.0060	0.006000	0	91.3	50	150			
Cobalt	ND	0.0060	0.006000	0	94.3	50	150			
Copper	0.0061	0.0060	0.006000	0	102	50	150			
Iron	ND	0.020	0.02000	0	97.4	50	150			
Manganese	ND	0.0020	0.002000	0	94.5	50	150			
Nickel	ND	0.010	0.005000	0	92.2	50	150			
Silver	ND	0.0050	0.005000	0	95.4	50	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-C	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: C29574		RunNo: 29574							
Prep Date:	Analysis Date: 10/15/2015		SeqNo: 900085		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Molybdenum	ND	0.0080								

Sample ID LCS-C	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: C29574		RunNo: 29574							
Prep Date:	Analysis Date: 10/15/2015		SeqNo: 900086		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			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.48	0.0020	0.5000	0	96.7	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			

Sample ID LLCS-C	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: C29574		RunNo: 29574							
Prep Date:	Analysis Date: 10/15/2015		SeqNo: 900087		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	102	50	150			
Boron	ND	0.040	0.04000	0	93.8	50	150			
Cadmium	0.0020	0.0020	0.002000	0	102	50	150			
Molybdenum	0.012	0.0080	0.008000	0	145	50	150			

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B29618		RunNo: 29618							
Prep Date:	Analysis Date: 10/16/2015		SeqNo: 901616		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010								

Sample ID LCS-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B29618		RunNo: 29618							
Prep Date:	Analysis Date: 10/16/2015		SeqNo: 901617		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.010	0.5000	0	91.1	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B29618		RunNo: 29618					
Prep Date:			Analysis Date: 10/16/2015		SeqNo: 901618		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010	0.005000	0	60.6	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-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: B29683			RunNo: 29683						
Prep Date:	Analysis Date: 10/20/2015			SeqNo: 903929		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	95.2	85	115			
Lead	0.012	0.00050	0.01250	0	98.6	85	115			
Selenium	0.023	0.0010	0.02500	0	90.5	85	115			
Uranium	0.012	0.00050	0.01250	0	96.7	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: B29683			RunNo: 29683						
Prep Date:	Analysis Date: 10/20/2015			SeqNo: 903932		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	96.3	50	150			
Lead	0.00051	0.00050	0.0005000	0	102	50	150			
Selenium	ND	0.0010	0.001000	0	88.7	50	150			
Uranium	ND	0.00050	0.0005000	0	99.8	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: B29683			RunNo: 29683						
Prep Date:	Analysis Date: 10/20/2015			SeqNo: 903934		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21848		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 21848		RunNo: 29565					
Prep Date:	10/14/2015		Analysis Date: 10/15/2015		SeqNo: 899831		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-21848		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 21848		RunNo: 29565					
Prep Date:	10/14/2015		Analysis Date: 10/15/2015		SeqNo: 899832		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-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: R29414			RunNo: 29414						
Prep Date:	Analysis Date: 10/8/2015			SeqNo: 894692		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								

Sample ID LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R29414			RunNo: 29414						
Prep Date:	Analysis Date: 10/8/2015			SeqNo: 894693		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			

Sample ID MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions						
Client ID: PBW	Batch ID: R29666			RunNo: 29666						
Prep Date:	Analysis Date: 10/19/2015			SeqNo: 903381		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R29666			RunNo: 29666						
Prep Date:	Analysis Date: 10/19/2015			SeqNo: 903382		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	99.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21803		SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	PBW		Batch ID: 21803		RunNo: 29577					
Prep Date:	10/12/2015		Analysis Date: 10/15/2015		SeqNo: 900397		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-21803		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 21803		RunNo: 29577					
Prep Date:	10/12/2015		Analysis Date: 10/15/2015		SeqNo: 900399		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	112	70	130			

Sample ID	1510416-001DMS		SampType: MS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	Temporary R.O. Rej		Batch ID: 21803		RunNo: 29577					
Prep Date:	10/12/2015		Analysis Date: 10/15/2015		SeqNo: 900412		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	121	45.7	164			

Sample ID	1510416-001DMSD		SampType: MSD		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	Temporary R.O. Rej		Batch ID: 21803		RunNo: 29577					
Prep Date:	10/12/2015		Analysis Date: 10/15/2015		SeqNo: 900413		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.13	0.010	0.1000	0	127	45.7	164	4.84	20	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21793		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 21793		RunNo: 29489					
Prep Date:	10/12/2015		Analysis Date: 10/12/2015		SeqNo: 896837		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	1.3		1.000		128	72	136			

Sample ID	LCS-21793		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 21793		RunNo: 29489					
Prep Date:	10/12/2015		Analysis Date: 10/12/2015		SeqNo: 896840		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	107	52.4	154			
Surr: DNOP	0.55		0.5000		110	72	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-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: R29422		RunNo: 29422							
Prep Date:	Analysis Date: 10/9/2015		SeqNo: 895544		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		88.1	57.8	137			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R29422		RunNo: 29422							
Prep Date:	Analysis Date: 10/9/2015		SeqNo: 895545		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.6	80	120			
Surr: BFB	19		20.00		93.0	57.8	137			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21811	SampType: MBLK			TestCode: EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID: 21811			RunNo: 29529					
Prep Date:	10/13/2015	Analysis Date: 10/14/2015			SeqNo: 899307		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	2.1		2.500		85.2	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		82.8	20.6	151			

Sample ID	LCS-21811		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 21811		RunNo: 29529					
Prep Date:	10/13/2015		Analysis Date: 10/14/2015		SeqNo: 899308		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	58.9	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	83.5	25.6	164			
Surr: Decachlorobiphenyl	1.8		2.500		74.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.8		2.500		74.0	20.6	151			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R29397			RunNo: 29397						
Prep Date:	Analysis Date: 10/8/2015			SeqNo: 894163		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	21	1.0	20.00	0	103	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	113	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R29397			RunNo: 29397						
Prep Date:	Analysis Date: 10/8/2015			SeqNo: 894164		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R29397			RunNo: 29397						
Prep Date:	Analysis Date: 10/8/2015			SeqNo: 894164		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R29397			RunNo: 29397						
Prep Date:	Analysis Date: 10/8/2015			SeqNo: 894164		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21812	SampType: MBLK		TestCode: EPA Method 8310: PAHs						
Client ID:	PBW	Batch ID: 21812		RunNo: 29527						
Prep Date:	10/13/2015	Analysis Date: 10/14/2015		SeqNo: 898372		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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	21		20.00		103	37.2	136			

Sample ID	LCS-21812			SampType:	LCS			TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW			Batch ID:	21812			RunNo:	29527					
Prep Date:	10/13/2015			Analysis Date:	10/14/2015			SeqNo:	898374			Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Naphthalene	65	2.0	80.00	0	80.7	57.8	83.9							
1-Methylnaphthalene	67	2.0	80.20	0	83.1	43.5	88.5							
2-Methylnaphthalene	65	2.0	80.00	0	81.0	34.2	94.5							
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	56.3	98.6							
Surr: Benzo(e)pyrene	21		20.00		107	37.2	136							

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21920	SampType:	MBLK			TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW	Batch ID:	21920			RunNo:	29663				
Prep Date:	10/20/2015	Analysis Date:	10/20/2015			SeqNo:	903297	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-21920		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 21920		RunNo: 29663					
Prep Date:	10/20/2015		Analysis Date: 10/20/2015		SeqNo: 903298		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	19	2.5	20.00	0	96.2	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-R29838		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R29838		RunNo:	29838				
Prep Date:			Analysis Date:	10/20/2015		SeqNo:	908961		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R29838		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/20/2015		SeqNo: 908962		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.451		0.5000	0	90.2	90	110			

Qualifiers:

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D Sample Diluted Due to Matrix
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R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-R29838		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/21/2015		SeqNo: 908965		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.209	0.513								
Radium-226 ±	0.319	0.513								
Radium-228	0.221	0.666								
Radium-228 ±	0.31	0.666								

Sample ID	MB-R29838		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R29838		RunNo: 29838					
Prep Date:			Analysis Date: 10/21/2015		SeqNo: 908967		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.411	0.965								
Radium-226 ±	0.571	0.965								
Radium-228	0.403	0.785								
Radium-228 ±	0.384	0.785								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21779		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 21779		RunNo: 29476					
Prep Date:	10/11/2015		Analysis Date: 10/12/2015		SeqNo: 896502		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-21779		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 21779		RunNo: 29476					
Prep Date:	10/11/2015		Analysis Date: 10/12/2015		SeqNo: 896503		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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1510416

RcptNo: 1

Received by/date:	<i>CS</i>	<i>10/08/15</i>
Logged By:	Lindsay Mangin	10/8/2015 9:07:00 AM
Completed By:	Lindsay Mangin	10/8/2015 12:52:31 PM
Reviewed By:	<i>CS</i>	<i>10/08/15</i>

Chain of Custody

- Custody seals intact on sample bottles?
- Is Chain of Custody complete?
- How was the sample delivered?

Yes ☒	No ☐	Not Present ☒
Yes ☒	No ☐	Not Present ☐
<u>Courier</u>		

Log In

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

Yes ☒	No ☐	NA ☐
Yes ☒	No ☐	NA ☐
Yes ☒	No ☐	
Yes ☒	No ☐	
Yes ☐	No ☒	NA ☐
Yes ☒	No ☐	No VOA Vials ☐
Yes ☐	No ☒	
Yes ☒	No ☐	# of preserved bottles checked for pH: <i>7</i> or <i>12</i> unless noted
Yes ☒	No ☐	Adjusted? <i>No</i>
Yes ☒	No ☐	Checked by: <i>JA</i>

Special Handling (if applicable)

- 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:			

- Additional remarks:

Cooler Information

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



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

Monthly Temporary RO Reject Sample Details



The HollyFrontier Companies

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

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

Type of Sampler	
Directly to sample jars	☐

Parts / Sample Intervals	
One	☐

Parts / Sample Intervals	
One	☐

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

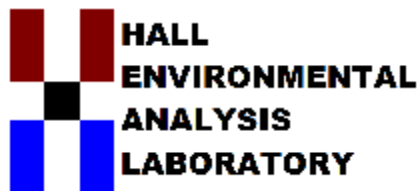
Container	Size	Material	# of Containers	Neat (None)	Preservatives						Analysis and/or Method Requested pH, Cl, F, SO4, NO2/NO3, TDS
					HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	
1	500ml	Plastic	2	X			X				8015 GRO
2	40ml	VOA	3		X						6020 total metals, 7470 Hg
3	500ml	Plastic	1			X					6020 Dissolved Metals
4	125ml	Plastic	1			X					Cyanide
5	500ml	Plastic	2					X			Radium 226/228
6	1L	Plastic	3			X					8260 see attached list
7	40ml	VOA	2		X						8270 see attached list
8	1L	Glass	1	X							8032 PCBs
9	1L	Glass	2	X							8015 DRO
10	40ml	VOA	2	X							Radium 226/228
11	40ml	VOA	2	X							

Field Data (Weather, Observations, Etc):	
Date and Time:	10/7/2015 Tmp: 80.8 °F Humidity: 94% Wind Dir: North Wind Speed: 8.1 mph Conditions: Partly Cloudy

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐

Field Temp:	
8.13	Field pH: 22.7C



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

November 25, 2015

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

RE: Monthly RO Reject

OrderNo.: 1511135

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 11/3/2015 9:00:00 AM

Lab ID: 1511135-001

Matrix: AQUEOUS

Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	11/18/2015 12:45:48 PM	B30317
Lead	ND	0.00050		mg/L	1	11/18/2015 12:14:52 PM	B30317
Selenium	0.0061	0.0010		mg/L	1	11/18/2015 12:14:52 PM	B30317
Uranium	0.0032	0.00050		mg/L	1	11/18/2015 12:14:52 PM	B30317
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.79	0.815		pCi/L	1	11/16/2015	R30469
Radium-226 ±	0.627	0.815		pCi/L	1	11/16/2015	R30469
Radium-228	0.401	0.750		pCi/L	1	11/16/2015	R30469
Radium-228 ±	0.369	0.750		pCi/L	1	11/16/2015	R30469
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.4	0.10		mg/L	1	11/4/2015 6:51:42 PM	R30015
Chloride	29	10		mg/L	20	11/4/2015 7:28:55 PM	R30015
Nitrogen, Nitrate (As N)	1.3	0.10		mg/L	1	11/4/2015 6:51:42 PM	R30015
Sulfate	1100	25		mg/L	50	11/19/2015 2:37:48 AM	R30336
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2050	20.0	*	mg/L	1	11/7/2015 10:19:00 AM	22194
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	11/16/2015	R30469
SM4500-H+B: PH							Analyst: JRR
pH	7.87	1.68	H	pH units	1	11/5/2015 4:48:02 PM	R30047
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED
Aluminum	ND	0.020		mg/L	1	11/13/2015 4:20:04 PM	B30225
Barium	0.042	0.0020		mg/L	1	11/13/2015 4:20:04 PM	B30225
Boron	0.077	0.040		mg/L	1	11/13/2015 4:20:04 PM	B30225
Cadmium	ND	0.0020		mg/L	1	11/13/2015 4:20:04 PM	B30225
Chromium	ND	0.0060		mg/L	1	11/13/2015 4:20:04 PM	B30225
Cobalt	ND	0.0060		mg/L	1	11/13/2015 4:20:04 PM	B30225
Copper	ND	0.0060		mg/L	1	11/13/2015 4:20:04 PM	B30225
Iron	ND	0.020		mg/L	1	11/13/2015 4:20:04 PM	B30225
Manganese	ND	0.0020		mg/L	1	11/13/2015 4:20:04 PM	B30225
Molybdenum	ND	0.0080		mg/L	1	11/13/2015 4:20:04 PM	B30225
Nickel	ND	0.010		mg/L	1	11/13/2015 4:20:04 PM	B30225
Silver	ND	0.0050		mg/L	1	11/13/2015 4:20:04 PM	B30225
Zinc	0.35	0.010		mg/L	1	11/13/2015 4:20:04 PM	B30225
EPA METHOD 245.1: MERCURY							Analyst: DBD
Mercury	ND	0.00020		mg/L	1	11/13/2015 6:15:32 PM	22341

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 11/3/2015 9:00:00 AM

Lab ID: 1511135-001

Matrix: AQUEOUS

Received Date: 11/4/2015 9:05:00 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	11/6/2015 2:48:23 PM	22172
EPA METHOD 8082: PCB'S							Analyst: JDC
Aroclor 1016	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1221	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1232	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1242	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1248	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1254	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1260	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Surr: Decachlorobiphenyl	73.2	17.7-151		%REC	1	11/6/2015 6:25:50 PM	22197
Surr: Tetrachloro-m-xylene	63.6	20.6-151		%REC	1	11/6/2015 6:25:50 PM	22197
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2015 3:31:45 PM	22175
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2015 3:31:45 PM	22175
Surr: DNOP	134	72-136		%REC	1	11/6/2015 3:31:45 PM	22175
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/5/2015 10:08:12 AM	R30036
Surr: BFB	79.0	57.8-137		%REC	1	11/5/2015 10:08:12 AM	R30036
EPA METHOD 8310: PAHS							Analyst: JDC
Naphthalene	ND	2.0		µg/L	1	11/6/2015 5:45:58 PM	22195
1-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 5:45:58 PM	22195
2-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 5:45:58 PM	22195
Benzo(a)pyrene	ND	0.070		µg/L	1	11/6/2015 5:45:58 PM	22195
Surr: Benzo(e)pyrene	63.7	37.2-136		%REC	1	11/6/2015 5:45:58 PM	22195
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 11/3/2015 9:00:00 AM

Lab ID: 1511135-001

Matrix: AQUEOUS

Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Vinyl chloride	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Xylenes, Total	ND	1.5		µg/L	1	11/6/2015 2:08:57 PM	R30086
Surr: 1,2-Dichloroethane-d4	96.3	70-130		%REC	1	11/6/2015 2:08:57 PM	R30086
Surr: 4-Bromofluorobenzene	98.0	70-130		%REC	1	11/6/2015 2:08:57 PM	R30086
Surr: Dibromofluoromethane	99.6	70-130		%REC	1	11/6/2015 2:08:57 PM	R30086
Surr: Toluene-d8	105	70-130		%REC	1	11/6/2015 2:08:57 PM	R30086
TOTAL PHENOLICS BY SW-846 9067				Analyst: SCC			
Phenolics, Total Recoverable	ND	2.5		µg/L	1	11/10/2015	22262

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1511135-002

Matrix: TRIP BLANK

Received Date: 11/4/2015 9:05:00 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	11/6/2015 3:01:56 PM	22172
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Naphthalene	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Acetone	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromodichloromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromoform	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromomethane	ND	3.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Butanone	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Carbon disulfide	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chloroethane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chloromethane	ND	3.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
4-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
cis-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Dibromochloromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Dibromomethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1511135-002

Matrix: TRIP BLANK

Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,3-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2,2-Dichloropropane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Hexachlorobutadiene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Hexanone	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Isopropylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
4-Isopropyltoluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
4-Methyl-2-pentanone	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
n-Butylbenzene	ND	3.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
n-Propylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
sec-Butylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Styrene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
tert-Butylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
trans-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Trichlorofluoromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Vinyl chloride	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Xylenes, Total	ND	1.5		µg/L	1	11/6/2015 3:35:06 PM	R30086
Surr: 1,2-Dichloroethane-d4	94.8	70-130		%REC	1	11/6/2015 3:35:06 PM	R30086
Surr: 4-Bromofluorobenzene	97.6	70-130		%REC	1	11/6/2015 3:35:06 PM	R30086
Surr: Dibromofluoromethane	95.4	70-130		%REC	1	11/6/2015 3:35:06 PM	R30086
Surr: Toluene-d8	95.9	70-130		%REC	1	11/6/2015 3:35:06 PM	R30086

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B30225		RunNo: 30225							
Prep Date:	Analysis Date: 11/13/2015		SeqNo: 921063		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 LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B30225		RunNo: 30225							
Prep Date:	Analysis Date: 11/13/2015		SeqNo: 921064		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	90.0	50	150			
Barium	0.0021	0.0020	0.002000	0	105	50	150			
Boron	0.041	0.040	0.04000	0	102	50	150			
Cadmium	ND	0.0020	0.002000	0	94.0	50	150			
Chromium	0.0061	0.0060	0.006000	0	101	50	150			
Cobalt	0.0063	0.0060	0.006000	0	105	50	150			
Copper	ND	0.0060	0.006000	0	93.2	50	150			
Iron	0.025	0.020	0.02000	0	127	50	150			
Manganese	0.0022	0.0020	0.002000	0	108	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	ND	0.010	0.005000	0	108	50	150			
Silver	0.0053	0.0050	0.005000	0	106	50	150			
Zinc	ND	0.010	0.005000	0	102	50	150			

Sample ID LCS-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B30225		RunNo: 30225							
Prep Date:	Analysis Date: 11/13/2015		SeqNo: 921065		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	101	85	115			
Barium	0.48	0.0020	0.5000	0	96.6	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	LCSW		Batch ID: B30225		RunNo: 30225						
Prep Date:			Analysis Date: 11/13/2015		SeqNo: 921065		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	0.50	0.040	0.5000	0	100	85	115				
Cadmium	0.48	0.0020	0.5000	0	97.0	85	115				
Chromium	0.48	0.0060	0.5000	0	96.3	85	115				
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115				
Copper	0.47	0.0060	0.5000	0	94.8	85	115				
Iron	0.49	0.020	0.5000	0	97.5	85	115				
Manganese	0.47	0.0020	0.5000	0	93.8	85	115				
Molybdenum	0.50	0.0080	0.5000	0	101	85	115				
Nickel	0.46	0.010	0.5000	0	92.0	85	115				
Silver	0.099	0.0050	0.1000	0	99.2	85	115				
Zinc	0.48	0.010	0.5000	0	96.1	85	115				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-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: B30317		RunNo: 30317					
Prep Date:			Analysis Date: 11/18/2015		SeqNo: 925053		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.012	0.00050	0.01250	0	96.6	85	115			
Selenium	0.026	0.0010	0.02500	0	102	85	115			
Uranium	0.012	0.00050	0.01250	0	96.9	85	115			

Sample ID	LLCS			SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals				
Client ID:	BatchQC			Batch ID: B30317		RunNo: 30317				
Prep Date:				Analysis Date: 11/18/2015		SeqNo: 925054		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	105	50	150			
Lead	ND	0.00050	0.0005000	0	99.5	50	150			
Selenium	0.0010	0.0010	0.001000	0	101	50	150			
Uranium	ND	0.00050	0.0005000	0	97.4	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B30317			RunNo: 30317					
Prep Date:		Analysis Date: 11/18/2015			SeqNo: 925055		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22341		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 22341		RunNo: 30233					
Prep Date:	11/13/2015		Analysis Date: 11/13/2015		SeqNo: 921328		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-22341			SampType:	LCS		TestCode:	EPA Method 245.1: Mercury			
Client ID:	LCSW			Batch ID:	22341		RunNo:	30233			
Prep Date:	11/13/2015			Analysis Date:	11/13/2015		SeqNo:	921336		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0061	0.00020	0.005000	0	121	80	120			S	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-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: R30015			RunNo: 30015					
Prep Date:		Analysis Date: 11/4/2015			SeqNo: 914384		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: R30015		RunNo: 30015					
Prep Date:			Analysis Date: 11/4/2015		SeqNo: 914385		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	96.1	90	110			
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			

Sample ID	1511135-001EMS		SampType: MS		TestCode: EPA Method 300.0: Anions					
Client ID:	R.O. Reject		Batch ID: R30015		RunNo: 30015					
Prep Date:			Analysis Date: 11/4/2015		SeqNo: 914409		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.0	0.10	0.5000	2.378	120	75.3	111			S
Nitrogen, Nitrate (As N)	3.9	0.10	2.500	1.288	103	87.3	111			

Sample ID	1511135-001EMSD		SampType: MSD		TestCode: EPA Method 300.0: Anions					
Client ID:	R.O. Reject		Batch ID: R30015		RunNo: 30015					
Prep Date:			Analysis Date: 11/4/2015		SeqNo: 914410		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.2	0.10	0.5000	2.378	165	75.3	111	7.21	20	S
Nitrogen, Nitrate (As N)	3.9	0.10	2.500	1.288	103	87.3	111	0.531	20	

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R30336			RunNo: 30336					
Prep Date:		Analysis Date: 11/18/2015			SeqNo: 925732		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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-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: R30336			RunNo: 30336					
Prep Date:			Analysis Date: 11/18/2015			SeqNo: 925733		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	97.3	90	110				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22172	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	22172	RunNo:	30082					
Prep Date:	11/5/2015	Analysis Date:	11/6/2015	SeqNo:	916394	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-22172	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	22172	RunNo:	30082					
Prep Date:	11/5/2015	Analysis Date:	11/6/2015	SeqNo:	916395	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.044	0.010	0.05000	0	88.0	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22175	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 22175			RunNo: 30057					
Prep Date:	11/4/2015	Analysis Date: 11/6/2015			SeqNo: 915909		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		113	72	136			

Sample ID	LCS-22175		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 22175		RunNo: 30057					
Prep Date:	11/4/2015		Analysis Date: 11/6/2015		SeqNo: 915910		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	52.4	154			
Surr: DNOP	0.55		0.5000		111	72	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-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: R30036			RunNo: 30036					
Prep Date:		Analysis Date: 11/5/2015			SeqNo: 915111		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	16		20.00		79.4	57.8	137			

Sample ID	2.5UG GRO LCS	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID: R30036			RunNo: 30036					
Prep Date:		Analysis Date: 11/5/2015			SeqNo: 915112		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	88.0	80	120			
Surr: BFB	20		20.00		98.3	57.8	137			

Sample ID	1511135-001JMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	R.O. Reject		Batch ID: R30036		RunNo: 30036					
Prep Date:			Analysis Date: 11/5/2015		SeqNo: 915114		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	87.9	70	130			
Surr: BFB	20		20.00		97.9	57.8	137			

Sample ID	1511135-001JMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	R.O. Reject		Batch ID: R30036		RunNo: 30036					
Prep Date:			Analysis Date: 11/5/2015		SeqNo: 915115		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.42	0.050	0.5000	0	83.8	70	130	4.80	20	
Surr: BFB	19		20.00		96.0	57.8	137	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22197		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 22197		RunNo: 30067					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916012		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	2.4		2.500		96.4	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		82.0	20.6	151			

Sample ID	LCS-22197		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 22197		RunNo: 30067					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916013		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.3	1.0	5.000	0	45.2	9.01	142			
Aroclor 1260	4.3	1.0	5.000	0	86.6	25.6	164			
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		80.8	20.6	151			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	100ng lcs3		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R30086		RunNo: 30086					
Prep Date:			Analysis Date: 11/6/2015		SeqNo: 916525		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	111	70	130			
Toluene	21	1.0	20.00	0	107	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	109	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID	rb3		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW		Batch ID: R30086		RunNo: 30086					
Prep Date:			Analysis Date: 11/6/2015		SeqNo: 916527		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb3	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R30086	RunNo:	30086					
Prep Date:		Analysis Date:	11/6/2015	SeqNo:	916527	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb3	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R30086		RunNo: 30086						
Prep Date:		Analysis Date: 11/6/2015		SeqNo: 916527		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	1511135-001ams		SampType: MS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	R.O. Reject		Batch ID: R30086		RunNo: 30086					
Prep Date:			Analysis Date: 11/6/2015		SeqNo: 916530		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.3	70	130			
Chlorobenzene	23	1.0	20.00	0	114	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	112	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	109	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.5	70	130			
Surr: Dibromofluoromethane	10		10.00		99.9	70	130			
Surr: Toluene-d8	8.9		10.00		89.4	70	130			

Sample ID	1511135-001amsd		SampType: MSD		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	R.O. Reject		Batch ID: R30086		RunNo: 30086					
Prep Date:			Analysis Date: 11/6/2015		SeqNo: 916531		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130	7.96	20	
Toluene	21	1.0	20.00	0	105	70	130	5.76	20	
Chlorobenzene	21	1.0	20.00	0	106	70	130	6.75	20	
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130	11.1	20	
Trichloroethene (TCE)	20	1.0	20.00	0	99.6	70	130	8.76	20	
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		101	70	130	0	0	
Surr: Toluene-d8	11		10.00		105	70	130	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22195	SampType: MBLK		TestCode: EPA Method 8310: PAHs						
Client ID:	PBW	Batch ID: 22195		RunNo: 30048						
Prep Date:	11/5/2015	Analysis Date: 11/6/2015		SeqNo: 916008		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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	15		20.00		74.1	37.2	136			

Sample ID	LCS-22195		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 22195		RunNo: 30048					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916020		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	61	2.0	80.00	0	76.4	57.8	83.9			
1-Methylnaphthalene	64	2.0	80.20	0	80.0	43.5	88.5			
2-Methylnaphthalene	62	2.0	80.00	0	76.9	34.2	94.5			
Benzo(a)pyrene	0.44	0.070	0.5020	0	87.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		67.6	37.2	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22262		SampType: MBLK		TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW		Batch ID: 22262		RunNo: 30113					
Prep Date:	11/10/2015		Analysis Date: 11/10/2015		SeqNo: 917445		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-22262		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 22262		RunNo: 30113					
Prep Date:	11/10/2015		Analysis Date: 11/10/2015		SeqNo: 917446		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	91.2	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R30469		SampType: MBLK		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	PBW		Batch ID: R30469		RunNo: 30469					
Prep Date:			Analysis Date: 11/16/2015		SeqNo: 930041		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	LCS-R30469		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R30469		RunNo: 30469					
Prep Date:			Analysis Date: 11/16/2015		SeqNo: 930042		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.508		0.5000	0	102	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R30469		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R30469		RunNo: 30469					
Prep Date:			Analysis Date: 11/16/2015		SeqNo: 930044		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	ND	0.977								
Radium-226 ±	ND	0.977								
Radium-228	ND	0.693								
Radium-228 ±	ND	0.693								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22194		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 22194		RunNo: 30073					
Prep Date:	11/5/2015		Analysis Date: 11/7/2015		SeqNo: 916141		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-22194		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 22194		RunNo: 30073					
Prep Date:	11/5/2015		Analysis Date: 11/7/2015		SeqNo: 916142		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **NAVAJO REFINING COM**

Work Order Number: **1511135**

RcptNo: **1**

Received by/date:

JA

11/04/15

Logged By: **Lindsay Mangin**

11/4/2015 9:05:00 AM

[Signature]

Completed By: **Lindsay Mangin**

11/4/2015 10:47:07 AM

[Signature]

Reviewed By:

[Signature]

11/05/15

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

of preserved bottles checked for pH: *8*
(<2 or >12 unless noted)
Adjusted? *NO*
Checked by: *[Signature]*

Special Handling (if applicable)

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

Person Notified:

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	1.1	Good	Yes			



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

Monthly RO Reject Sample Details Attachment



The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/3/2015 @ 8:56am
End Date and Time	11/3/2015 @ 9:10am

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

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

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

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

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

Container	Size	Material	# of Containers	Preservatives						Other	Analysis and/or Method Requested pH, Cl, F, SO ₄ , NO ₂ /NO ₃ , TDS
				Neat	HCL	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	NaHSO ₄	
1	500ml	Plastic	2	X			X				8015 GRO
2	40ml	VOA	3		X						6020 total metals, 7470 Hg
3	500ml	Plastic	1			X					6020 Dissolved Metals
4	125ml	Plastic	1			X					Cyanide
5	500ml	Plastic	2					X			Radium 226/228
6	1L	Plastic	3			X					8260 see attached list
7	40ml	VOA	2		X						8082 PCBs
8	1L	Glass	1	X							8015 DRO
9	1L	Glass	2	X							Radium 226/228
10	40ml	VOA	2	X							
11	40ml	VOA	2		X						

Field Data (Weather, Observations, Etc):	11/3/2015 Temp. 57.2, Humidity 67%, Wind Dir. SSE, Wind Speed 5.8 mph, Conditions Clear
--	---

Date and Time:	
----------------	--

Storage Method	Ice ☒
Refrigerated	☐
Other	☐

Field Temp. 22.1C	Field pH 7.85
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Shipping Media	Ice ☒
Other	☐



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

November 25, 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.: 1511141

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511141

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 11/3/2015 9:20:00 AM

Lab ID: 1511141-001

Matrix: AQUEOUS

Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	11/18/2015 12:50:57 PM	B30317
Lead	ND	0.00050		mg/L	1	11/18/2015 12:30:23 PM	B30317
Selenium	0.0098	0.0010		mg/L	1	11/18/2015 12:30:23 PM	B30317
Uranium	0.0051	0.00050		mg/L	1	11/18/2015 12:30:23 PM	B30317
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.2	0.952		pCi/L	1	11/16/2015	R30473
Radium-226 ±	0.761	0.952		pCi/L	1	11/16/2015	R30473
Radium-228	0.0442	0.929		pCi/L	1	11/16/2015	R30473
Radium-228 ±	0.403	0.929		pCi/L	1	11/16/2015	R30473
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.2	0.10		mg/L	1	11/4/2015 7:41:19 PM	R30015
Chloride	42	10		mg/L	20	11/4/2015 7:53:44 PM	R30015
Nitrogen, Nitrate (As N)	1.8	0.10		mg/L	1	11/4/2015 7:41:19 PM	R30015
Sulfate	1500	25		mg/L	50	11/18/2015 8:38:32 PM	R30349
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3050	20.0	*	mg/L	1	11/7/2015 10:19:00 AM	22194
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	11/18/2015	R30473
SM4500-H+B: PH							Analyst: JRR
pH	7.87	1.68	H	pH units	1	11/5/2015 4:52:07 PM	R30047
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED
Aluminum	ND	0.020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Barium	0.060	0.0020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Boron	0.086	0.040		mg/L	1	11/13/2015 4:23:54 PM	B30225
Cadmium	ND	0.0020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Chromium	ND	0.0060		mg/L	1	11/13/2015 4:23:54 PM	B30225
Cobalt	ND	0.0060		mg/L	1	11/13/2015 4:23:54 PM	B30225
Copper	ND	0.0060		mg/L	1	11/13/2015 4:23:54 PM	B30225
Iron	ND	0.020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Manganese	ND	0.0020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Molybdenum	ND	0.0080		mg/L	1	11/13/2015 4:23:54 PM	B30225
Nickel	ND	0.010		mg/L	1	11/13/2015 4:23:54 PM	B30225
Silver	ND	0.0050		mg/L	1	11/13/2015 4:23:54 PM	B30225
Zinc	0.17	0.010		mg/L	1	11/13/2015 4:23:54 PM	B30225
EPA METHOD 245.1: MERCURY							Analyst: DBD
Mercury	ND	0.00020		mg/L	1	11/13/2015 6:17:36 PM	22341

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511141

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 11/3/2015 9:20:00 AM

Lab ID: 1511141-001

Matrix: AQUEOUS

Received Date: 11/4/2015 9:05:00 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	11/6/2015 3:15:26 PM	22172
EPA METHOD 8082: PCB'S							Analyst: JDC
Aroclor 1016	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1221	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1232	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1242	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1248	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1254	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1260	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Surr: Decachlorobiphenyl	108	17.7-151		%REC	1	11/6/2015 7:11:33 PM	22197
Surr: Tetrachloro-m-xylene	85.6	20.6-151		%REC	1	11/6/2015 7:11:33 PM	22197
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2015 3:59:05 PM	22175
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2015 3:59:05 PM	22175
Surr: DNOP	127	72-136		%REC	1	11/6/2015 3:59:05 PM	22175
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/5/2015 11:21:46 AM	R30036
Surr: BFB	79.3	57.8-137		%REC	1	11/5/2015 11:21:46 AM	R30036
EPA METHOD 8310: PAHS							Analyst: JDC
Naphthalene	ND	2.0		µg/L	1	11/6/2015 6:15:12 PM	22195
1-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 6:15:12 PM	22195
2-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 6:15:12 PM	22195
Benzo(a)pyrene	ND	0.070		µg/L	1	11/6/2015 6:15:12 PM	22195
Surr: Benzo(e)pyrene	77.6	37.2-136		%REC	1	11/6/2015 6:15:12 PM	22195
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511141

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 11/3/2015 9:20:00 AM

Lab ID: 1511141-001

Matrix: AQUEOUS

Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Vinyl chloride	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Xylenes, Total	ND	1.5		µg/L	1	11/6/2015 4:32:31 PM	R30086
Surr: 1,2-Dichloroethane-d4	92.3	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
Surr: 4-Bromofluorobenzene	95.4	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
Surr: Dibromofluoromethane	103	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
Surr: Toluene-d8	96.1	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
TOTAL PHENOLICS BY SW-846 9067				Analyst: SCC			
Phenolics, Total Recoverable	ND	2.5		µg/L	1	11/10/2015	22262

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511141

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1511141-002

Matrix: TRIP BLANK

Received Date: 11/4/2015 9:05:00 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	11/6/2015 3:29:07 PM	22172
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Naphthalene	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Acetone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromodichloromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromoform	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromomethane	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Butanone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Carbon disulfide	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chloroethane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chloromethane	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
4-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
cis-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Dibromochloromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Dibromomethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511141

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1511141-002

Matrix: TRIP BLANK

Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,3-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2,2-Dichloropropane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Hexachlorobutadiene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Hexanone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Isopropylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
4-Isopropyltoluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
4-Methyl-2-pentanone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
n-Butylbenzene	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
n-Propylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
sec-Butylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Styrene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
tert-Butylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
trans-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Trichlorofluoromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Vinyl chloride	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Xylenes, Total	ND	1.5		µg/L	1	11/6/2015 5:01:09 PM	R30086
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086
Surr: 4-Bromofluorobenzene	99.2	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086
Surr: Dibromofluoromethane	98.8	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086
Surr: Toluene-d8	100	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B30225		RunNo: 30225							
Prep Date:	Analysis Date: 11/13/2015		SeqNo: 921063		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 LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B30225		RunNo: 30225							
Prep Date:	Analysis Date: 11/13/2015		SeqNo: 921064		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	90.0	50	150			
Barium	0.0021	0.0020	0.002000	0	105	50	150			
Boron	0.041	0.040	0.04000	0	102	50	150			
Cadmium	ND	0.0020	0.002000	0	94.0	50	150			
Chromium	0.0061	0.0060	0.006000	0	101	50	150			
Cobalt	0.0063	0.0060	0.006000	0	105	50	150			
Copper	ND	0.0060	0.006000	0	93.2	50	150			
Iron	0.025	0.020	0.02000	0	127	50	150			
Manganese	0.0022	0.0020	0.002000	0	108	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	ND	0.010	0.005000	0	108	50	150			
Silver	0.0053	0.0050	0.005000	0	106	50	150			
Zinc	ND	0.010	0.005000	0	102	50	150			

Sample ID LCS-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B30225		RunNo: 30225							
Prep Date:	Analysis Date: 11/13/2015		SeqNo: 921065		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	101	85	115			
Barium	0.48	0.0020	0.5000	0	96.6	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	LCSW		Batch ID: B30225		RunNo: 30225						
Prep Date:			Analysis Date: 11/13/2015		SeqNo: 921065		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	0.50	0.040	0.5000	0	100	85	115				
Cadmium	0.48	0.0020	0.5000	0	97.0	85	115				
Chromium	0.48	0.0060	0.5000	0	96.3	85	115				
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115				
Copper	0.47	0.0060	0.5000	0	94.8	85	115				
Iron	0.49	0.020	0.5000	0	97.5	85	115				
Manganese	0.47	0.0020	0.5000	0	93.8	85	115				
Molybdenum	0.50	0.0080	0.5000	0	101	85	115				
Nickel	0.46	0.010	0.5000	0	92.0	85	115				
Silver	0.099	0.0050	0.1000	0	99.2	85	115				
Zinc	0.48	0.010	0.5000	0	96.1	85	115				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-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: B30317			RunNo: 30317						
Prep Date:	Analysis Date: 11/18/2015			SeqNo: 925053		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.012	0.00050	0.01250	0	96.6	85	115			
Selenium	0.026	0.0010	0.02500	0	102	85	115			
Uranium	0.012	0.00050	0.01250	0	96.9	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: B30317			RunNo: 30317						
Prep Date:	Analysis Date: 11/18/2015			SeqNo: 925054		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	105	50	150			
Lead	ND	0.00050	0.0005000	0	99.5	50	150			
Selenium	0.0010	0.0010	0.001000	0	101	50	150			
Uranium	ND	0.00050	0.0005000	0	97.4	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: B30317			RunNo: 30317						
Prep Date:	Analysis Date: 11/18/2015			SeqNo: 925055		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22341		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 22341		RunNo: 30233					
Prep Date:	11/13/2015		Analysis Date: 11/13/2015		SeqNo: 921328		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-22341		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 22341		RunNo: 30233					
Prep Date:	11/13/2015		Analysis Date: 11/13/2015		SeqNo: 921336		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0061	0.00020	0.005000	0	121	80	120			S

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-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: R30015		RunNo: 30015							
Prep Date:	Analysis Date: 11/4/2015		SeqNo: 914384		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: R30015		RunNo: 30015							
Prep Date:	Analysis Date: 11/4/2015		SeqNo: 914385		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	96.1	90	110			
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R30349		RunNo: 30349							
Prep Date:	Analysis Date: 11/18/2015		SeqNo: 926243		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R30349		RunNo: 30349							
Prep Date:	Analysis Date: 11/18/2015		SeqNo: 926244		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	95.7	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22172		SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	PBW		Batch ID: 22172		RunNo: 30082					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916394		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-22172			SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB			
Client ID:	LCSW			Batch ID:	22172		RunNo:	30082			
Prep Date:	11/5/2015			Analysis Date:	11/6/2015		SeqNo:	916395		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.044	0.010	0.05000	0	88.0	70	130				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22175	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 22175			RunNo: 30057					
Prep Date:	11/4/2015	Analysis Date: 11/6/2015			SeqNo: 915909		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		113	72	136			

Sample ID	LCS-22175		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 22175		RunNo: 30057					
Prep Date:	11/4/2015		Analysis Date: 11/6/2015		SeqNo: 915910		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	52.4	154			
Surr: DNOP	0.55		0.5000		111	72	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-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: R30036		RunNo: 30036							
Prep Date:	Analysis Date: 11/5/2015		SeqNo: 915111		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	16		20.00		79.4	57.8	137			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R30036		RunNo: 30036							
Prep Date:	Analysis Date: 11/5/2015		SeqNo: 915112		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	88.0	80	120			
Surr: BFB	20		20.00		98.3	57.8	137			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22197	SampType: MBLK			TestCode: EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID: 22197			RunNo: 30067					
Prep Date:	11/5/2015	Analysis Date: 11/6/2015			SeqNo: 916012		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	2.4		2.500		96.4	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		82.0	20.6	151			

Sample ID	LCS-22197		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 22197		RunNo: 30067					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916013		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.3	1.0	5.000	0	45.2	9.01	142			
Aroclor 1260	4.3	1.0	5.000	0	86.6	25.6	164			
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		80.8	20.6	151			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 100ng lcs3	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R30086			RunNo: 30086						
Prep Date:	Analysis Date: 11/6/2015			SeqNo: 916525		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	111	70	130			
Toluene	21	1.0	20.00	0	107	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	109	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R30086			RunNo: 30086						
Prep Date:	Analysis Date: 11/6/2015			SeqNo: 916527		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R30086			RunNo: 30086						
Prep Date:	Analysis Date: 11/6/2015			SeqNo: 916527	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb3	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R30086			RunNo: 30086						
Prep Date:	Analysis Date: 11/6/2015			SeqNo: 916527		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22195	SampType: MBLK		TestCode: EPA Method 8310: PAHs						
Client ID:	PBW	Batch ID: 22195		RunNo: 30048						
Prep Date:	11/5/2015	Analysis Date: 11/6/2015		SeqNo: 916008		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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	15		20.00		74.1	37.2	136			

Sample ID	LCS-22195		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 22195		RunNo: 30048					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916020		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	61	2.0	80.00	0	76.4	57.8	83.9			
1-Methylnaphthalene	64	2.0	80.20	0	80.0	43.5	88.5			
2-Methylnaphthalene	62	2.0	80.00	0	76.9	34.2	94.5			
Benzo(a)pyrene	0.44	0.070	0.5020	0	87.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		67.6	37.2	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22262	SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW	Batch ID:	22262		RunNo:	30113				
Prep Date:	11/10/2015	Analysis Date:	11/10/2015		SeqNo:	917445	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-22262		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 22262		RunNo: 30113					
Prep Date:	11/10/2015		Analysis Date: 11/10/2015		SeqNo: 917446		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	91.2	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-R30473		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R30473		RunNo:	30473				
Prep Date:			Analysis Date:	11/18/2015		SeqNo:	930194		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R30473		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R30473		RunNo: 30473					
Prep Date:			Analysis Date: 11/18/2015		SeqNo: 930195		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.508		0.5000	0	102	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-R30473		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R30473		RunNo:	30473			
Prep Date:			Analysis Date:	11/16/2015		SeqNo:	930255	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.343	0.968								
Radium-226 ±	0.575	0.968								
Radium-228	-0.119	0.821								
Radium-228 ±	0.339	0.821								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511141

25-Nov-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22194		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 22194		RunNo: 30073					
Prep Date:	11/5/2015		Analysis Date: 11/7/2015		SeqNo: 916141		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-22194		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 22194		RunNo: 30073					
Prep Date:	11/5/2015		Analysis Date: 11/7/2015		SeqNo: 916142		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **NAVAJO REFINING COM**

Work Order Number: **1511141**

RcptNo: **1**

Received by/date:

SA 11/04/15

Logged By: **Lindsay Mangin**

11/4/2015 9:05:00 AM

Lindsay Mangin

Completed By: **Lindsay Mangin**

11/4/2015 12:07:55 PM

Lindsay Mangin

Reviewed By:

SA

11/05/15

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

of preserved bottles checked for pH: *7*
(2 or 12 unless noted)
Adjusted? *NO*
Checked by: *SA*

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			



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

Monthly Temporary RO Reject Sample Details



HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/3/2015 @ 9:15am
End Date and Time	11/3/2015 @ 9:30am

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

Parts / Sample Intervals	One
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Physical Property	Solid ☐
	Liquid ☒
	Sludge ☐

Type of Sampler	Directly to sample jars
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Outfall / Sample Location:	☐ North Field R.O. Reject Discharge	☒ South Field R.O. Reject Discharge
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Container	Size	Material	# of Containers	Preservatives							Analysis and/or Method Requested pH, Cl, F, SO4, NO2/NO3, TDS
				Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	
1	500ml	Plastic	2	X			X				8015 GRO
2	40ml	VOA	3		X						6020 total metals, 7470 Hg
3	500ml	Plastic	1			X					6020 Dissolved Metals
4	125ml	Plastic	1			X					Cyanide Radium 226/228 8260 see attached list 8270 see attached list
5	500ml	Plastic	2					X			
6	1L	Plastic	3			X					
7	40ml	VOA	2		X						8082 PCBs
8	1L	Glass	1	X							8015 DRO
9	1L	Glass	2	X							Radium 226/228
10	40ml	VOA	2	X							
11	40ml	VOA	2		X						

Field Data (Weather, Observations, Etc.):	11/3/2015 Temp: 59.0°F, Humidity 63%, Wind Dir. SSE, Wind Speed 6.9mph, Conditions Clear
Date and Time:	

Field Temp: 22.1C	Field pH 7.84
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Storage Method	Ice ☒
	Refrigerated ☐
	Other ☐

Shipping Media	Ice ☒
	Other ☐



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

January 06, 2016

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

RE: Monthly RO Reject

OrderNo.: 1512236

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512236

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 12/3/2015 9:00:00 AM

Lab ID: 1512236-001

Matrix: AQUEOUS

Received Date: 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	12/11/2015 2:30:12 PM	A30798
Lead	ND	0.00050		mg/L	1	12/9/2015 9:48:48 PM	B30746
Selenium	0.0054	0.0010		mg/L	1	12/9/2015 9:48:48 PM	B30746
Uranium	0.0032	0.00050		mg/L	1	12/9/2015 9:48:48 PM	B30746
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.207	0.980		pCi/L	1	12/17/2016	R31278
Radium-226 ±	0.543	0.980		pCi/L	1	12/17/2016	R31278
Radium-228	0.194	0.680		pCi/L	1	12/17/2016	R31278
Radium-228 ±	0.311	0.680		pCi/L	1	12/17/2016	R31278
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.2	2.0		mg/L	20	12/5/2015 3:40:40 AM	A30652
Chloride	110	25		mg/L	50	12/23/2015 3:12:14 AM	A31049
Sulfate	980	25		mg/L	50	12/23/2015 3:12:14 AM	A31049
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	12/23/2015 3:37:03 AM	R31049
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: SRM
Total Dissolved Solids	1970	20.0	*	mg/L	1	12/13/2015 1:47:00 PM	22696
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	12/9/2015	R31007
SM4500-H+B: PH							Analyst: MRA
pH	7.86	1.68	H	pH units	1	12/7/2015 1:38:04 PM	R30658
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Barium	0.035	0.0020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Boron	0.094	0.040		mg/L	1	12/8/2015 8:30:22 PM	B30690
Cadmium	ND	0.0020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Chromium	ND	0.0060		mg/L	1	12/14/2015 2:34:53 PM	B30821
Cobalt	ND	0.0060		mg/L	1	12/8/2015 8:30:22 PM	B30690
Copper	ND	0.0060		mg/L	1	12/8/2015 8:30:22 PM	B30690
Iron	ND	0.020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Manganese	ND	0.0020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Molybdenum	ND	0.0080		mg/L	1	12/17/2015 2:18:43 PM	B30929
Nickel	ND	0.010		mg/L	1	12/8/2015 8:30:22 PM	B30690
Silver	ND	0.0050		mg/L	1	12/8/2015 8:30:22 PM	B30690
Zinc	0.020	0.010		mg/L	1	12/17/2015 2:18:43 PM	B30929
EPA METHOD 245.1: MERCURY							Analyst: DBD
Mercury	ND	0.00020		mg/L	1	12/11/2015 11:02:05 AM	22710

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512236

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 12/3/2015 9:00:00 AM

Lab ID: 1512236-001

Matrix: AQUEOUS

Received Date: 12/4/2015 9:20:00 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	12/9/2015	22664
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1221	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1232	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1242	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1248	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1254	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1260	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Surr: Decachlorobiphenyl	75.6	17.7-151		%REC	1	12/11/2015 1:29:36 PM	22699
Surr: Tetrachloro-m-xylene	55.6	20.6-151		%REC	1	12/11/2015 1:29:36 PM	22699
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/7/2015 1:23:00 PM	22645
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/7/2015 1:23:00 PM	22645
Surr: DNOP	96.8	72-136		%REC	1	12/7/2015 1:23:00 PM	22645
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/10/2015 12:52:34 AM	A30727
Surr: BFB	86.5	49.5-130		%REC	1	12/10/2015 12:52:34 AM	A30727
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	12/11/2015 7:13:46 AM	22700
1-Methylnaphthalene	ND	2.0		µg/L	1	12/11/2015 7:13:46 AM	22700
2-Methylnaphthalene	ND	2.0		µg/L	1	12/11/2015 7:13:46 AM	22700
Benzo(a)pyrene	ND	0.070		µg/L	1	12/11/2015 7:13:46 AM	22700
Surr: Benzo(e)pyrene	67.8	33.4-129		%REC	1	12/11/2015 7:13:46 AM	22700
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Toluene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Ethylbenzene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Carbon Tetrachloride	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Chloroform	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1-Dichloroethane	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1-Dichloroethene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Methylene Chloride	ND	3.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512236

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 12/3/2015 9:00:00 AM

Lab ID: 1512236-001

Matrix: AQUEOUS

Received Date: 12/4/2015 9:20:00 AM

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	12/8/2015 11:07:53 PM	A30709
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Vinyl chloride	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Xylenes, Total	ND	1.5		µg/L	1	12/8/2015 11:07:53 PM	A30709
Surr: 1,2-Dichloroethane-d4	107	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
Surr: Dibromofluoromethane	107	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
Surr: Toluene-d8	99.7	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	12/14/2015	22770

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
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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-B		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	B30690		RunNo:	30690			
Prep Date:			Analysis Date:	12/8/2015		SeqNo:	937145		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								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID	LCS-B		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	B30690		RunNo:	30690			
Prep Date:			Analysis Date:	12/8/2015		SeqNo:	937146		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	101	85	115			
Barium	0.48	0.0020	0.5000	0	96.8	85	115			
Boron	0.49	0.040	0.5000	0	98.4	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.1	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.8	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.49	0.0020	0.5000	0	97.4	85	115			
Nickel	0.48	0.010	0.5000	0	96.2	85	115			
Silver	0.098	0.0050	0.1000	0	97.8	85	115			

Sample ID	LLCS-B		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	B30690		RunNo:	30690			
Prep Date:			Analysis Date:	12/8/2015		SeqNo:	937147		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	91.5	50	150			
Barium	0.0022	0.0020	0.002000	0	109	50	150			
Boron	ND	0.040	0.04000	0	99.4	50	150			
Cadmium	0.0022	0.0020	0.002000	0	109	50	150			
Cobalt	0.0072	0.0060	0.006000	0	120	50	150			
Copper	ND	0.0060	0.006000	0	95.5	50	150			
Iron	0.021	0.020	0.02000	0	104	50	150			
Manganese	0.0021	0.0020	0.002000	0	106	50	150			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B30690		RunNo: 30690					
Prep Date:			Analysis Date: 12/8/2015		SeqNo: 937147		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	149	50	150			
Silver	ND	0.0050	0.005000	0	94.2	50	150			

Sample ID	MB-B		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: B30821		RunNo: 30821					
Prep Date:			Analysis Date: 12/14/2015		SeqNo: 941747		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: B30821		RunNo: 30821					
Prep Date:			Analysis Date: 12/14/2015		SeqNo: 941748		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.51	0.0060	0.5000	0	101	85	115			

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B30821		RunNo: 30821					
Prep Date:			Analysis Date: 12/14/2015		SeqNo: 941749		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.0067	0.0060	0.006000	0	112	50	150			

Sample ID	MB-B		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945585		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	ND	0.0080								
Zinc	ND	0.010								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945586		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.49	0.0080	0.5000	0	98.3	85	115			
Zinc	0.46	0.010	0.5000	0	92.3	85	115			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945587		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.0097	0.0080	0.008000	0	122	50	150			
Zinc	ND	0.010	0.005000	0	101	50	150			

Sample ID	1512236-001GMS		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	R.O. Reject		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945614		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.49	0.0080	0.5000	0.006130	96.0	70	130			
Zinc	0.47	0.010	0.5000	0.01974	89.6	70	130			

Sample ID	1512236-001GMSD		SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	R.O. Reject		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945615		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.50	0.0080	0.5000	0.006130	99.6	70	130	3.67	20	
Zinc	0.48	0.010	0.5000	0.01974	91.4	70	130	1.94	20	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	1512236-001GMSLL		SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	R.O. Reject		Batch ID:	B30746		RunNo:	30746			
Prep Date:			Analysis Date:	12/9/2015		SeqNo:	939236		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	104	70	130			
Selenium	0.030	0.0010	0.02500	0.005378	98.7	70	130			
Uranium	0.018	0.00050	0.01250	0.003210	115	70	130			

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW		Batch ID:	B30746		RunNo:	30746			
Prep Date:			Analysis Date:	12/9/2015		SeqNo:	939237		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	97.3	85	115			
Selenium	0.024	0.0010	0.02500	0	96.0	85	115			
Uranium	0.012	0.00050	0.01250	0	98.1	85	115			

Sample ID	LLLCS		SampType:	LCSLL		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	B30746		RunNo:	30746			
Prep Date:			Analysis Date:	12/9/2015		SeqNo:	939238		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050	0.0005000	0	99.9	50	150			
Selenium	ND	0.0010	0.001000	0	97.8	50	150			
Uranium	ND	0.00050	0.0005000	0	97.3	50	150			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	B30746		RunNo:	30746			
Prep Date:			Analysis Date:	12/9/2015		SeqNo:	939239		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	1512236-001GMSLL		SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	R.O. Reject		Batch ID:	A30798		RunNo:	30798			
Prep Date:			Analysis Date:	12/11/2015		SeqNo:	941037		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.001076	101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A30798		RunNo: 30798					
Prep Date:			Analysis Date: 12/11/2015		SeqNo: 941051		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.6	85	115			

Sample ID	LLLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A30798		RunNo: 30798					
Prep Date:			Analysis Date: 12/11/2015		SeqNo: 941054		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	94.6	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A30798			RunNo: 30798					
Prep Date:		Analysis Date: 12/11/2015			SeqNo: 941056		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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22710	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	22710	RunNo:	30788					
Prep Date:	12/9/2015	Analysis Date:	12/11/2015	SeqNo:	940469	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-22710	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	22710	RunNo:	30788					
Prep Date:	12/9/2015	Analysis Date:	12/11/2015	SeqNo:	940470	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBW		Batch ID: A30652		RunNo: 30652					
Prep Date:			Analysis Date: 12/5/2015		SeqNo: 936397		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: A30652		RunNo: 30652					
Prep Date:			Analysis Date: 12/5/2015		SeqNo: 936398		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			

Sample ID	MB		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBW		Batch ID: R31049		RunNo: 31049					
Prep Date:			Analysis Date: 12/22/2015		SeqNo: 949718		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R31049		RunNo: 31049					
Prep Date:			Analysis Date: 12/22/2015		SeqNo: 949719		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Sample ID	MB		SampType: MBLK		TestCode: EPA Method 300.0: Anions					
Client ID:	PBW		Batch ID: A31049		RunNo: 31049					
Prep Date:			Analysis Date: 12/23/2015		SeqNo: 949774		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: A31049		RunNo: 31049					
Prep Date:			Analysis Date: 12/23/2015		SeqNo: 949775		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Sulfate	10	0.50	10.00	0	99.7	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22664		SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	PBW		Batch ID: 22664		RunNo: 30705					
Prep Date:	12/8/2015		Analysis Date: 12/9/2015		SeqNo: 937923		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-22664		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 22664		RunNo: 30705					
Prep Date:	12/8/2015		Analysis Date: 12/9/2015		SeqNo: 937924		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.10	0.010	0.1000	0	101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22645		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 22645		RunNo: 30655					
Prep Date:	12/7/2015		Analysis Date: 12/7/2015		SeqNo: 936459		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	0.98		1.000		98.3	72	136			

Sample ID	LCS-22645		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 22645		RunNo: 30655					
Prep Date:	12/7/2015		Analysis Date: 12/7/2015		SeqNo: 936460		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.9	1.0	5.000	0	97.6	52.4	154			
Surr: DNOP	0.44		0.5000		87.9	72	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

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: A30727		RunNo: 30727					
Prep Date:			Analysis Date: 12/9/2015		SeqNo: 938906		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		92.4	49.5	130			

Sample ID	2.5UG GRO LCS	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID: A30727			RunNo: 30727					
Prep Date:		Analysis Date: 12/9/2015			SeqNo: 938907		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	80	120			
Surr: BFB	23		20.00		113	49.5	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22699		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 22699		RunNo: 30771					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 939925		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	2.0		2.500		78.4	17.7	151			
Surr: Tetrachloro-m-xylene	1.1		2.500		44.0	20.6	151			

Sample ID	LCS-22699		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 22699		RunNo: 30771					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 940026		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.0	1.0	5.000	0	39.4	9.01	142			
Aroclor 1260	3.0	1.0	5.000	0	59.3	25.6	164			
Surr: Decachlorobiphenyl	1.8		2.500		73.2	17.7	151			
Surr: Tetrachloro-m-xylene	1.1		2.500		43.2	20.6	151			

Sample ID	1512236-001DMS		SampType: MS		TestCode: EPA Method 8082: PCB's					
Client ID:	R.O. Reject		Batch ID: 22699		RunNo: 30771					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 940884		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	44.7	14.5	105			
Aroclor 1260	3.8	1.0	5.000	0	76.3	21.4	125			
Surr: Decachlorobiphenyl	2.1		2.500		84.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.5		2.500		61.2	20.6	151			

Sample ID	1512236-001DMSD		SampType: MSD		TestCode: EPA Method 8082: PCB's					
Client ID:	R.O. Reject		Batch ID: 22699		RunNo: 30771					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 940885		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.1	1.0	5.000	0	41.4	14.5	105	7.72	20	
Aroclor 1260	3.4	1.0	5.000	0	68.9	21.4	125	10.2	27.6	
Surr: Decachlorobiphenyl	1.9		2.500		77.6	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.4		2.500		55.6	20.6	151	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: A30709			RunNo: 30709					
Prep Date:		Analysis Date: 12/8/2015			SeqNo: 937841	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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES				
Client ID:	PBW	Batch ID: A30709				RunNo: 30709				
Prep Date:		Analysis Date: 12/8/2015				SeqNo: 937841	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	100ng lcs	SampType: LCS				TestCode: EPA Method 8260B: VOLATILES				
Client ID:	LCSW	Batch ID: A30709				RunNo: 30709				
Prep Date:		Analysis Date: 12/8/2015				SeqNo: 937842	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	22	1.0	20.00	0	109	70	130			
Chlorobenzene	22	1.0	20.00	0	110	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: A30709			RunNo: 30709					
Prep Date:		Analysis Date: 12/8/2015			SeqNo: 937842		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	22	1.0	20.00	0	110	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-22700	SampType: MBLK		TestCode: EPA Method 8310: PAHs							
Client ID: PBW	Batch ID: 22700		RunNo: 30775							
Prep Date: 12/9/2015	Analysis Date: 12/11/2015		SeqNo: 940029		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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	13		20.00		63.6	33.4	129			

Sample ID LCS-22700	SampType: LCS		TestCode: EPA Method 8310: PAHs							
Client ID: LCSW	Batch ID: 22700		RunNo: 30775							
Prep Date: 12/9/2015	Analysis Date: 12/11/2015		SeqNo: 940030		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	69	2.0	80.00	0	86.7	54.6	110			
1-Methylnaphthalene	69	2.0	80.20	0	86.6	49.1	116			
2-Methylnaphthalene	69	2.0	80.00	0	86.8	52.5	111			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	62	107			
Surr: Benzo(e)pyrene	13		20.00		66.6	33.4	129			

Sample ID 1512236-001DMS	SampType: MS		TestCode: EPA Method 8310: PAHs							
Client ID: R.O. Reject	Batch ID: 22700		RunNo: 30775							
Prep Date: 12/9/2015	Analysis Date: 12/11/2015		SeqNo: 940035		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	67	2.0	80.00	0	83.3	21.6	109			
1-Methylnaphthalene	69	2.0	80.20	0	85.5	15.8	102			
2-Methylnaphthalene	68	2.0	80.00	0	85.2	11.4	99			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	25	123			
Surr: Benzo(e)pyrene	14		20.00		68.2	33.4	129			

Sample ID 1512236-001DMSD	SampType: MSD		TestCode: EPA Method 8310: PAHs							
Client ID: R.O. Reject	Batch ID: 22700		RunNo: 30775							
Prep Date: 12/9/2015	Analysis Date: 12/11/2015		SeqNo: 940036		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	57	2.0	80.00	0	70.8	21.6	109	16.2	20	
1-Methylnaphthalene	58	2.0	80.20	0	72.2	15.8	102	16.9	20	
2-Methylnaphthalene	58	2.0	80.00	0	72.2	11.4	99	16.5	20	
Benzo(a)pyrene	0.39	0.070	0.5020	0	77.7	25	123	14.3	20	
Surr: Benzo(e)pyrene	12		20.00		57.8	33.4	129	0		

Qualifiers:

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

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22770		SampType: MBLK		TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW		Batch ID: 22770		RunNo: 30802					
Prep Date:	12/14/2015		Analysis Date: 12/14/2015		SeqNo: 941057		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-22770		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 22770		RunNo: 30802					
Prep Date:	12/14/2015		Analysis Date: 12/14/2015		SeqNo: 941058		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	111	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R31007		SampType: MBLK		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	PBW		Batch ID: R31007		RunNo: 31007					
Prep Date:			Analysis Date: 12/9/2015		SeqNo: 948210		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	LCS-R31007		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R31007		RunNo: 31007					
Prep Date:			Analysis Date: 12/9/2015		SeqNo: 948211		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.504		0.5000	0	101	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R31278		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R31278		RunNo:	31278			
Prep Date:			Analysis Date:	12/17/2016		SeqNo:	957749	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.341	0.735								
Radium-226 ±	0.446	0.735								
Radium-228	0.0606	0.609								
Radium-228 ±	0.268	0.609								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

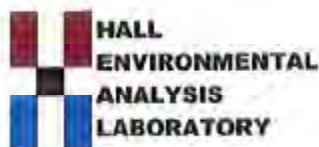
Sample ID	MB-22696		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 22696		RunNo: 30818					
Prep Date:	12/9/2015		Analysis Date: 12/13/2015		SeqNo: 941671		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-22696		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 22696		RunNo: 30818					
Prep Date:	12/9/2015		Analysis Date: 12/13/2015		SeqNo: 941672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	101	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit



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: 1512236

RcptNo: 1

Received by/date:

JA

12/04/15

Logged By: Celina Sessa

12/4/2015 9:20:00 AM

Celina Sessa

Completed By: Celina Sessa

12/4/2015 2:30:37 PM

Celina Sessa

Reviewed By:

AG

12/04/15

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 $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

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?

Yes ☒

No ☐

(If no, notify customer for authorization.)

of preserved
bottles checked
for pH:

6

(≤ 2 or ≤ 12 unless noted)

Adjusted?

No

Checked by:

JA

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			



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

Monthly RO Reject Sample Details Attachment



Project Name	Biannual RO Reject
Samplers Name	Elizabeth Sasberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	12/3/2015 @ 8:55 a.m.
End Date and Time	12/3/2015 @ 9:10 a.m.

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

Physical Property	Solid ☐
	Liquid ☒
	Sludge ☐

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

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

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

Preservatives									
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3
1	500ml	Plastic	2	X			X		
2	40ml	VOA	3		X				
3	500ml	Plastic	1			X			
4	125ml	Plastic	1			X			
5	500ml	Plastic	2					X	
6	1L	Plastic	3			X			
7	40ml	VOA	2		X				
8	1L	Glass	1	X					
9	1L	Glass	2	X					
10	40ml	VOA	2	X					
11	40ml	VOA	2		X				

Analysis and/or Method Requested			
pH, Cl, F, SO4, NO2/NO3, TDS			
8015 GRO			
6020 total metals, 7470 Hg			
6020 Dissolved Metals			
Cyanide			
Radium 226/228			
8260 see attached list			
8270 see attached list			
8082 PCBs			
8015 DRO			
Radium 226/228			

Field Data (Weather, Observations, Etc):	12/3/2015 Temp. 35.6 °F, Humidity 70%, Wind Dir. North, Wind Speed 6.9 mph, Conditions: Clear
Date and Time:	

Field Temp. 62.5F Field pH 7.46

Storage Method	Ice ☒
	Refrigerated ☐
	Other ☐

Shipping Media	Ice ☒
	Other ☐



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

January 06, 2016

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

RE: Monthly Temporary RO Reject

OrderNo.: 1512238

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512238

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 12/3/2015 9:30:00 AM

Lab ID: 1512238-001

Matrix: AQUEOUS

Received Date: 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0010		mg/L	1	12/11/2015 2:40:29 PM	A30798
Lead	ND	0.00050		mg/L	1	12/11/2015 2:40:29 PM	A30798
Selenium	ND	0.0010		mg/L	1	12/11/2015 2:40:29 PM	A30798
Uranium	ND	0.00050		mg/L	1	12/11/2015 2:40:29 PM	A30798
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.44	0.825		pCi/L	1	12/17/2016	R31278
Radium-226 ±	0.725	0.825		pCi/L	1	12/17/2016	R31278
Radium-228	0.534	0.587		pCi/L	1	12/17/2016	R31278
Radium-228 ±	0.304	0.587		pCi/L	1	12/17/2016	R31278
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.5	0.10		mg/L	1	12/5/2015 4:17:53 AM	A30652
Chloride	53	25		mg/L	50	12/23/2015 3:24:38 AM	A31049
Sulfate	1300	25		mg/L	50	12/23/2015 3:24:38 AM	A31049
Nitrate+Nitrite as N	1.7	1.0		mg/L	5	12/23/2015 3:49:28 AM	R31049
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: SRM
Total Dissolved Solids	2550	20.0	*	mg/L	1	12/13/2015 1:47:00 PM	22696
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	12/15/2015	R31009
SM4500-H+B: PH							Analyst: MRA
pH	7.92	1.68	H	pH units	1	12/7/2015 1:42:27 PM	R30658
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	12/14/2015 2:36:49 PM	B30821
Barium	ND	0.0020		mg/L	1	12/14/2015 2:36:49 PM	B30821
Boron	ND	0.040		mg/L	1	12/14/2015 2:36:49 PM	B30821
Cadmium	ND	0.0020		mg/L	1	12/16/2015 3:13:38 PM	B30889
Chromium	ND	0.0060		mg/L	1	12/14/2015 2:36:49 PM	B30821
Cobalt	ND	0.0060		mg/L	1	12/14/2015 2:36:49 PM	B30821
Copper	0.014	0.0060		mg/L	1	12/14/2015 2:36:49 PM	B30821
Iron	ND	0.020		mg/L	1	12/14/2015 2:36:49 PM	B30821
Manganese	ND	0.0020		mg/L	1	12/14/2015 2:36:49 PM	B30821
Molybdenum	ND	0.0080		mg/L	1	12/17/2015 2:24:13 PM	B30929
Nickel	ND	0.010		mg/L	1	12/16/2015 3:13:38 PM	B30889
Silver	ND	0.0050		mg/L	1	12/17/2015 2:24:13 PM	B30929
Zinc	0.021	0.010		mg/L	1	12/16/2015 3:13:38 PM	B30889
EPA METHOD 245.1: MERCURY							Analyst: DBD
Mercury	ND	0.00020		mg/L	1	12/11/2015 11:08:25 AM	22710

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512238

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 12/3/2015 9:30:00 AM

Lab ID: 1512238-001

Matrix: AQUEOUS

Received Date: 12/4/2015 9:20:00 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	12/9/2015	22664
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Aroclor 1221	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Aroclor 1232	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Aroclor 1242	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Aroclor 1248	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Aroclor 1254	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Aroclor 1260	ND	1.0		µg/L	1	12/11/2015 4:36:04 PM	22699
Surr: Decachlorobiphenyl	73.2	17.7-151		%REC	1	12/11/2015 4:36:04 PM	22699
Surr: Tetrachloro-m-xylene	53.2	20.6-151		%REC	1	12/11/2015 4:36:04 PM	22699
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/7/2015 2:27:15 PM	22645
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/7/2015 2:27:15 PM	22645
Surr: DNOP	92.8	72-136		%REC	1	12/7/2015 2:27:15 PM	22645
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/10/2015 1:17:04 AM	A30727
Surr: BFB	85.9	49.5-130		%REC	1	12/10/2015 1:17:04 AM	A30727
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	12/11/2015 8:41:32 AM	22700
1-Methylnaphthalene	ND	2.0		µg/L	1	12/11/2015 8:41:32 AM	22700
2-Methylnaphthalene	ND	2.0		µg/L	1	12/11/2015 8:41:32 AM	22700
Benzo(a)pyrene	ND	0.070		µg/L	1	12/11/2015 8:41:32 AM	22700
Surr: Benzo(e)pyrene	56.1	33.4-129		%REC	1	12/11/2015 8:41:32 AM	22700
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
Toluene	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
Ethylbenzene	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
Carbon Tetrachloride	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
Chloroform	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
1,1-Dichloroethane	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
1,1-Dichloroethene	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
Methylene Chloride	ND	3.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/10/2015 11:52:43 AM R30770	
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM R30770	

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512238

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

Collection Date: 12/3/2015 9:30:00 AM

Lab ID: 1512238-001

Matrix: AQUEOUS

Received Date: 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst: AG		
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM	R30770
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM	R30770
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM	R30770
Vinyl chloride	ND	1.0		µg/L	1	12/10/2015 11:52:43 AM	R30770
Xylenes, Total	ND	1.5		µg/L	1	12/10/2015 11:52:43 AM	R30770
Surr: 1,2-Dichloroethane-d4	108	70-130		%REC	1	12/10/2015 11:52:43 AM	R30770
Surr: 4-Bromofluorobenzene	93.4	70-130		%REC	1	12/10/2015 11:52:43 AM	R30770
Surr: Dibromofluoromethane	93.9	70-130		%REC	1	12/10/2015 11:52:43 AM	R30770
Surr: Toluene-d8	96.6	70-130		%REC	1	12/10/2015 11:52:43 AM	R30770
TOTAL PHENOLICS BY SW-846 9067					Analyst: SCC		
Phenolics, Total Recoverable	ND	2.5		µg/L	1	12/14/2015	22770

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512238

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1512238-002

Matrix: TRIP BLANK

Received Date: 12/4/2015 9:20:00 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	12/9/2015	22664
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Toluene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Ethylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Naphthalene	ND	2.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1-Methylnaphthalene	ND	4.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
2-Methylnaphthalene	ND	4.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Acetone	11	10		µg/L	1	12/10/2015 1:47:44 PM	R30770
Bromobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Bromodichloromethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Bromoform	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Bromomethane	ND	3.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
2-Butanone	ND	10		µg/L	1	12/10/2015 1:47:44 PM	R30770
Carbon disulfide	ND	10		µg/L	1	12/10/2015 1:47:44 PM	R30770
Carbon Tetrachloride	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Chlorobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Chloroethane	ND	2.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Chloroform	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Chloromethane	ND	3.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
2-Chlorotoluene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
4-Chlorotoluene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
cis-1,2-DCE	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Dibromochloromethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Dibromomethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1-Dichloroethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1-Dichloroethene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2-Dichloropropane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512238

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1512238-002

Matrix: TRIP BLANK

Received Date: 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,3-Dichloropropane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
2,2-Dichloropropane	ND	2.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1-Dichloropropene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Hexachlorobutadiene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
2-Hexanone	ND	10		µg/L	1	12/10/2015 1:47:44 PM	R30770
Isopropylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
4-Isopropyltoluene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
4-Methyl-2-pentanone	ND	10		µg/L	1	12/10/2015 1:47:44 PM	R30770
Methylene Chloride	ND	3.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
n-Butylbenzene	ND	3.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
n-Propylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
sec-Butylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Styrene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
tert-Butylbenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
trans-1,2-DCE	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Trichlorofluoromethane	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Vinyl chloride	ND	1.0		µg/L	1	12/10/2015 1:47:44 PM	R30770
Xylenes, Total	ND	1.5		µg/L	1	12/10/2015 1:47:44 PM	R30770
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	12/10/2015 1:47:44 PM	R30770
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	12/10/2015 1:47:44 PM	R30770
Surr: Dibromofluoromethane	104	70-130		%REC	1	12/10/2015 1:47:44 PM	R30770
Surr: Toluene-d8	110	70-130		%REC	1	12/10/2015 1:47:44 PM	R30770

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B30821		RunNo: 30821							
Prep Date:	Analysis Date: 12/14/2015		SeqNo: 941747		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Boron	ND	0.040								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								

Sample ID LCS-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B30821		RunNo: 30821							
Prep Date:	Analysis Date: 12/14/2015		SeqNo: 941748		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Cobalt	0.50	0.0060	0.5000	0	99.5	85	115			
Copper	0.49	0.0060	0.5000	0	98.5	85	115			
Iron	0.53	0.020	0.5000	0	105	85	115			
Manganese	0.50	0.0020	0.5000	0	100	85	115			

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B30821		RunNo: 30821							
Prep Date:	Analysis Date: 12/14/2015		SeqNo: 941749		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	104	50	150			
Boron	ND	0.040	0.04000	0	99.4	50	150			
Chromium	0.0067	0.0060	0.006000	0	112	50	150			
Cobalt	ND	0.0060	0.006000	0	70.0	50	150			
Copper	ND	0.0060	0.006000	0	91.2	50	150			
Iron	0.023	0.020	0.02000	0	114	50	150			
Manganese	0.0022	0.0020	0.002000	0	108	50	150			

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B30821		RunNo: 30821							
Prep Date:	Analysis Date: 12/14/2015		SeqNo: 941846		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: B30821		RunNo: 30821					
Prep Date:			Analysis Date: 12/14/2015		SeqNo: 941847		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.5	85	115			

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B30821		RunNo: 30821					
Prep Date:			Analysis Date: 12/14/2015		SeqNo: 941848		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	93.0	50	150			

Sample ID	MB-B	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: B30889			RunNo: 30889					
Prep Date:		Analysis Date: 12/16/2015			SeqNo: 944219		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Nickel	ND	0.010								
Zinc	ND	0.010								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: B30889		RunNo: 30889					
Prep Date:			Analysis Date: 12/16/2015		SeqNo: 944220		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	98.9	85	115			
Nickel	0.47	0.010	0.5000	0	94.5	85	115			
Zinc	0.48	0.010	0.5000	0	95.7	85	115			

Sample ID	LLCS-B			SampType:	LCSLL			TestCode: EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC			Batch ID:	B30889			RunNo: 30889			
Prep Date:				Analysis Date:	12/16/2015			SeqNo: 944221		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cadmium	ND	0.0020	0.002000	0	78.5	50	150				
Nickel	ND	0.010	0.005000	0	78.8	50	150				
Zinc	ND	0.010	0.005000	0	67.0	50	150				

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	1512238-001GMS			SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	Temporary R.O. Rej			Batch ID:	B30889		RunNo:	30889			
Prep Date:				Analysis Date:	12/16/2015		SeqNo:	944261		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cadmium	0.53	0.0020	0.5000	0	106	70	130				
Nickel	0.50	0.010	0.5000	0	99.2	70	130				
Zinc	0.52	0.010	0.5000	0.02057	100	70	130				

Sample ID	1512238-001GMSD		SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	Temporary R.O. Rej		Batch ID: B30889		RunNo: 30889					
Prep Date:			Analysis Date: 12/16/2015		SeqNo: 944265		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	70	130	3.15	20	
Nickel	0.48	0.010	0.5000	0	95.3	70	130	4.04	20	
Zinc	0.50	0.010	0.5000	0.02057	96.7	70	130	3.48	20	

Sample ID	MB-B		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945585		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	ND	0.0080								
Silver	ND	0.0050								

Sample ID	LCS-B		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945586		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.49	0.0080	0.5000	0	98.3	85	115			
Silver	0.098	0.0050	0.1000	0	98.0	85	115			

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945587		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.0097	0.0080	0.008000	0	122	50	150			
Silver	0.0051	0.0050	0.005000	0	103	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	1512238-001GMS		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	Temporary R.O. Rej		Batch ID: B30929		RunNo: 30929					
Prep Date:			Analysis Date: 12/17/2015		SeqNo: 945617		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.49	0.0080	0.5000	0.003550	97.6	70	130			
Silver	0.10	0.0050	0.1000	0	103	70	130			

Sample ID	1512238-001GMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	Temporary R.O. Rej		Batch ID:	B30929		RunNo:	30929				
Prep Date:			Analysis Date:	12/17/2015		SeqNo:	945621		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Molybdenum	0.49	0.0080	0.5000	0.003550	97.9	70	130	0.380	20		
Silver	0.11	0.0050	0.1000	0	105	70	130	2.48	20		

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

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: A30798			RunNo: 30798						
Prep Date:	Analysis Date: 12/11/2015			SeqNo: 941051		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.6	85	115			
Lead	0.013	0.00050	0.01250	0	101	85	115			
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			
Uranium	0.013	0.00050	0.01250	0	101	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: A30798			RunNo: 30798						
Prep Date:	Analysis Date: 12/11/2015			SeqNo: 941054		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	94.6	50	150			
Lead	0.00052	0.00050	0.0005000	0	103	50	150			
Selenium	ND	0.0010	0.001000	0	90.5	50	150			
Uranium	0.00050	0.00050	0.0005000	0	101	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: A30798			RunNo: 30798						
Prep Date:	Analysis Date: 12/11/2015			SeqNo: 941056		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22710		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 22710		RunNo: 30788					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 940469		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-22710		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 22710		RunNo: 30788					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 940470		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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

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: A30652		RunNo: 30652							
Prep Date:	Analysis Date: 12/5/2015		SeqNo: 936397		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A30652		RunNo: 30652							
Prep Date:	Analysis Date: 12/5/2015		SeqNo: 936398		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			

Sample ID 1512238-001EMS	SampType: MS		TestCode: EPA Method 300.0: Anions							
Client ID: Temporary R.O. Rej	Batch ID: A30652		RunNo: 30652							
Prep Date:	Analysis Date: 12/5/2015		SeqNo: 936404		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.9	0.10	0.5000	2.456	82.0	75.3	111			

Sample ID 1512238-001EMSD	SampType: MSD		TestCode: EPA Method 300.0: Anions							
Client ID: Temporary R.O. Rej	Batch ID: A30652		RunNo: 30652							
Prep Date:	Analysis Date: 12/5/2015		SeqNo: 936405		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.8	0.10	0.5000	2.456	77.0	75.3	111	0.876	20	

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R31049		RunNo: 31049							
Prep Date:	Analysis Date: 12/22/2015		SeqNo: 949718		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R31049		RunNo: 31049							
Prep Date:	Analysis Date: 12/22/2015		SeqNo: 949719		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

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: A31049			RunNo: 31049						
Prep Date:	Analysis Date: 12/23/2015			SeqNo: 949774		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: A31049			RunNo: 31049						
Prep Date:	Analysis Date: 12/23/2015			SeqNo: 949775		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Sulfate	10	0.50	10.00	0	99.7	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22664		SampType: MBLK		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	PBW		Batch ID: 22664		RunNo: 30705					
Prep Date:	12/8/2015		Analysis Date: 12/9/2015		SeqNo: 937923		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-22664		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 22664		RunNo: 30705					
Prep Date:	12/8/2015		Analysis Date: 12/9/2015		SeqNo: 937924		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.10	0.010	0.1000	0	101	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22645		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 22645		RunNo: 30655					
Prep Date:	12/7/2015		Analysis Date: 12/7/2015		SeqNo: 936459		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	0.98		1.000		98.3	72	136			

Sample ID	LCS-22645		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 22645		RunNo: 30655					
Prep Date:	12/7/2015		Analysis Date: 12/7/2015		SeqNo: 936460		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.9	1.0	5.000	0	97.6	52.4	154			
Surr: DNOP	0.44		0.5000		87.9	72	136			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

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: A30727		RunNo: 30727							
Prep Date:	Analysis Date: 12/9/2015		SeqNo: 938906		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		92.4	49.5	130			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: A30727		RunNo: 30727							
Prep Date:	Analysis Date: 12/9/2015		SeqNo: 938907		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	80	120			
Surr: BFB	23		20.00		113	49.5	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22699	SampType: MBLK		TestCode: EPA Method 8082: PCB's						
Client ID:	PBW	Batch ID: 22699		RunNo: 30771						
Prep Date:	12/9/2015	Analysis Date: 12/11/2015		SeqNo: 939925		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	2.0		2.500		78.4	17.7	151			
Surr: Tetrachloro-m-xylene	1.1		2.500		44.0	20.6	151			

Sample ID	LCS-22699			SampType:	LCS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LCSW			Batch ID:	22699		RunNo:	30771			
Prep Date:	12/9/2015			Analysis Date:	12/11/2015		SeqNo:	940026		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	2.0	1.0	5.000	0	39.4	9.01	142				
Aroclor 1260	3.0	1.0	5.000	0	59.3	25.6	164				
Surr: Decachlorobiphenyl	1.8		2.500		73.2	17.7	151				
Surr: Tetrachloro-m-xylene	1.1		2.500		43.2	20.6	151				

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R30770			RunNo: 30770						
Prep Date:	Analysis Date: 12/10/2015			SeqNo: 939923		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	99.6	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.0	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.6	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.7	70	130			
Surr: Toluene-d8	9.6		10.00		96.2	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R30770			RunNo: 30770						
Prep Date:	Analysis Date: 12/10/2015			SeqNo: 939927		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								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R30770			RunNo: 30770						
Prep Date:	Analysis Date: 12/10/2015			SeqNo: 939927		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R30770		RunNo: 30770							
Prep Date:	Analysis Date: 12/10/2015		SeqNo: 939927		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.7		10.00		87.4	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.2	70	130			
Surr: Dibromofluoromethane	8.7		10.00		87.5	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID 1512238-001ams	SampType: MS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: Temporary R.O. Rej	Batch ID: R30770		RunNo: 30770							
Prep Date:	Analysis Date: 12/10/2015		SeqNo: 939930		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	1.0	20.00	0	83.3	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	19	1.0	20.00	0	96.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	95.6	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	87.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.8	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.3	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID 1512238-001amsd	SampType: MSD		TestCode: EPA Method 8260B: VOLATILES							
Client ID: Temporary R.O. Rej	Batch ID: R30770		RunNo: 30770							
Prep Date:	Analysis Date: 12/10/2015		SeqNo: 939931		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.2	70	130	10.2	20	
Toluene	23	1.0	20.00	0	114	70	130	7.19	20	
Chlorobenzene	19	1.0	20.00	0	93.0	70	130	4.00	20	
1,1-Dichloroethene	17	1.0	20.00	0	82.9	70	130	14.2	20	
Trichloroethene (TCE)	19	1.0	20.00	0	94.0	70	130	6.87	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.0		10.00		89.9	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0	
Surr: Toluene-d8	12		10.00		117	70	130	0	0	

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R30770	RunNo:	30770					
Prep Date:		Analysis Date:	12/10/2015	SeqNo:	939958	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.0	70	130			
Toluene	23	1.0	20.00	0	113	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	83.9	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	97.5	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	11		10.00		114	70	130			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22700	SampType: MBLK		TestCode: EPA Method 8310: PAHs						
Client ID:	PBW	Batch ID: 22700		RunNo: 30775						
Prep Date:	12/9/2015	Analysis Date: 12/11/2015		SeqNo: 940029		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								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	13		20.00		63.6	33.4	129			

Sample ID	LCS-22700		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 22700		RunNo: 30775					
Prep Date:	12/9/2015		Analysis Date: 12/11/2015		SeqNo: 940030		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	69	2.0	80.00	0	86.7	54.6	110			
1-Methylnaphthalene	69	2.0	80.20	0	86.6	49.1	116			
2-Methylnaphthalene	69	2.0	80.00	0	86.8	52.5	111			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	62	107			
Surr: Benzo(e)pyrene	13		20.00		66.6	33.4	129			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22770		SampType: MBLK		TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW		Batch ID: 22770		RunNo: 30802					
Prep Date:	12/14/2015		Analysis Date: 12/14/2015		SeqNo: 941057		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-22770		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 22770		RunNo: 30802					
Prep Date:	12/14/2015		Analysis Date: 12/14/2015		SeqNo: 941058		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	111	64.4	135			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-R31009		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R31009		RunNo:	31009				
Prep Date:			Analysis Date:	12/15/2015		SeqNo:	948228		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R31009		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R31009		RunNo: 31009					
Prep Date:			Analysis Date: 12/15/2015		SeqNo: 948229		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.514		0.5000	0	103	90	110			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-R31278		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R31278		RunNo:	31278			
Prep Date:			Analysis Date:	12/17/2016		SeqNo:	957749	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.341	0.735								
Radium-226 ±	0.446	0.735								
Radium-228	0.0606	0.609								
Radium-228 ±	0.268	0.609								

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-22696		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 22696		RunNo: 30818					
Prep Date:	12/9/2015		Analysis Date: 12/13/2015		SeqNo: 941671		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-22696		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 22696		RunNo: 30818					
Prep Date:	12/9/2015		Analysis Date: 12/13/2015		SeqNo: 941672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1000	20.0	1000	0	101	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit



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: 1512238

ReptNo: 1

Received by/date:

JA

12/04/15

Logged By: Celina Sessa

12/4/2015 9:20:00 AM

Celina Sessa

Completed By: Celina Sessa

12/4/2015 3:08:09 PM

Celina Sessa

Reviewed By:

[Signature]

12/07/15

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 $>0^{\circ}\text{C}$ to 5.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

6
(<3 or >12 unless noted)

12. Does paperwork match bottle labels?

(Note discrepancies on chain of custody)

Yes ☒

No ☐

Adjusted? *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 ☐

Checked by: *JA*

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	1.3	Good	Yes			



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

Monthly Temporary RO Reject Sample Details



Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salisbury
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	12/3/2015 @ 9:20 a.m.
End Date and Time	12/3/2015 @ 9:35 a.m.

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

Physical Property
Solid ☐
Liquid ☒
Sludge ☐

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

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

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

☐ South Field R.O. Reject Discharge

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

Field Data (Weather, Observations, Etc):
Date and Time:

12/3/2015 Tmp 39.2 °F, Humidity 61%, Wind Dir: NNE, Wind Speed: 3.5 mph, Conditions Clear

Field Temp: 66.3°F Field pH: 7.56

Storage Method
Ice ☒
Refrigerated ☐
Other ☐

Shipping Media
Ice ☒
Other ☐

F.2 ABT and DAF Analytical Data 2015





January 26, 2015

Mr. David Cobrain
Program Manager, Permits Management Program
Hazardous Waste Management Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Certified Mail/Return Receipt
7014 1200 0000 1832 3358

**RE: Cessation of ABT and DAF Sampling
New Mexico Hazardous Waste Permit Number NMD048918817
Navajo Refining Company, Artesia**

Dear Mr. Cobrain:

As we have previously discussed, Navajo Refining Company LLC (Navajo) herein respectfully requests that the sampling required by NMED (pursuant to the July 19, 2000 letter provided as Attachment 1) for the aggressive biological treatment (ABT) tanks and the dissolved air flotation (DAF) float be discontinued. Historically, monthly ABT sampling for chemical oxygen demand (COD), biological oxygen demand (BOD), total Kjeldahl nitrogen (TKN), and phenolics has been performed to assess the operation of the ABT tanks. Sampling of the DAF float has been performed on a quarterly, then on a semi-annual basis, for hazardous waste characteristics since 2000 as a condition to NMED's concurrence that the material is not K048 waste. As you are aware, the Refinery's DAF Unit is downstream of the ABT process and the DAF float, and thus the material generated, does not meet the definition of K048.

Navajo's request is based on the following considerations and compliance measures and requirements that should provide assurance to NMED of continued generation and management of non-hazardous effluent and sludge's associated these units:

1. To ensure that the DAF Unit does not generate F038 waste, Navajo must continue to comply with 40 C.F.R. § 261.31(b)(ii), which requires that the DAF Unit follow aggressive biological treatment, as defined in the regulation, in the Refinery wastewater treatment system. Further, as a waste generator, Navajo implements an on-going sampling and analysis program for wastes that meets the requirements of 40 CFR § 262.11 to ensure that DAF float is appropriately characterized for management and disposal. In addition, extensive historical testing shows that the material does not exhibit a characteristic of a hazardous waste.

Navajo Refining Company, L.L.C.
P.O. Box 159 • Artesia, NM 88211-0159
(575) 746-5270 • Fax (575) 746-5421
<http://www.hollyfrontier.com>

2. To ensure proper operation of the Refinery's wastewater treatment system (WWTS) and in accordance with its discharge permit from the New Mexico Oil Conservation Division (OCD), the Refinery routinely samples the WWTS discharge to its permitted underground injection wells as well as the reject from its reverse osmosis (RO) system. Also, per the terms of its 2013 Agreed Compliance Order with OCD, Navajo performs additional sampling of the effluent to ensure that it does not exhibit a hazardous characteristic for selenium. Further, the Refinery performs additional testing of its effluent discharged to the City of Artesia's publicly owned treatment works (POTW) to ensure discharge limits set by its June 2013 agreement with the City are met. This agreement, among other requirements, prohibits the discharge of hazardous waste to the POTW and establishes numerical limits on chemical-specific discharges as well as BOD, phenolic compounds, total toxic organics, total nitrogen, and total petroleum hydrocarbons.
3. To the extent that the sampling and analysis conditions in NMED's July 2000 letter may have been based upon concerns regarding the newly constructed tank-based wastewater treatment system pursuant to the 1998 Consent Decree (CD) between the United States Department of Justice and Navajo, Navajo notes that the conditions of the CD have been fulfilled to the satisfaction of all parties, including the State of New Mexico (Attachment 2).

If you have any questions or need additional information, please do not hesitate to contact me at (575) 746-5487. I appreciate your consideration of this matter and look forward to hearing from you.

Sincerely,



Brian Stone, PE
Environmental Specialist
Navajo Refining Company, LLC

cc: Mr. John Kielling, NMED
Ms. Neelam Dhawan, NMED
Ms. Leona Tsinnajinnie, NMED
Dr. Robert Combs, Navajo Refinery



GARY E. JOHNSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau
2044 A Galisteo Street
Santa Fe, New Mexico 87505
Telephone (505) 827-1557
Fax (505) 827-1544



PETER MAGGIORE
SECRETARY

PAUL R. RITZMA
DEPUTY SECRETARY

CERTIFIED MAIL
RETURN RECEIPT REQUIRED

COPY

July 19, 2000

Mr. Darrel Moore
Navajo Refining Company
501 East Main Street
P.O. Box 159
Artesia, New Mexico 88211-0159

**RE: LISTING DETERMINATION FOR DISSOLVED
AIR FLOTATION (DAF) FLOAT
FACILITY WASTEWATER TREATMENT SYSTEM
NAVAJO REFINERY FACILITY, ARTESIA, NEW MEXICO**

Dear Mr. Moore:

This letter is in response to a request by Navajo Refining Company, dated May 17, 2000, for concurrence that the dissolved air flotation (DAF) float generated in Navajo's DAF unit is not considered as listed waste under 20.4.1.200 NMAC (incorporating 40 CFR 261 Subpart D). The DAF unit is located downstream of the aggressive biological treatment (ABT) unit of the wastewater treatment system currently in operation at the Artesia Refinery. The New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) has concluded that, based on information supplied in the letter request and subsequent correspondence, the DAF float is not considered to be KO48 waste as defined in 40 CFR §261.32 (incorporated at 20.1.200 NMAC).

Navajo Refining Company must continue to meet the definition of ABT in the wastewater treatment system as defined in 40 CFR §261.31(b) and comply with the terms and conditions of the underground injection well discharge plan approved by the New Mexico Energy, Minerals & Natural Resources Department Oil Conservation Division in order to maintain the unlisted status of the DAF float. In addition, the DAF float must be sampled in August 2000 and quarterly

Mr. Darrel Moore
Navajo Refining Company
July 19, 2000
Page 2 of 2

thereafter for two consecutive quarters followed by semi-annual sampling. The DAF float also must be sampled within 15 days of any significant change to the refining process. The DAF float samples must be submitted to an analytical laboratory for chemical analysis for characteristic hazardous waste as specified in 20.4.1.200 NMAC (incorporating 40CFR §§261.20 through 261.24). Navajo Refining Company must submit copies of the final laboratory reports to the HWB within 7 days of receipt from the analytical laboratory. The DAF float must be handled as hazardous waste if chemical analysis indicates any characteristic of hazardous waste as defined in 20.4.1.200 NMAC (incorporating 40 CFR 261 Subpart D).

Please call this office at (505) 827-1561 if you have questions regarding the anticipated schedule for issuance of the post-closure care permit for the subject site listed above.

Sincerely,



David Cobrain
Project Manager
Hazardous Waste Bureau

cc: James P. Bearzi, NMED HWB
John E. Kieling, NMED HWB
Wayne Price, NMOCD
Charles deSaillan, NMED OGC
Connie Pasteris, NMED HWB
Pam Allen, NMED HWB

file: Red/NRC/00
Track: NRC/Moore/Cobrain/07-19-00/DAF float listing determination

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

COPY

UNITED STATES OF AMERICA

Plaintiff,

v.

Civil Action No. 93-cv-00860-MCA-KBM

NAVAJO REFINING COMPANY, LLC,

Defendant.

ORDER TERMINATING CONSENT DECREE

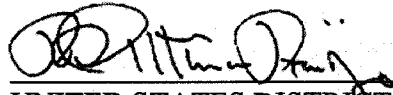
This matter comes before the Court on Navajo Refining Company, LLC's ("Navajo") Motion to Terminate Consent Decree [**Document 88 filed on December 6, 2013**] for an Order terminating the above Consent Decree entered by this Court in 1998 ("Consent Decree").

WHEREAS, Paragraph 72 of the Consent Decree provides that defendant Navajo may petition the Court to terminate the Consent Decree upon Certification from Navajo that all the requirements of the Consent Decree have been completed;

WHEREAS, the Court having considered Navajo's Motion to Terminate the Consent Decree, the July 22, 2013 Certification of Michael McKee of Navajo that Navajo has completed all of the requirements of the Consent Decree and the October 28, 2013 letter from the U.S. Department of Justice, submitted in support; and

WHEREAS, the Court having been informed that Plaintiff does not oppose the Motion or this Court's issuance of the proposed Order terminating the Consent Decree,

IT IS THEREFORE ORDERED that the Consent Decree is hereby terminated.

A handwritten signature in black ink, appearing to read "Robert J. ...", is written over a horizontal line.

UNITED STATES DISTRICT JUDGE



SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

**NEW MEXICO
ENVIRONMENT DEPARTMENT**

**2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us**



RYAN FLYNN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 18, 2015

Brian Stone
Acting Environmental Management
Navajo Refining Company, L.L.C.
P.O. Box 159
Artesia, New Mexico 88211-0159

**RE: APPROVAL
REQUEST TO DISCONTINUE ABT AND DAF SAMPLING
NAVAJO REFINING COMPANY, ARTESIA REFINERY
EPA ID# NMD048918817
HWB-NRC-MISC**

Dear Mr. Stone:

The New Mexico Environment Department (NMED) has received Navajo Refining Company, L.L.C.'s, Artesia Refinery's (the Permittee) *Cessation of ABT and DAF Sampling* (Request) dated January 29, 2015. The Permittee is requesting to discontinue sampling the aggressive biological treatment (ABT) tanks and the dissolved air floatation (DAF) float. Monthly sampling of the ABT tanks is conducted to assess the operation of the ABT tanks and semi-annual sampling of the DAF float is conducted to demonstrate that the material is not K048 waste. NMED hereby approves the Permittee's request to discontinue sampling the DAF float; however, the Permittee must continue to sample the ABT tanks to comply with the terms and conditions of the underground injection well discharge plan approved by the New Mexico Energy, Minerals & Natural Resources Department Oil Conservation Division (OCD). The results of the ABT tanks effluent sample analytical data do not have to be submitted separately to NMED; however, the discharge analytical data must be included in the annual groundwater monitoring report. In addition, NMED must be notified if the ABT analytical data indicate hazardous waste is discharged from the wastewater treatment system in accordance with the December 2010 Post-Closure Care Permit Section 1.5.13 (Twenty-Four Hour Reporting).

B. Stone
February 18, 2015
Page 2 of 2

If you have any questions regard this letter, please contact Leona Tsinnajinnie of my staff at (505) 476-6057.

Sincerely,



John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
N. Dhawan, NMED HWB
K. Van Horn, NMED HWB
L. Tsinnajinnie, NMED HWB
M. Holder, Navajo Refining Company, L.L.C.
R. Combs, Navajo Refining Company, Artesia Refinery
P. Kruger, ARCADIS
L. King, EPA 6PD-N

File: Reading and NRC 2015, HWB-NRC-MISC

February 06, 2015

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 01/20/15 10:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
06-Feb-15 13:23

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET API	H500179-01	Wastewater	19-Jan-15 07:45	20-Jan-15 10:00
ABT OUTLET T-801	H500179-02	Wastewater	19-Jan-15 07:45	20-Jan-15 10:00

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
06-Feb-15 13:23**ABT INLET API
H500179-01 (Wastewater)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	108			mg/L	1	5020611	CK	26-Jan-15	SM 5210B	SUB, I-02
Chemical Oxygen Demand	280		20.0	mg/L	2	4122212	AP	03-Feb-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	18.8		1.00	mg/L	2	B502004	KLJ	02-Feb-15	EPA351.2	
Phenolics*	24.3		0.400	mg/L	80	B502029	KLJ	05-Feb-15	EPA420.4	

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
06-Feb-15 13:23**ABT OUTLET T-801****H500179-02 (Wastewater)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	4.00			mg/L	1	5020611	CK	26-Jan-15	SM 5210B	SUB, I-02
Chemical Oxygen Demand	2320		200	mg/L	20	4122212	AP	03-Feb-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	94.0		2.50	mg/L	5	B502004	KLJ	02-Feb-15	EPA351.2	
Phenolics*	ND		0.0500	mg/L	10	B502029	KLJ	05-Feb-15	EPA420.4	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
06-Feb-15 13:23

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 4122212 - General Prep - Wet Chem

Blank (4122212-BLK1)

Prepared: 22-Dec-14 Analyzed: 05-Jan-15

Chemical Oxygen Demand ND 10.0 mg/L

LCS (4122212-BS1)

Prepared: 22-Dec-14 Analyzed: 05-Jan-15

Chemical Oxygen Demand 83.0 10.0 mg/L 80.0 104 80-120

Duplicate (4122212-DUP1)

Source: H403893-02

Prepared: 22-Dec-14 Analyzed: 05-Jan-15

Chemical Oxygen Demand 26.0 10.0 mg/L 24.3 6.76 25

Batch 5020611 - General Prep

Blank (5020611-BLK1)

Prepared: 21-Jan-15 Analyzed: 26-Jan-15

Biochemical Oxygen Demand 0.140 mg/L

LCS (5020611-BS1)

Prepared: 21-Jan-15 Analyzed: 26-Jan-15

Biochemical Oxygen Demand 196 mg/L 200 98.2 85-115

LCS Dup (5020611-BSD1)

Prepared: 21-Jan-15 Analyzed: 26-Jan-15

Biochemical Oxygen Demand 200 mg/L 200 100 85-115 1.98 20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
06-Feb-15 13:23

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B502004 - General Prep - Wet Chem

Blank (B502004-BLK1)

Prepared & Analyzed: 02-Feb-15

Total Kjeldahl Nitrogen ND 0.500 mg/L

LCS (B502004-BS1)

Prepared & Analyzed: 02-Feb-15

Total Kjeldahl Nitrogen 4.39 0.500 mg/L 4.00 110 90-110

LCS Dup (B502004-BSD1)

Prepared & Analyzed: 02-Feb-15

Total Kjeldahl Nitrogen 4.38 0.500 mg/L 4.00 110 90-110 0.228 20

Batch B502029 - General Prep - Wet Chem

Blank (B502029-BLK1)

Prepared: 04-Feb-15 Analyzed: 05-Feb-15

Phenolics ND 0.00500 mg/L

LCS (B502029-BS1)

Prepared: 04-Feb-15 Analyzed: 05-Feb-15

Phenolics 0.0486 0.00500 mg/L 0.0500 97.2 90-110

LCS Dup (B502029-BSD1)

Prepared: 04-Feb-15 Analyzed: 05-Feb-15

Phenolics 0.0509 0.00500 mg/L 0.0500 102 90-110 4.57 20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-14-11
I-02	This result was analyzed outside of the EPA recommended holding time.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

March 04, 2015

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 02/17/15 11:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
04-Mar-15 13:34

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H500462-01	Wastewater	16-Feb-15 08:50	17-Feb-15 11:30
ABT OUTLET T-836	H500462-02	Wastewater	16-Feb-15 09:00	17-Feb-15 11:30

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
04-Mar-15 13:34**ABT INLET T-836**
H500462-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	290			mg/L	1	5030413	CK	23-Feb-15	SM 5210B	SUB
Chemical Oxygen Demand	1230		200	mg/L	20	4122212	AP	24-Feb-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	89.9		5.00	mg/L	10	B502221	KLJ	26-Feb-15	EPA351.2	
Phenolics*	107		0.750	mg/L	150	B502212	KLJ	26-Feb-15	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
04-Mar-15 13:34**ABT OUTLET T-836**
H500462-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	--------------------	-------	----------	-------	---------	----------	--------	-------

Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	47.0			mg/L	1	5030413	CK	23-Feb-15	SM 5210B	SUB
Chemical Oxygen Demand	1800		200	mg/L	20	4122212	AP	24-Feb-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	121		5.00	mg/L	10	B502221	KLJ	26-Feb-15	EPA351.2	
Phenolics*	0.515		0.0300	mg/L	6	B502212	KLJ	26-Feb-15	EPA420.4	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
04-Mar-15 13:34

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 4122212 - General Prep - Wet Chem

Blank (4122212-BLK1)

Prepared: 22-Dec-14 Analyzed: 05-Jan-15

Chemical Oxygen Demand ND 10.0 mg/L

LCS (4122212-BS1)

Prepared: 22-Dec-14 Analyzed: 05-Jan-15

Chemical Oxygen Demand 83.0 10.0 mg/L 80.0 104 80-120

Duplicate (4122212-DUP1)

Source: H403893-02

Prepared: 22-Dec-14 Analyzed: 05-Jan-15

Chemical Oxygen Demand 26.0 10.0 mg/L 24.3 6.76 25

Batch 5030413 - General Prep

Blank (5030413-BLK1)

Prepared: 18-Feb-15 Analyzed: 23-Feb-15

Biochemical Oxygen Demand 0.120 mg/L

LCS (5030413-BS1)

Prepared: 18-Feb-15 Analyzed: 23-Feb-15

Biochemical Oxygen Demand 172 mg/L 200 86.2 85-115

LCS Dup (5030413-BSD1)

Prepared: 18-Feb-15 Analyzed: 23-Feb-15

Biochemical Oxygen Demand 176 mg/L 200 88.0 85-115 1.98 20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
04-Mar-15 13:34

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B502212 - General Prep - Wet Chem

Blank (B502212-BLK1)

Prepared: 25-Feb-15 Analyzed: 26-Feb-15

Phenolics ND 0.00500 mg/L

LCS (B502212-BS1)

Prepared: 25-Feb-15 Analyzed: 26-Feb-15

Phenolics 0.0514 0.00500 mg/L 0.0500 103 90-110

LCS Dup (B502212-BSD1)

Prepared: 25-Feb-15 Analyzed: 26-Feb-15

Phenolics 0.0508 0.00500 mg/L 0.0500 102 90-110 1.31 20

Batch B502221 - General Prep - Wet Chem

Blank (B502221-BLK1)

Prepared: 25-Feb-15 Analyzed: 26-Feb-15

Total Kjeldahl Nitrogen ND 0.500 mg/L

LCS (B502221-BS1)

Prepared: 25-Feb-15 Analyzed: 26-Feb-15

Total Kjeldahl Nitrogen 3.93 0.500 mg/L 4.00 98.3 90-110

LCS Dup (B502221-BSD1)

Prepared: 25-Feb-15 Analyzed: 26-Feb-15

Total Kjeldahl Nitrogen 3.88 0.500 mg/L 4.00 97.0 90-110 1.28 20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-14-11
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.
Project Manager: Mike Holder

Address: P.O. Box 159

City: Artesia

Phone #: 575-748-3311

Project #:

Project Name: ABT Inlet / Outlet Monthly

Project Location: Navajo Refinery

Sampler Name:

BILL TO

P.O. #: 167813

Company: Navajo Refinery LLC

Attn: Christie Coons

Address: P.O. Box 159

City: Artesia

State: NM Zip: 88211-0159

Phone #: 575-748-3311

Fax #:

ANALYSIS REQUEST

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX						PRESERV.	SAMPLING	ANALYSIS REQUEST								
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER			ACID/BASE: HNO3	ICE / COOL	OTHER: H2SO4	DATE	TIME	TKN (351), COD (410.1)	BOD	Phenolics (420)	
H500462	1	ABT Inlet T-836 (1-250mL H2SO4)	G	1	X															
		ABT Inlet T-836 (1-Liter Plastic)	G	1	X															
		ABT Inlet T-836 (1-L Amber w/H2SO4)	G	1	X															
		ABT Inlet T-836 (1-L Amber w/H2SO4)	G	1	X															
2		ABT Outlet T-836 (1-250mL H2SO4)	G	2	X															
		ABT Outlet T-836 (1-Liter Plastic)	G	1	X															
		ABT Outlet T-836 (1-L Amber w/H2SO4)	G	1	X															

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising from this analysis shall be limited to the amount paid by the client for the analysis. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Robert Salas Date: 2/16/2015

Reinquired By: Robert Salas Date: 2/16/2015

Received By: Robert Salas

Delivered By: Robert Salas Date: 2/16/2015

Sampler - UPS - Bus - Other:

Sample Condition

Cool ☐ Intact ☐

CHECKED BY: Robert Salas

INITIALS

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

FORM-006
Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476

#54

April 13, 2015

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 03/17/15 9:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
13-Apr-15 14:31

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H500718-01	Wastewater	16-Mar-15 10:00	17-Mar-15 09:40
ABT OUTLET T-836	H500718-02	Wastewater	16-Mar-15 10:00	17-Mar-15 09:40

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
13-Apr-15 14:31**ABT INLET T-836**
H500718-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
---------	--------	-----	--------------------	-------	----------	-------	---------	----------	--------	-------

Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	567			mg/L	1	5041307	CK	23-Mar-15	SM 5210B	SUB
Chemical Oxygen Demand	1570		200	mg/L	20	5031901	AP	19-Mar-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	279		2.50	mg/L	5	B504029	KLJ	08-Apr-15	EPA351.2	
Phenolics*	32.7		0.150	mg/L	30	B503203	KLJ	24-Mar-15	EPA420.4	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
13-Apr-15 14:31

ABT OUTLET T-836
H500718-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories
Inorganic Compounds

Biochemical Oxygen Demand	119			mg/L	1	5041307	CK	23-Mar-15	SM 5210B	SUB
Chemical Oxygen Demand	2270		200	mg/L	20	5031901	AP	19-Mar-15	EPA 410.4	

Green Analytical Laboratories
General Chemistry

Total Kjeldahl Nitrogen*	268		5.00	mg/L	10	B504029	KLJ	08-Apr-15	EPA351.2	
Phenolics*	0.218		0.150	mg/L	30	B503203	KLJ	24-Mar-15	EPA420.4	

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Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
13-Apr-15 14:31

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 5031901 - General Prep - Wet Chem

Blank (5031901-BLK1)

Prepared & Analyzed: 19-Mar-15

Chemical Oxygen Demand ND 10.0 mg/L

LCS (5031901-BS1)

Prepared & Analyzed: 19-Mar-15

Chemical Oxygen Demand 94.0 10.0 mg/L 80.0 118 80-120

Duplicate (5031901-DUP1)

Source: H500688-02

Prepared & Analyzed: 19-Mar-15

Chemical Oxygen Demand 14.0 10.0 mg/L 11.6 18.8 25

Batch 5041307 - General Prep

Blank (5041307-BLK1)

Prepared: 18-Mar-15 Analyzed: 23-Mar-15

Biochemical Oxygen Demand 0.190 mg/L

LCS (5041307-BS1)

Prepared: 18-Mar-15 Analyzed: 23-Mar-15

Biochemical Oxygen Demand 208 mg/L 200 104 85-115

LCS Dup (5041307-BSD1)

Prepared: 18-Mar-15 Analyzed: 23-Mar-15

Biochemical Oxygen Demand 189 mg/L 200 94.6 85-115 9.42 20

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
13-Apr-15 14:31

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B503203 - General Prep - Wet Chem

Blank (B503203-BLK1)

Prepared & Analyzed: 24-Mar-15

Phenolics ND 0.00500 mg/L

LCS (B503203-BS1)

Prepared & Analyzed: 24-Mar-15

Phenolics 0.0547 0.00500 mg/L 0.0500 109 90-110

LCS Dup (B503203-BSD1)

Prepared & Analyzed: 24-Mar-15

Phenolics 0.0501 0.00500 mg/L 0.0500 100 90-110 8.80 20

Batch B504029 - General Prep - Wet Chem

Blank (B504029-BLK1)

Prepared & Analyzed: 08-Apr-15

Total Kjeldahl Nitrogen ND 0.500 mg/L

LCS (B504029-BS1)

Prepared & Analyzed: 08-Apr-15

Total Kjeldahl Nitrogen 3.78 0.500 mg/L 4.00 94.5 90-110

LCS Dup (B504029-BSD1)

Prepared & Analyzed: 08-Apr-15

Total Kjeldahl Nitrogen 3.78 0.500 mg/L 4.00 94.5 90-110 0.00 20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-15-12
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.

Project Manager: Mike Holder

Address: P.O. Box 159

City: Artesia

Phone #: 575-748-3311

Project #:

Project Name: ABT Inlet / Outlet Monthly

Project Location: Navajo Refinery

Sampler Name:

BILL TO
P.O. #: 167813

Company: Navajo Refinery LLC

Attn: Christie Coons

Address: P.O. Box 159

City: Artesia

State: NM Zip: 88211-0159

Phone #: 575-748-3311

Fax #:

ANALYSIS REQUEST

FOR LAB USE ONLY	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX	PRESERV	SAMPLING	TKN (351), COD (410.1)	BOD	Phenolics (420)										
H500718	1	ABT Inlet T-836 (1-250mL H2SO4)	G 1	X	X	3-16-15 1000	X												
		ABT Inlet T-836 (1-Liter Plastic)	G 1	X	X	3-16-15 1000	X												
		ABT Inlet T-836 (1-L Amber w/H2SC)	G 1	X	X	3-16-15 1000	X												
	2	ABT Outlet T-836 (1-250mL H2SO4)	G 2	X	X	3-16-15 1000	X												
		ABT Outlet T-836 (1-Liter Plastic)	G 1	X	X	3-16-15 1000	X												
		ABT Outlet T-836(1-L Amber w/H2S)	G 1	X	X	3-16-15 1000	X												

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Relinquished By: Elizabeth Sabers

Date: 3-16-15

Time: 0930

Date: 3-17-15

Time: 9:40

Received By:

Date: 3-17-15

Time: 9:40

Date: 3-17-15

Time: 9:40

Sample Condition

Cool ☐ Intact ☐

Yes ☐ No ☐

CHECKED BY:

(Initials)

(Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

Please Email Results to Aaron.Strange@hollyfrontrier.com

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

FORM-006

Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476



May 11, 2015

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: ABT INLET - OUTLET MONTHLY

Enclosed are the results of analyses for samples received by the laboratory on 04/21/15 10:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
11-May-15 14:49

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
ABT INLET T-836	H501026-01	Wastewater	20-Apr-15 08:30	21-Apr-15 10:00
ABT OUTLET T-836	H501026-02	Wastewater	20-Apr-15 08:30	21-Apr-15 10:00

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
11-May-15 14:49**ABT INLET T-836**
H501026-01 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	127			mg/L	1	5050512	CK	27-Apr-15	SM 5210B	SUB
Chemical Oxygen Demand	773		100	mg/L	10	5031901	AP	22-Apr-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	22.1		2.50	mg/L	5	B504207	KLJ	06-May-15	EPA351.2	
Phenolics*	16.0		0.0900	mg/L	15	B505005	KLJ	30-Apr-15	EPA420.4	

Cardinal Laboratories

*=Accredited Analyte

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Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
11-May-15 14:49**ABT OUTLET T-836**
H501026-02 (Wastewater)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Biochemical Oxygen Demand	87.0			mg/L	1	5050512	CK	27-Apr-15	SM 5210B	SUB
Chemical Oxygen Demand	1010		100	mg/L	10	5031901	AP	22-Apr-15	EPA 410.4	

Green Analytical Laboratories**General Chemistry**

Total Kjeldahl Nitrogen*	110		2.50	mg/L	5	B504207	KLJ	06-May-15	EPA351.2	
Phenolics*	0.171		0.0300	mg/L	5	B505005	KLJ	30-Apr-15	EPA420.4	

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Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
11-May-15 14:49

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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Batch 5031901 - General Prep - Wet Chem

Blank (5031901-BLK1)

Prepared & Analyzed: 19-Mar-15

Chemical Oxygen Demand ND 10.0 mg/L

LCS (5031901-BS1)

Prepared & Analyzed: 19-Mar-15

Chemical Oxygen Demand 94.0 10.0 mg/L 80.0 118 80-120

Duplicate (5031901-DUP1)

Source: H500688-02

Prepared & Analyzed: 19-Mar-15

Chemical Oxygen Demand 14.0 10.0 mg/L 11.6 18.8 25

Batch 5050512 - General Prep

Blank (5050512-BLK1)

Prepared: 22-Apr-15 Analyzed: 27-Apr-15

Biochemical Oxygen Demand 0.190 mg/L

LCS (5050512-BS1)

Prepared: 22-Apr-15 Analyzed: 27-Apr-15

Biochemical Oxygen Demand 212 mg/L 198 107 85-115

LCS Dup (5050512-BSD1)

Prepared: 22-Apr-15 Analyzed: 27-Apr-15

Biochemical Oxygen Demand 206 mg/L 198 104 85-115 3.05 20

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Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: ABT INLET - OUTLET MONTHLY
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
11-May-15 14:49

General Chemistry - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B504207 - General Prep - Wet Chem

Blank (B504207-BLK1)

Prepared: 24-Apr-15 Analyzed: 06-May-15

Total Kjeldahl Nitrogen ND 0.500 mg/L

LCS (B504207-BS1)

Prepared: 24-Apr-15 Analyzed: 06-May-15

Total Kjeldahl Nitrogen 4.07 0.500 mg/L 4.00 102 90-110

LCS Dup (B504207-BSD1)

Prepared: 24-Apr-15 Analyzed: 06-May-15

Total Kjeldahl Nitrogen 4.05 0.500 mg/L 4.00 101 90-110 0.493 20

Batch B505005 - General Prep - Wet Chem

Blank (B505005-BLK1)

Prepared & Analyzed: 30-Apr-15

Phenolics ND 0.00500 mg/L

LCS (B505005-BS1)

Prepared & Analyzed: 30-Apr-15

Phenolics 0.0516 0.00500 mg/L 0.0500 103 90-110

LCS Dup (B505005-BSD1)

Prepared & Analyzed: 30-Apr-15

Phenolics 0.0510 0.00500 mg/L 0.0500 102 90-110 1.21 20

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

SUB	Analysis subcontracted to NELAC accredited laboratory, Advanced Analysis, Inc. T104704437-15-12
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



ARDINAL LABORATORIES
101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Navajo Refining Co.

Project Manager: Mike Holder

Address: P.O. Box 159

City: Artesia

Phone #: 575-748-3311

Project #:

Project Name: ABT Inlet / Outlet Monthly

Project Location: Navajo Refinery

Sampler Name:

BILL TO

ANALYSIS REQUEST

P.O. #: 167813

Company: Navajo Refinery LLC

Attn: Christie Coons

Address: P.O. Box 159

City: Artesia

State: NM Zip: 88211-0159

Phone #: 575-748-3311

Fax #:

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H501026

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(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE: HNO3

ICE / COOL

OTHER : H2SO4

DATE

TIME

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TIME

TKN (351), COD (410.1)

BOD

Phenolics (420)

Relinquished By: *Elizabeth Dobson*

Time: 0930

Date: 4/21/15

Received By: *Christie Coons*

Time: 10:00

Date: 4/21/15

Sample Condition: *Intact*

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

FORM-006

Revision 1.0

† Cardinal cannot accept verbal changes. Please fax written changes to 575-393-2476



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

May 06, 2015

Mike Holder

Navajo Refining Company

P.O. Box 159

Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: DAF Quarterly

OrderNo.: 1504B81

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/28/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504B81

Date Reported: 5/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: DAF Bin

Project: DAF Quarterly

Collection Date: 4/27/2015 9:30:00 AM

Lab ID: 1504B81-001

Matrix: SOIL

Received Date: 4/28/2015 9:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
MERCURY, TCLP							Analyst: MED
Mercury	ND	0.020		mg/L	1	5/5/2015 3:02:23 PM	19048
EPA METHOD 6010B: TCLP METALS							Analyst: JLF
Arsenic	ND	5.0		mg/L	5	5/2/2015 10:36:39 AM	19005
Barium	ND	100		mg/L	5	5/2/2015 10:36:39 AM	19005
Cadmium	ND	1.0		mg/L	5	5/2/2015 10:36:39 AM	19005
Chromium	ND	5.0		mg/L	5	5/2/2015 10:36:39 AM	19005
Lead	ND	5.0		mg/L	5	5/2/2015 10:36:39 AM	19005
Selenium	ND	1.0		mg/L	5	5/2/2015 10:36:39 AM	19005
Silver	ND	5.0		mg/L	5	5/2/2015 10:36:39 AM	19005
EPA METHOD 8270C TCLP							Analyst: JDC
2-Methylphenol	ND	200		mg/L	1	5/4/2015 2:40:54 PM	18995
3+4-Methylphenol	ND	200		mg/L	1	5/4/2015 2:40:54 PM	18995
Phenol	ND	200		mg/L	1	5/4/2015 2:40:54 PM	18995
2,4-Dinitrotoluene	ND	0.13		mg/L	1	5/4/2015 2:40:54 PM	18995
Hexachlorobenzene	ND	0.13		mg/L	1	5/4/2015 2:40:54 PM	18995
Hexachlorobutadiene	ND	0.50		mg/L	1	5/4/2015 2:40:54 PM	18995
Hexachloroethane	ND	3.0		mg/L	1	5/4/2015 2:40:54 PM	18995
Nitrobenzene	ND	2.0		mg/L	1	5/4/2015 2:40:54 PM	18995
Pentachlorophenol	ND	100		mg/L	1	5/4/2015 2:40:54 PM	18995
Pyridine	ND	5.0		mg/L	1	5/4/2015 2:40:54 PM	18995
2,4,5-Trichlorophenol	ND	400		mg/L	1	5/4/2015 2:40:54 PM	18995
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	5/4/2015 2:40:54 PM	18995
Cresols, Total	ND	200		mg/L	1	5/4/2015 2:40:54 PM	18995
Surr: 2-Fluorophenol	92.3	20.9-115		%REC	1	5/4/2015 2:40:54 PM	18995
Surr: Phenol-d5	88.2	13.6-102		%REC	1	5/4/2015 2:40:54 PM	18995
Surr: 2,4,6-Tribromophenol	99.4	11.3-133		%REC	1	5/4/2015 2:40:54 PM	18995
Surr: Nitrobenzene-d5	109	49.4-119		%REC	1	5/4/2015 2:40:54 PM	18995
Surr: 2-Fluorobiphenyl	99.6	48.2-114		%REC	1	5/4/2015 2:40:54 PM	18995
Surr: 4-Terphenyl-d14	52.5	35.5-125		%REC	1	5/4/2015 2:40:54 PM	18995
VOLATILES BY 8260B/1311							Analyst: DJF
Benzene	ND	0.50		mg/L	1	4/30/2015 11:19:31 PM	18960
2-Butanone	ND	200		mg/L	1	4/30/2015 11:19:31 PM	18960
Carbon Tetrachloride	ND	0.50		mg/L	1	4/30/2015 11:19:31 PM	18960
Chlorobenzene	ND	100		mg/L	1	4/30/2015 11:19:31 PM	18960
Chloroform	ND	6.0		mg/L	1	4/30/2015 11:19:31 PM	18960
1,4-Dichlorobenzene	ND	7.5		mg/L	1	4/30/2015 11:19:31 PM	18960
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	4/30/2015 11:19:31 PM	18960
1,1-Dichloroethene	ND	0.70		mg/L	1	4/30/2015 11:19:31 PM	18960

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.

Analytical Report

Lab Order 1504B81

Date Reported: 5/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: DAF Bin

Project: DAF Quarterly

Collection Date: 4/27/2015 9:30:00 AM

Lab ID: 1504B81-001

Matrix: SOIL

Received Date: 4/28/2015 9:08:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311							Analyst: DJF
Hexachlorobutadiene	ND	0.50		mg/L	1	4/30/2015 11:19:31 PM	18960
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	4/30/2015 11:19:31 PM	18960
Trichloroethene (TCE)	ND	0.50		mg/L	1	4/30/2015 11:19:31 PM	18960
Vinyl chloride	ND	0.20		mg/L	1	4/30/2015 11:19:31 PM	18960
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	4/30/2015 11:19:31 PM	18960
Surr: 4-Bromofluorobenzene	93.1	70-130		%REC	1	4/30/2015 11:19:31 PM	18960
Surr: Dibromofluoromethane	97.1	70-130		%REC	1	4/30/2015 11:19:31 PM	18960
Surr: Toluene-d8	99.9	70-130		%REC	1	4/30/2015 11:19:31 PM	18960

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	Page 2 of 9
	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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	mb-18960		SampType:	MBLK		TestCode:	Volatiles by 8260B/1311			
Client ID:	PBS		Batch ID:	18960		RunNo:	25895			
Prep Date:	4/29/2015		Analysis Date:	4/30/2015		SeqNo:	767571		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	200								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.22		0.2000		112	70	130			
Surr: 4-Bromofluorobenzene	0.21		0.2000		103	70	130			
Surr: Dibromofluoromethane	0.20		0.2000		100	70	130			
Surr: Toluene-d8	0.19		0.2000		97.4	70	130			

Sample ID	lcs-18960		SampType:	LCS		TestCode:	Volatiles by 8260B/1311			
Client ID:	LCSS		Batch ID:	18960		RunNo:	25895			
Prep Date:	4/29/2015		Analysis Date:	4/30/2015		SeqNo:	767572		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.44	0.30	0.4000	0	110	70	130			
Chlorobenzene	0.41	0.30	0.4000	0	102	70	130			
1,1-Dichloroethene	0.50	0.30	0.4000	0	126	66.4	139			
Trichloroethene (TCE)	0.39	0.30	0.4000	0	98.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		101	70	130			
Surr: 4-Bromofluorobenzene	0.19		0.2000		97.1	70	130			
Surr: Dibromofluoromethane	0.20		0.2000		100	70	130			
Surr: Toluene-d8	0.21		0.2000		106	70	130			

Sample ID	1504b81-001ams		SampType:	MS		TestCode:	Volatiles by 8260B/1311			
Client ID:	DAF Bin		Batch ID:	18960		RunNo:	25895			
Prep Date:	4/29/2015		Analysis Date:	4/30/2015		SeqNo:	767574		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.42	0.30	0.4000	0	105	70	130			
Chlorobenzene	0.39	0.30	0.4000	0	97.6	70	130			
1,1-Dichloroethene	0.47	0.30	0.4000	0	118	70	130			
Trichloroethene (TCE)	0.38	0.30	0.4000	0	95.6	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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	1504b81-001ams	SampType:	MS	TestCode:	Volatiles by 8260B/1311					
Client ID:	DAF Bin	Batch ID:	18960	RunNo:	25895					
Prep Date:	4/29/2015	Analysis Date:	4/30/2015	SeqNo:	767574	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		96.7	70	130			
Surr: 4-Bromofluorobenzene	0.19		0.2000		96.4	70	130			
Surr: Dibromofluoromethane	0.20		0.2000		97.6	70	130			
Surr: Toluene-d8	0.20		0.2000		97.6	70	130			

Sample ID	1504b81-001amsd	SampType: MSD			TestCode: Volatiles by 8260B/1311					
Client ID:	DAF Bin	Batch ID: 18960			RunNo: 25895					
Prep Date:	4/29/2015	Analysis Date: 5/1/2015			SeqNo: 767575		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.41	0.30	0.4000	0	102	70	130	3.03	20	
Chlorobenzene	0.35	0.30	0.4000	0	87.9	70	130	10.4	20	
1,1-Dichloroethene	0.45	0.30	0.4000	0	112	70	130	5.27	20	
Trichloroethene (TCE)	0.38	0.30	0.4000	0	95.0	70	130	0.672	20	
Surr: 1,2-Dichloroethane-d4	0.20		0.2000		98.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.21		0.2000		104	70	130	0	0	
Surr: Dibromofluoromethane	0.20		0.2000		101	70	130	0	0	
Surr: Toluene-d8	0.19		0.2000		96.2	70	130	0	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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	mb-18995		SampType: MBLK			TestCode: EPA Method 8270C TCLP				
Client ID:	PBS		Batch ID: 18995			RunNo: 25942				
Prep Date:	5/1/2015		Analysis Date: 5/4/2015			SeqNo: 768959		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2-Fluorophenol	0.13		0.2000		66.8	20.9	115			
Surr: Phenol-d5	0.14		0.2000		71.9	13.6	102			
Surr: 2,4,6-Tribromophenol	0.15		0.2000		76.2	11.3	133			
Surr: Nitrobenzene-d5	0.073		0.1000		72.8	49.4	119			
Surr: 2-Fluorobiphenyl	0.078		0.1000		78.1	48.2	114			
Surr: 4-Terphenyl-d14	0.082		0.1000		81.6	35.5	125			

Sample ID	lcs-18995		SampType: LCS			TestCode: EPA Method 8270C TCLP				
Client ID:	LCSS		Batch ID: 18995			RunNo: 25942				
Prep Date:	5/1/2015		Analysis Date: 5/4/2015			SeqNo: 768960		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.058	0.010	0.1000	0	58.4	37.2	111			
3+4-Methylphenol	0.14	0.010	0.2000	0	70.7	33.3	150			
2,4-Dinitrotoluene	0.051	0.010	0.1000	0	50.9	30.7	110			
Hexachlorobenzene	0.065	0.010	0.1000	0	64.8	44.1	114			
Hexachlorobutadiene	0.058	0.010	0.1000	0	58.0	41	85.9			
Hexachloroethane	0.053	0.010	0.1000	0	53.3	39.9	101			
Nitrobenzene	0.057	0.010	0.1000	0	56.9	36.4	123			
Pentachlorophenol	0.046	0.010	0.1000	0	46.4	10.6	99.5			
Pyridine	0.056	0.010	0.1000	0	56.0	5.17	104			
2,4,5-Trichlorophenol	0.066	0.010	0.1000	0	66.0	33.8	114			
2,4,6-Trichlorophenol	0.061	0.010	0.1000	0	61.3	26.1	113			
Cresols, Total	0.20	0.010	0.3000	0	66.6	30	136			
Surr: 2-Fluorophenol	0.11		0.2000		56.2	20.9	115			
Surr: Phenol-d5	0.12		0.2000		57.9	13.6	102			

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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	lcs-18995		SampType:	LCS		TestCode:	EPA Method 8270C TCLP			
Client ID:	LCSS		Batch ID:	18995		RunNo:	25942			
Prep Date:	5/1/2015		Analysis Date:	5/4/2015		SeqNo:	768960		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	0.13		0.2000		62.6	11.3	133			
Surr: Nitrobenzene-d5	0.060		0.1000		59.9	49.4	119			
Surr: 2-Fluorobiphenyl	0.060		0.1000		59.8	48.2	114			
Surr: 4-Terphenyl-d14	0.054		0.1000		53.8	35.5	125			

Sample ID	1504B81-001Ams		SampType:	MS		TestCode:	EPA Method 8270C TCLP			
Client ID:	DAF Bin		Batch ID:	18995		RunNo:	25942			
Prep Date:	5/1/2015		Analysis Date:	5/4/2015		SeqNo:	768962		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.11	0.010	0.1000	0	106	43.1	114			
3+4-Methylphenol	0.27	0.010	0.2000	0	135	37.8	128			S
2,4-Dinitrotoluene	0.088	0.010	0.1000	0	88.5	36.5	125			
Hexachlorobenzene	0.10	0.010	0.1000	0	104	41.4	108			
Hexachlorobutadiene	0.099	0.010	0.1000	0	98.6	30.4	101			
Hexachloroethane	0.086	0.010	0.1000	0	85.6	37.3	115			
Nitrobenzene	0.10	0.010	0.1000	0	103	40.2	132			
Pentachlorophenol	0.067	0.010	0.1000	0	66.8	8.72	103			
Pyridine	0.079	0.010	0.1000	0	79.1	9.36	106			
2,4,5-Trichlorophenol	0.10	0.010	0.1000	0	104	16.5	123			
2,4,6-Trichlorophenol	0.10	0.010	0.1000	0	99.6	11.3	117			
Cresols, Total	0.38	0.010	0.3000	0	126	23.2	151			
Surr: 2-Fluorophenol	0.18		0.2000		88.6	20.9	115			
Surr: Phenol-d5	0.17		0.2000		83.2	13.6	102			
Surr: 2,4,6-Tribromophenol	0.24		0.2000		121	11.3	133			
Surr: Nitrobenzene-d5	0.12		0.1000		118	49.4	119			
Surr: 2-Fluorobiphenyl	0.11		0.1000		105	48.2	114			
Surr: 4-Terphenyl-d14	0.064		0.1000		64.4	35.5	125			

Sample ID	1504B81-001Amsd		SampType:	MSD		TestCode:	EPA Method 8270C TCLP			
Client ID:	DAF Bin		Batch ID:	18995		RunNo:	25942			
Prep Date:	5/1/2015		Analysis Date:	5/4/2015		SeqNo:	768963		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.098	0.010	0.1000	0	98.4	43.1	114	7.81	28.4	
3+4-Methylphenol	0.28	0.010	0.2000	0	138	37.8	128	1.67	29.4	S
2,4-Dinitrotoluene	0.089	0.010	0.1000	0	89.1	36.5	125	0.653	24.7	
Hexachlorobenzene	0.11	0.010	0.1000	0	110	41.4	108	5.47	20	S
Hexachlorobutadiene	0.098	0.010	0.1000	0	98.1	30.4	101	0.590	29	
Hexachloroethane	0.086	0.010	0.1000	0	86.3	37.3	115	0.884	25.2	

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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	1504B81-001Amsd	SampType: MSD			TestCode: EPA Method 8270C TCLP					
Client ID:	DAF Bin	Batch ID: 18995			RunNo: 25942					
Prep Date:	5/1/2015	Analysis Date: 5/4/2015			SeqNo: 768963		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	0.10	0.010	0.1000	0	101	40.2	132	1.79	26.9	
Pentachlorophenol	0.078	0.010	0.1000	0	78.3	8.72	103	15.8	59.2	
Pyridine	0.095	0.010	0.1000	0	95.1	9.36	106	18.4	48	
2,4,5-Trichlorophenol	0.11	0.010	0.1000	0	109	16.5	123	5.58	70.8	
2,4,6-Trichlorophenol	0.11	0.010	0.1000	0	108	11.3	117	8.14	78	
Cresols, Total	0.37	0.010	0.3000	0	125	23.2	151	0.916	30.8	
Surr: 2-Fluorophenol	0.19		0.2000		96.0	20.9	115	0	0	
Surr: Phenol-d5	0.18		0.2000		87.5	13.6	102	0	0	
Surr: 2,4,6-Tribromophenol	0.24		0.2000		119	11.3	133	0	0	
Surr: Nitrobenzene-d5	0.11		0.1000		114	49.4	119	0	0	
Surr: 2-Fluorobiphenyl	0.11		0.1000		108	48.2	114	0	0	
Surr: 4-Terphenyl-d14	0.057		0.1000		57.1	35.5	125	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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	MB-19048	SampType:	MBLK	TestCode:	MERCURY, TCLP					
Client ID:	PBW	Batch ID:	19048	RunNo:	25971					
Prep Date:	5/5/2015	Analysis Date:	5/5/2015	SeqNo:	769690	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	LCS-19048	SampType:	LCS	TestCode:	MERCURY, TCLP					
Client ID:	LCSW	Batch ID:	19048	RunNo:	25971					
Prep Date:	5/5/2015	Analysis Date:	5/5/2015	SeqNo:	769691	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	102	80	120			

Sample ID	TCLP Fluid1 #1804	SampType:	MBLK	TestCode:	MERCURY, TCLP					
Client ID:	PBW	Batch ID:	19048	RunNo:	25971					
Prep Date:	5/5/2015	Analysis Date:	5/5/2015	SeqNo:	769692	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

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#: 1504B81

06-May-15

Client: Navajo Refining Company

Project: DAF Quarterly

Sample ID	MB-19005	SampType: MBLK			TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	PBW	Batch ID: 19005			RunNo: 25931					
Prep Date:	5/1/2015	Analysis Date: 5/2/2015			SeqNo: 768689		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	LCS-19005		SampType: LCS		TestCode: EPA Method 6010B: TCLP Metals					
Client ID:	LCSW		Batch ID: 19005		RunNo: 25931					
Prep Date:	5/1/2015		Analysis Date: 5/2/2015		SeqNo: 768690		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	106	80	120			
Barium	ND	100	0.5000	0	95.8	80	120			
Cadmium	ND	1.0	0.5000	0	102	80	120			
Chromium	ND	5.0	0.5000	0	96.1	80	120			
Lead	ND	5.0	0.5000	0	97.4	80	120			
Selenium	ND	1.0	0.5000	0	110	80	120			
Silver	ND	5.0	0.1000	0	107	80	120			

Qualifiers:

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

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

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO**

Work Order Number: **1504B81**

RcptNo: 1

Received by/date:

J. A. *04/28/15*

Logged By: **Ashley Gallegos**

4/28/2015 9:08:00 AM

Ag

Completed By: **Ashley Gallegos**

4/28/2015 11:17:22 AM

Ag

Reviewed By:

mg *04/28/15*

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 $>0^{\circ}\text{C}$ to 6.0°C

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☐

No ☐

No VOA Vials ☒

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(<2 or >12 unless noted)

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

Adjusted?

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

Checked by:

(If no, notify customer for authorization.)

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	1.4	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#: 575-748-5451

QA/QC Package:

☐ Standard

☐ Other

☐ EDD (Type) _____

☐ Level 4 (Full Validation)

Turn-Around Time:

☐ Standard ☐ Rush

Project Name:

DAF Quarterly

Project #: P.O. # 167796

Project Manager:

Scott Denton / Mike Holder

Sampler:

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.4

Date: 4-27-15

Time: 0930

Matrix: Solid

Sample Request ID

Container Type and #

Preservative Type

HEAL No. 1504881

TCLP Volatiles

TCLP Semi-Volatiles

TCLP Metals

Analysis Request

X

X

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APPENDIX G

Periodic Gauging Data 2015 Tables



G.1 MW-105 Well Information and Periodic Gauging Data



Table G.1 - MW-105 Well Information and Periodic Gauging Data
2015 Annual Groundwater Report
Navajo Refinery, Artesia, New Mexico

Associated Area of Concern	Water-Bearing Zone	Well ID	Northing	Easting	Land Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Top of Screen Elevation (ft amsl)	Screen Interval (ft bgs)	Date Measured	Depth to PSH (ft btoc)	Depth to Water (ft btoc)	Water Elevation (ft amsl)	PSH Thickness (ft)
S Refinery	Shallow	MW-105	671924.44	522454.93	3365.20	3364.99	3357.20	8 to 18	1/26/2015	--	9.10	3355.89	--
									3/3/2015	--	8.85	3356.14	--
									3/20/2015	--	9.01	3355.98	--
									4/1/2015	--	9.00	3355.99	--
									4/20/2015	--	8.89	3356.10	--
									5/7/2015	--	8.58	3356.41	--
									6/1/2015	--	8.29	3356.70	--
									6/23/2015	--	8.86	3356.13	--
									7/27/2015	--	8.96	3356.03	--
									8/19/2015	--	9.05	3355.94	--
									9/29/2015	--	9.01	3355.98	--
									10/20/2015	--	7.78	3357.21	--
									11/12/2015	--	7.90	3357.09	--

Footnotes:

Monthly gauging data collected in 2015 for well MW-105 is presented in this table. This data was collected per a recommendation made in the SWMU/AOC Group 2 Additonal Corrective Action Investigation Report submitted to the NMED on April 12, 2013.

Definitions:

- = not applicable
- amsl = above mean sea level
- bgs = below ground surface
- btoc = below top of casing
- ft = feet
- PSH = phase separated hydrocarbons
- S = South
- TOC = top of casing

G.2 NCL-34A Well Information and Periodic Gauging Data



Table G.2 - NCL-34A Well Information and Periodic Gauging Data
2015 Annual Groundwater Report
Navajo Refinery, Artesia, New Mexico

Associated Area of Concern	Water-Bearing Zone	Well ID	Northing	Easting	Land Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Top of Screen Elevation (ft amsl)	Screen Interval (ft bgs)	Date Measured	Depth to PSH (ft btoc)	Depth to Water (ft btoc)	Water Elevation (ft amsl)	PSH Thickness (ft)
NCL	Shallow	NCL-34A	673885.52	522235.08	3364.82	3365.49	3348.82	16 to 21	1/26/2015	--	8.34	3357.15	--
									3/3/2015	--	8.50	3356.99	--
									3/20/2015	--	8.84	3356.65	--
									4/1/2015	--	8.85	3356.64	--
									4/20/2015	--	7.88	3357.61	--
									5/7/2015	--	8.95	3356.54	--
									6/1/2015	--	8.88	3356.61	--
									6/23/2015	--	9.30	3356.19	--
									7/27/2015	--	9.65	3355.84	--
									8/19/2015	--	9.94	3355.55	--
									9/29/2015	--	9.80	3355.69	--
									10/20/2015	--	8.29	3357.20	--
									11/12/2015	--	8.00	3357.49	--

Footnotes:

Monthly gauging data collected in 2015 for well NCL-34A is presented in this table. This data was collected per the Approval with Modification: Update on the Investigation of Potential Sources of the Phase Separated Hydrocarbons in Monitoring Well NCL-34 letter from the NMED dated March 5, 2014. The collection of only quarterly data was required per the NMED letter, however this data was collected on a monthly basis.

Definitions:

- = not applicable
- amsl = above mean sea level
- bgs = below ground surface
- btoc = below top of casing
- ft = feet
- NCL = North Colony Landfarm
- PSH = phase separated hydrocarbons
- TOC = top of casing

G.3 RW-7 Well Information and Periodic Gauging Data



Table G.3 - RW-7 Well Information and Periodic Gauging Data
2015 Annual Groundwater Report
Navajo Refinery, Artesia, New Mexico

Associated Area of Concern	Water-Bearing Zone (a)	Well ID	Northing	Easting	Land Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Top of Screen Elevation (ft amsl)	Screen Interval (ft bgs)	Date Measured	Depth to PSH (ft btoc)	Depth to Water (ft btoc)	Water Elevation (b) (ft amsl)	PSH Thickness (ft)
N Refinery	Shallow	RW-7	673579.35	522098.94	3365.03	3367.09	Unknown	Unknown	1/8/2015	--	9.50	3357.59	--
									1/15/2015	--	9.23	3357.86	--
									1/22/2015	--	9.35	3357.74	--
									1/29/2015	--	9.25	3357.84	--
									2/5/2015	--	9.20	3357.89	--
									2/10/2015	--	9.19	3357.90	--
									2/19/2015	--	9.27	3357.82	--
									2/25/2015	--	9.25	3357.84	--
									3/3/2015	--	9.30	3357.79	--
									3/11/2015	--	9.49	3357.60	--
									3/19/2015	--	9.45	3357.64	--
									3/24/2015	--	9.55	3357.54	--
									3/31/2015	--	9.64	3357.45	--
									4/9/2015	--	9.85	3357.24	--
									4/15/2015	--	9.35	3357.74	--
									4/22/2015	--	9.60	3357.49	--
									4/30/2015	--	9.81	3357.28	--
									5/8/2015	--	9.54	3357.55	--
									5/15/2015	--	9.46	3357.63	--
									5/18/2015	--	9.75	3357.34	--
									5/27/2015	--	9.80	3357.29	--
									6/5/2015	--	9.40	3357.69	--
									6/12/2015	--	9.50	3357.59	--
									6/18/2015	--	9.37	3357.72	--
									7/2/2015	--	9.83	3357.26	--
									7/10/2015	--	9.81	3357.28	--
									7/17/2015	--	9.50	3357.59	--
									7/24/2015	10.25	10.35	3356.82	0.10
									7/30/2015	--	9.90	3357.19	--
									8/7/2015	--	10.04	3357.05	--
									8/14/2015	10.20	10.23	3356.88	0.03
									8/21/2015	9.57	9.58	3357.52	0.01
									8/28/2015	--	9.78	3357.31	--
									9/4/2015	--	9.96	3357.13	--
									9/11/2015	--	9.87	3357.22	--
									10/2/2015	--	10.18	3356.91	--
									10/9/2015	--	8.45	3358.64	--

Table G.3 - RW-7 Well Information and Periodic Gauging Data
2015 Annual Groundwater Report
Navajo Refinery, Artesia, New Mexico

Associated Area of Concern	Water-Bearing Zone (a)	Well ID	Northing	Easting	Land Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Top of Screen Elevation (ft amsl)	Screen Interval (ft bgs)	Date Measured	Depth to PSH (ft btoc)	Depth to Water (ft btoc)	Water Elevation (b) (ft amsl)	PSH Thickness (ft)
Refinery	Shallow	RW-7	673579.35	522098.94	3365.03	3367.09	Unknown	Unknown	10/16/2015	--	8.23	3358.86	--
									10/23/2015	--	7.91	3359.18	--
									10/30/2015	--	7.76	3359.33	--
									11/6/2015	--	7.98	3359.11	--
									11/13/2015	--	8.31	3358.78	--
									11/20/2015	--	8.49	3358.60	--
									11/24/2015	--	7.44	3359.65	--
									12/4/2015	--	8.78	3358.31	--
									12/9/2015	--	8.69	3358.40	--
									12/22/2015	--	9.09	3358.00	--

Footnotes:

(a) Wells screened in the shallow water-bearing zone are typically screened at depths of 20 to 25 ft bgs. The shallow water-bearing zone varies between confined and unconfined conditions.

(b) Water elevations are adjusted for PSH, if present, using an assumed specific gravity of 0.8.

Weekly gauging data collected in 2015 for well RW-7 is presented in this table. This data was collected per the Approval with Modification: Update on the Investigation of Potential Sources of the Phase Separated Hydrocarbons in Monitoring Well NCL-34 letter from the NMED dated March 5, 2014. The collection of only quarterly data was required per the NMED letter, however this data was collected on a weekly basis.

Definitions:

- = not applicable
- amsl = above mean sea level
- bgs = below ground surface
- btoc = below top of casing
- ft = feet
- N = North
- PSH = phase separated hydrocarbons
- TOC = top of casing
- unknown = screen interval not readily available