GW - 028

ENFORCEMENT

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Friday, June 16, 2017 4:03 PM

To: 'Dade, Lewis (Randy)'; Griswold, Jim, EMNRD; Denton, Scott; McWatters, Denise; O'Brien,

Robert (Bob) K.; Holder, Mike; Combs, Robert; Marks, Allison, EMNRD; Brancard, Bill,

EMNRD

Subject: RE: Discharge Permit GW-28 May 2017 Report

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and finds the Permittee to be in compliance.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505

Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]

Sent: Wednesday, June 14, 2017 4:16 PM

To: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Chavez, Carl J, EMNRD <Carl J.Chavez@state.nm.us>; Denton, Scott <Scott.Denton@HollyFrontier.com>; McWatters, Denise <Denise.McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K. <Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Combs, Robert <Robert.Combs@HollyFrontier.com>

Cc: Dade, Lewis (Randy) < Lewis. Dade@HollyFrontier.com>

Subject: Discharge Permit GW-28 May 2017 Report

Please find attached the monthly GW-28 Discharge Permit Report for May 2017. . If there are any questions, please contact me. Thanks, Randy.

Dade, Lewis (RANDY)

HF Navajo Ref LLC Environmental Specialist IV Environmental - Artesia (575) 746-5281 Work (575) 703-4735 Mobile Lewis.Dade@HollyFrontier.com 501 E. MAIN ARTESIA, NM. 88210

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June 14, 2017

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

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

RE: Discharge Permit GW-028

Monthly Report - May 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's May 2017 monthly report, for the period of May 1-31, 2017, under the Permit.

Specifically, this report covers the May 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical Report

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

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

Name Date June 14, 2017 Page 2

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes and Analytical Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
5/1/2017	111.62	110.48	0.03	222.13	7,615.89
5/2/2017	112.23	111.39	0.02	223.64	7,667.66
5/3/2017	111.84	111.42	0.02	223.28	7,655.31
5/4/2017	111.61	110.46	0.02	222.09	7,614.51
5/5/2017	111.89	110.73	0.02	222.64	7,633.37
5/6/2017	111.75	110.96	0.02	222.73	7,636.46
5/7/2017	109.40	113.43	0.02	222.85	7,640.57
5/8/2017	107.81	122.85	0.02	230.68	7,909.03
5/9/2017	110.51	124.63	0.02	235.16	8,062.63
5/10/2017	110.02	125.52	0.02	235.56	8,076.34
5/11/2017	109.43	125.18	0.02	234.63	8,044.46
5/12/2017	107.85	119.40	0.02	227.27	7,792.11
5/13/2017	107.56	120.98	0.11	228.65	7,839.43
5/14/2017	108.61	124.94	0.02	233.57	8,008.11
5/15/2017	109.03	125.98	0.02	235.03	8,058.17
5/16/2017	109.67	127.95	0.01	237.63	8,147.31
5/17/2017	109.74	128.86	0.02	238.62	8,181.26
5/18/2017	109.45	129.05	0.02	238.52	8,177.83
5/19/2017	109.26	128.80	0.02	238.08	8,162.74
5/20/2017	109.43	127.47	0.02	236.92	8,122.97
5/21/2017	109.68	127.41	0.02	237.11	8,129.49
5/22/2017	109.42	127.58	0.02	237.02	8,126.40
5/23/2017	109.55	127.15	0.03	236.73	8,116.46
5/24/2017	110.64	128.13	0.03	238.80	8,187.43
5/25/2017	69.39	124.85	49.31	243.55	8,350.29
5/26/2017	0.02	123.64	127.82	251.48	8,622.17
5/27/2017	50.91	80.20	126.53	257.64	8,833.37
5/28/2017	132.88	11.18	124.89	268.95	9,221.14
5/29/2017	115.01	14.88	124.79	254.68	8,731.89
5/30/2017	142.42	7.41	124.41	274.24	9,402.51
5/31/2017	142.50	7.86	125.13	275.49	9,445.37
OTAL (bbls/mon	th)				243,767.31

Attachment 2 Analytical Lab Report



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

OrderNo.: 1705790

June 01, 2017

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly RO Reject

Dear Robert Combs:

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

This report is a revised report and it replaces the original report issued May 31, 2017.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 6/1/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Project: Quarterly RO Reject

Lab ID: 1705790-001

Client Sample ID: R.O. Reject

Collection Date: 5/12/2017 3:37:00 PM

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

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: JLF
Arsenic	ND	0.0050		mg/L	5	5/16/2017 6:09:12 PM	C42837
Lead	ND	0.00050		mg/L	1	5/16/2017 6:06:09 PM	C42837
Selenium	0.012	0.0010		mg/L	1	5/16/2017 6:06:09 PM	C42837
Uranium	0.0090	0.00050		mg/L	1	5/16/2017 6:06:09 PM	C42837
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	2.9	0.50		mg/L	5	5/17/2017 5:01:13 AM	A42849
Chloride	520	50		mg/L	100	5/20/2017 2:28:45 AM	R42953
Sulfate	2300	50		mg/L	100	5/20/2017 2:28:45 AM	R42953
Nitrate+Nitrite as N	2.3	1.0		mg/L	5	5/20/2017 2:53:34 AM	R42953
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst	: KS
Total Dissolved Solids	5200	100	*D	mg/L	1	5/17/2017 5:54:00 PM	31769
SM4500-H+B: PH						Analyst	:: JRR
рН	7.94		Н	pH units	1	5/16/2017 8:35:08 PM	R42863
EPA METHOD 200.7: DISSOLVED M	ETALS					Analyst	: pmf
Aluminum	ND	0.020		mg/L	1	5/22/2017 2:56:28 PM	B42951
Barium	0.094	0.0020		mg/L	1	5/22/2017 2:56:28 PM	B42951
Boron	0.10	0.040		mg/L	1	5/22/2017 2:56:28 PM	B42951
Cadmium	ND	0.0020		mg/L	1	5/22/2017 2:56:28 PM	B42951
Chromium	ND	0.0060		mg/L	1	5/22/2017 2:56:28 PM	B42951
Cobalt	ND	0.0060		mg/L	1	5/22/2017 2:56:28 PM	B42951
Copper	ND	0.0060		mg/L	1	5/22/2017 2:56:28 PM	B42951
Iron	ND	0.020		mg/L	1	5/22/2017 2:56:28 PM	B42951
Manganese	ND	0.0020		mg/L	1	5/22/2017 2:56:28 PM	B42951
Molybdenum	0.0098	0.0080		mg/L	1	5/22/2017 2:56:28 PM	B42951
Nickel	ND	0.010		mg/L	1	5/22/2017 2:56:28 PM	B42951
Silver	ND	0.0050		mg/L	1	5/22/2017 2:56:28 PM	B42951
Zinc	0.053	0.010		mg/L	1	5/22/2017 2:56:28 PM	B42951
EPA METHOD 245.1: MERCURY						Analysi	: MED
Mercury	ND	0.00020		mg/L	1	5/26/2017 8:51:14 AM	31959
EPA METHOD 8015D: GASOLINE R	ANGE					Analyst	: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/18/2017 4:08:40 PM	GW4290
Surr: BFB	103	70-130		%Rec	1	5/18/2017 4:08:40 PM	GW4290
EPA METHOD 8011/504.1: EDB						Analyst	: JME
1,2-Dibromoethane	ND	0.010		μg/L	1	5/23/2017 10:17:52 AM	1 31899
EPA METHOD 8082: PCB'S						Analys	:: SCC

Matrix: AQUEOUS

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

- * 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 Page 1 of 18
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1705790

Date Reported: 6/1/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Quarterly RO Reject **Project:** Collection Date: 5/12/2017 3:37:00 PM Lab ID: 1705790-001 Matrix: AQUEOUS Received Date: 5/16/2017 9:35:00 AM

Analyses	Result	PQL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8082: PCB'S	-				Analyst	SCC
Aroclor 1016	ND	1.0	μg/L	1	5/22/2017 2:01:00 PM	31784
Aroclor 1221	ND	1.0	μg/L	1	5/22/2017 2:01:00 PM	31784
Aroclor 1232	ND	1.0	µg/L	1	5/22/2017 2:01:00 PM	31784
Aroclor 1242	ND	1.0	μg/L	1	5/22/2017 2:01:00 PM	31784
Aroclor 1248	ND	1.0	μg/L	1	5/22/2017 2:01:00 PM	31784
Aroclor 1254	ND	1.0	μg/L	1	5/22/2017 2:01:00 PM	31784
Aroclor 1260	ND	1.0	μg/L	1	5/22/2017 2:01:00 PM	31784
Surr: Decachlorobiphenyl	58.0	50.4-123	%Rec	1	5/22/2017 2:01:00 PM	31784
Surr: Tetrachloro-m-xylene	61.6	41.2-147	%Rec	1	5/22/2017 2:01:00 PM	31784
EPA METHOD 8015M/D: DIESEL RA	NGE				Analyst	том
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	5/22/2017 5:41:33 PM	31839
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	5/22/2017 5:41:33 PM	31839
Surr: DNOP	113	72.4-157	%Rec	1	5/22/2017 5:41:33 PM	31839
EPA METHOD 8310: PAHS					Analyst	scc
Naphthalene	ND	2.0	μg/L	1	5/22/2017 10:13:00 AM	
1-Methylnaphthalene	ND	2.0	μg/L	1	5/22/2017 10:13:00 AM	
2-Methylnaphthalene	ND	2.0	μg/L	1	5/22/2017 10:13:00 AM	
Benzo(a)pyrene	ND	0.070	μg/L	1	5/22/2017 10:13:00 AM	
Surr: Benzo(e)pyrene	85.2	49.1-127	%Rec	1	5/22/2017 10:13:00 AM	
EPA METHOD 8260B: VOLATILES					Analyst	DJF
Benzene	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Toluene	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Ethylbenzene	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Carbon Tetrachloride	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Chloroform	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,1-Dichloroethane	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,1-Dichloroethene	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Methylene Chloride	ND	3.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,1,1-Trichloroethane	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
1,1,2-Trichloroethane	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Trichloroethene (TCE)	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Vinyl chloride	ND	1.0	μg/L	1	5/16/2017 1:57:08 PM	W4282
Xylenes, Total	ND	1.5	μg/L	1	5/16/2017 1:57:08 PM	W4282
Surr: 1,2-Dichloroethane-d4	96.1	70-130	%Rec	1	5/16/2017 1:57:08 PM	W4282

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

- 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
- RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits Page 2 of 18 J
- P Sample pH Not In Range
- RL Reporting Detection Limit
 - Sample container temperature is out of limit as specified

Analytical ReportLab Order 1705790

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/1/2017

CLIENT: Navajo Refining Company

Project: Quarterly RO Reject

Client Sample ID: R.O. Reject

Collection Date: 5/12/2017 3:37:00 PM

Lab ID: 1705790-001 Matrix: AQUEOUS Re

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

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analy	st: DJF
Surr: 4-Bromofluorobenzene	97.3	70-130	%Rec	1	5/16/2017 1:57:08 PM	M W42829
Surr: Dibromofluoromethane	100	70-130	%Rec	1	5/16/2017 1:57:08 PM	и W42829
Surr: Toluene-d8	94.3	70-130	%Rec	1	5/16/2017 1:57:08 PI	M W42829
TOTAL PHENOLICS BY SW-846 9067					Analy	st: SCC
Phenolics	ND	2.5	μg/L	1	5/23/2017	31898

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

- * 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 Page 3 of 18
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1705790

Date Reported: 6/1/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Project: Quarterly RO Reject

Lab ID: 1705790-002

Client Sample ID: Trip Blank

Collection Date:

Matrix: TRIP BLANK Received Date: 5/16/2017 9:35:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	5/23/2017 11:04:18 AM	31899
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
Benzene	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Toluene	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Ethylbenzene	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Carbon Tetrachloride	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Chloroform	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,1-Dichloroethane	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,1-Dichloroethene	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Methylene Chloride	ND	3.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,1,1-Trichloroethane	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
1,1,2-Trichloroethane	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Trichloroethene (TCE)	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Vinyl chloride	ND	1.0	μg/L	1	5/16/2017 2:25:39 PM	W4282
Xylenes, Total	ND	1.5	μg/L	1	5/16/2017 2:25:39 PM	W4282
Surr: 1,2-Dichloroethane-d4	94.7	70-130	%Rec	1	5/16/2017 2:25:39 PM	W4282
Surr: 4-Bromofluorobenzene	99.9	70-130	%Rec	1	5/16/2017 2:25:39 PM	W4282
Surr: Dibromofluoromethane	101	70-130	%Rec	1	5/16/2017 2:25:39 PM	W4282
Surr: Toluene-d8	98.5	70-130	%Rec	1	5/16/2017 2:25:39 PM	W4282

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

- 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
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- 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 Page 4 of 18
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

170517031

Address:

4901 HAWKINS NE SUITE D

Project Name:

1705790

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Analytical Results Report

Sample Number

170517031-001

Sampling Date

Date/Time Received 5/17/2017 11:20 AM

Client Sample ID

1705790-001J / R.O REJECT

5/12/2017 Sampling Time

3:37 PM

Matrix

Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	5/22/2017	JEK	EPA 335.4	

Authorized Signature

Todd Taruscio, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

POL

Practical Quantitation Limit

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

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Address:

4901 HAWKINS NE SUITE D

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Batch #:

170517031

Project Name:

1705790

Analytical Results Report

Quality Control Data

Lab Control Sa	mple										
Parameter Cyanide		LCS Result 0.528	Units mg/L		•	%Rec 105.6		%Rec -110	Prep 5/17/	Date 2017	Analysis Date 5/22/2017
Matrix Spike					-					*	
Sample Number	Parameter		Sample Result	MS Result	Unit		MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
170511022-003	Cyanide		ND	0.481	mg/l		0.5	96.2	90-110	-	-
Matrix Spike Du	ıplicate										
Parameter		MSD Result	Units	MSD Spike	%R	000	%RPD	AR %RPD) Pro	p Date	Analysis Date
Cyanide		0.476	mg/L	0.5	95		1.0	0-20		7/2017	5/22/2017
Method Blank									-		
Parameter			Re	sult	Ur	nits		PQL	Pr	ep Date	Analysis Date
Cyanide			NE)	m	g/L		0.01	5/1	7/2017	5/22/2017

AR ND Acceptable Range

PQL

Not Detected

PUL

Practical Quantitation Limit Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID000013; MT:CERT0028; NM: ID00013; NV:ID00013; OR:ID200001-002; WA:C595 Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099





ANALYTICAL RESULTS - RADIOCHEMISTRY

Project:

1705790

Pace Project No.:

30219102

Parameters

Sample: 1705790-001l R.O. Reject

Lab ID: 30219102001

Collected: 05/12/17 15:37

Received: 05/17/17 10:00 Matrix: Water

PWS:

Site ID: Method Sample Type:

Act ± Unc (MDC) Carr Trac

0.775 ± 0.650 (0.930)

pCl/L

Analyzed CAS No. 05/22/17 19:30 13982-63-3

CAS No. Qual

Radium-226 Radium-228 EPA 903.1 EPA 904.0

C:NA T:90% 1.08 ± 0.457 (0.727) C:75% T:83%

pCl/L

Units

05/23/17 12:14 15262-20-1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project:

1705790

Pace Project No.:

30219102

QC Batch:

258854

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples: 30219102001

METHOD BLANK: 1275013

Matrix: Water

Associated Lab Samples:

30219102001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

0.0785 ± 0.358 (0.213) C:NA T:90%

pCi/L

05/22/17 18:52

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

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QUALITY CONTROL - RADIOCHEMISTRY

Project:

1705790

Pace Project No.:

30219102

QC Batch:

258855

Analysis Method:

EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples: 30219102001

METHOD BLANK: 1275014

Matrix: Water

Associated Lab Samples:

30219102001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

0.179 ± 0.354 (0.780) C:76% T:77%

pCi/L

05/23/17 12:05

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project:

1705790

Pace Project No.:

30219102

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Date: 05/24/2017 03:24 PM

Unc - Uncertainty: SDWA = 1.96 sigma count uncertainty, all other matrices = Expanded Uncertainty (95% confidence interval). Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB-B	Samp	Type: ME	BLK	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: PBW	Bato	h ID: B4	2951	F	RunNo: 4	2951				
Prep Date:	Analysis I	Date: 5/	22/2017	S	SeqNo: 1	351761	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								
Соррег	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 LCSLL-B	Samp	Type: LC	SLL	Test	Code: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID: BatchQC	Bato	h ID: B4	2951	R	tunNo: 4	2951				
Prep Date:	Analysis	Date: 5/	22/2017	S	eqNo: 1	351762	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	97.5	50	150			
Boron	ND	0.040	0.04000	0	99.9	50	150			
Cadmium	0.0021	0.0020	0.002000	0	106	50	150			
Chromium	ND	0.0060	0.006000	0	95.3	50	150			
Cobalt	ND	0.0060	0.006000	0	96.3	50	150			
Copper	ND	0.0060	0.006000	0	79.8	50	150			
Iron	ND	0.020	0.02000	0	98.4	50	150			
Manganese	ND	0.0020	0.002000	0	99.5	50	150			
Molybdenum	0.0080	0.0080	0.008000	0	100	50	150			G.
Nickel	ND	0.010	0.005000	0	98.6	50	150			
Silver	ND	0.0050	0.005000	0	99.0	50	150			
Zinc	ND	0.010	0.005000	0	102	50	150			

Sample ID LCSLL-B	SampT	ype: LC	SLL	Tes	tCode: El	PA Method	200.7: Disso	ved Meta	ls	
Client ID: BatchQC	Batch	ID: B4	2951	R	RunNo: 4	2951				
Prep Date:	Analysis D	ate: 5/	22/2017	S	SeqNo: 1	351985	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	113	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

Page 5 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID LCS-B	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: LCSW	Bato	h ID: B4	2951	F	RunNo: 42951					
Prep Date:	Analysis	Date: 5/	22/2017	S	SeqNo: 1	351986	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	101	85	115			
Barium	0.48	0.0020	0.5000	0	96.6	85	115			
Boron	0.52	0.040	0.5000	0	104	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.46	0.0060	0.5000	0	92.6	85	115			
Copper	0.48	0.0060	0.5000	0	95.6	85	115			
Iron	0.47	0.020	0.5000	0	94.0	85	115			
Manganese	0.47	0.0020	0.5000	0	93.7	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.47	0.010	0.5000	0	93.9	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.9	85	1 1 5			

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Page 6 of 18

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID LCS	SampType: LC	s	Tes	tCode: E	PA 200.8:	Dissolved Me	tals		
Client ID: LCSW	Batch ID: C4	2837	F	RunNo: 4	2837				
Prep Date:	Analysis Date: 5/	16/2017	S	SeqNo: 1	347259	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	95.5	85	115			
Lead	0.012 0.00050	0.01250	0	95.6	85	115			
Selenium	0.024 0.0010	0.02500	0	96.1	85	115			
Uranium	0.012 0.00050	0.01250	0	95.1	85	115			
Sample ID LCSLL	SampType: LC	SLL	Tes	tCode: El	PA 200.8:	Dissolved Me	tals		
Client ID: BatchQC	Batch ID: C4	2837	F	RunNo: 4	2837				
Prep Date:	Analysis Date: 5/	16/2017	8	SeqNo: 1	347260	Units: mg/L			

Sample ID MB	Samp	Туре: МЕ	BLK	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Uranium	ND	0.00050	0.0005000	0	93.0	50	150			
Selenium	ND	0.0010	0.001000	0	78.2	50	150			
Lead	ND	0.00050	0.0005000	0	95.0	50	150			
Arsenic	ND	0.0010	0.001000	0	85.5	50	150			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Prep Date:	Analysis	Date: 5/	16/2017	8	SeqNo: 1	347260	Units: mg/L			

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8: D		
Client ID: PBW	Batch ID: C42837	RunNo: 42837		
Prep Date:	Analysis Date: 5/16/2017	SeqNo: 1347261	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Arsenic	ND 0.0010			

Alsenic	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

Page 7 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB-31959

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

PBW

Batch ID: 31959

PQL

RunNo: 43092

SPK value SPK Ref Val %REC LowLimit

Prep Date: 5/25/2017 Analysis Date: 5/26/2017

Units: mg/L

Analyte

SeqNo: 1356204

HighLimit

%RPD **RPDLimit**

Qual

Mercury

ND 0.00020

Sample ID LCS-31959

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Prep Date:

Batch ID: 31959 5/25/2017

Analysis Date: 5/26/2017

RunNo: 43092

SeqNo: 1356205

Units: mg/L

Analyte

Result **PQL** SPK value SPK Ref Val

%REC

HighLimit

RPDLimit Qual

LowLimit

120

%RPD

Mercury

0.0049 0.00020 0.005000 0 98.8 80

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

Page 8 of 18

P Sample pH Not In Range

RLReporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB

SampType: MBLK

TestCode: EPA Method 300.0: Anions

Client ID: Prep Date:

PBW

Batch ID: A42849

PQL

RunNo: 42849

Analysis Date: 5/16/2017

SeqNo: 1348068

HighLimit

Units: mg/L

%RPD **RPDLimit**

Qual

Analyte Fluoride

ND 0.10

Sample ID LCS

SampType: LCS

TestCode: EPA Method 300.0: Anions

LowLimit

90

%REC LowLimit

Client ID:

LCSW

Batch ID: A42849

0.5000

SPK value SPK Ref Val

SPK value SPK Ref Val

RunNo: 42849

Prep Date: Analyte

Fluoride

Analysis Date: 5/16/2017 Result

0.46

0

SeqNo: 1348069

Units: mg/L

110

HighLimit %RPD

RPDLimit Qual

Sample ID MB

SampType: MBLK Batch ID: R42953

POL

0.10

TestCode: EPA Method 300.0: Anions

%REC

%REC

91.9

RunNo: 42953

Units: mg/L

%RPD

RPDLimit

Analyte Chloride

Client ID:

Prep Date:

Result **PQL**

ND

ND

ND

Analysis Date: 5/19/2017

SeqNo: 1351588

HighLimit

%RPD **RPDLimit**

Qual

Qual

Sulfate Nitrate+Nitrite as N 0.50 0.50 0.20

SPK value SPK Ref Val

TestCode: EPA Method 300.0: Anions

LowLimit

Sample ID LCS Client ID:

Nitrate+Nitrite as N

LCSW

PBW

SampType: LCS Batch ID: R42953

PQL

RunNo: 42953

90

Prep Date:

Analysis Date: 5/19/2017

Result

SeqNo: 1351589

Units: mg/L

Analyte Chloride Sulfate

4.8 0.50 5.000 9.7 0.50 10.00 3.5 0.20 3.500

SPK value SPK Ref Val %REC LowLimit 0 96.3 0 97.5

98.8

0

HighLimit 90 110 90 110

110

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits

Page 9 of 18

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790 01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB-31899

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID:

Analyte

PBW

Batch ID: 31899

PQL

RunNo: 43002

Prep Date: 5/23/2017 Analysis Date: 5/23/2017

SeqNo: 1353092

Units: µg/L HighLimit

RPDLimit Qual

1,2-Dibromoethane

ND 0.010

Sample ID LCS-31899

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

Client ID: **LCSW**

5/23/2017

Sample ID 1705790-001CMS

R.O. Reject

5/23/2017

Batch ID: 31899

RunNo: 43002

Units: µg/L

%RPD

%RPD

Analyte

Client ID:

Prep Date:

Prep Date:

Analysis Date: 5/23/2017 Result

Result

SeqNo: 1353094 %REC

HighLimit

1,2-Dibromoethane

0.097

PQL 0.010

Batch ID: 31899

Analysis Date: 5/23/2017

0.1000

SPK value SPK Ref Val

0 96.7

SPK value SPK Ref Val %REC LowLimit

70

RPDLimit

Qual

SampType: MS

TestCode: EPA Method 8011/504.1: EDB

130

RunNo: 43002

SeqNo: 1353109

Units: µg/L

Qual

Analyte 1,2-Dibromoethane

Result 0.10 0.010

Result

0.10

PQL

PQL

0.010

SPK value SPK Ref Val 0.1000 0

SPK value SPK Ref Val

%REC LowLimit 102

HighLimit

%RPD

RPDLimit Qual

131

1,2-Dibromoethane

Sample ID 1705790-001CMSD

SampType: MSD

Batch ID: 31899

0.1000

TestCode: EPA Method 8011/504.1: EDB RunNo: 43002

%REC

99.7

53.6

131

Prep Date: Analyte

Client ID:

R.O. Reject 5/23/2017

Analysis Date: 5/23/2017

0

SeqNo: 1353110

LowLimit

53.6

Units: µg/L HighLimit

%RPD 2.53

RPDLimit 23.8

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Н 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 В Analyte detected in the associated Method Blank

Sample container temperature is out of limit as specified

E Value above quantitation range

J Analyte detected below quantitation limits

Page 10 of 18

P Sample pH Not In Range

W

RLReporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID 1705790-001AMS	SampType: MS TestCode: EPA Method 8015M/D: Diesel Range									
Client ID: R.O. Reject	Batch II	D: 31 8	839	F	RunNo: 4	12945				
Prep Date: 5/19/2017	Analysis Date	e: 5 /	22/2017	8	SeqNo: 1	352327	Units: mg/L			
Analyte	Result I	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	107	87.2	145			
Surr: DNOP	0.59		0.5000		118	72.4	157			
Sample ID 1705790-001AMSI	S ampTyp	e: MS	SD .	Tes	tCode: E	PA Method	8015M/D: Die	sel Rang	e	
Client ID: R.O. Reject	Batch II	D: 31 8	839	F	RunNo: 4	12945				
Client ID: R.O. Reject Prep Date: 5/19/2017	Batch II Analysis Date				RunNo: 4 SeqNo: 1		Units: mg/L			
1	Analysis Date		22/2017		SeqNo: 1	1352328	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date: 5/19/2017	Analysis Date	e: 5/	22/2017	S	SeqNo: 1	1352328		%RPD 3.77	RPDLimit 20	Qual
Prep Date: 5/19/2017 Analyte	Analysis Date	e: 5/	22/2017 SPK value	SPK Ref Val	SeqNo: 1	l352328 LowLimit	HighLimit			Qual
Prep Date: 5/19/2017 Analyte Diesel Range Organics (DRO)	Analysis Date Result 5.2	PQL 1.0	SPK value 5.000 0.5000	SPK Ref Val	%REC 103 113	LowLimit 87.2 72.4	HighLimit	3.77	20	Qual
Prep Date: 5/19/2017 Analyte Diesel Range Organics (DRO) Surr: DNOP	Result 5.2 0.57	PQL 1.0 e: LC	SPK value 5.000 0.5000	SPK Ref Val 0	%REC 103 113	LowLimit 87.2 72.4	HighLimit 145 157	3.77	20	Qual

Sample ID MB-31839												
Surr: DNOP	0.56		0.5000		111	72.4	157					
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	82.8	146					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Prep Date: 5/19/2017	Analysis D	Analysis Date: 5/22/2017			SeqNo: 1352330			Units: mg/L				
Client ID: LCSW	Batch	iD: 31	839	F	RunNo: 4	2945						

	оср.) po	- LI	100	COOGO. EI	Ameniou	OU TOWN D. DIC	Ser italig	C		
Client ID: PBW	Batch	ID: 31	839	F	lunNo: 42	2945					
Prep Date: 5/19/2017	Analysis D	ate: 5/	22/2017	S	eqNo: 1	352331	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		114	72.4	157				

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

Page 11 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

4.2

1.8

2.1

1.0

5.000

2.500

2.500

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Aroclor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

Quarterly RO Reject

Sample ID MB-31784	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch	ID: 31	784	F	RunNo: 4	2939				
Prep Date: 5/17/2017	Analysis D	ate: 5/	22/2017	\$	SeqNo: 1	352291	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arodor 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		78.8	50.4	123			
Surr: Tetrachloro-m-xylene	2.2		2.500		86.8	41.2	147			
Sample ID LCS-31784	SampT	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 31	784	F	RunNo: 4	2939				
Prep Date: 5/17/2017	Analysis D	ate: 5/	22/2017	5	SeqNo: 1	352292	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.5	1.0	5.000	0	89.2	34.2	145			

Sample ID LCSD-31784	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	ID: 31	784	F	RunNo: 4	2939				
Prep Date: 5/17/2017	Analysis D	ate: 5/	22/2017	8	SeqNo: 1	352293	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.4	1.0	5.000	0	88.4	34.2	145	0.901	54	
Aroclor 1260	4.0	1.0	5.000	0	80.4	37.1	148	3.42	53.9	
Surr: Decachlorobiphenyl	1.7		2.500		68.8	50.4	123	0	0	
Surr: Tetrachloro-m-xylene	2.0		2.500		80.4	41.2	147	0	0	

0

83.2

72.8

83.2

37.1

50.4

41.2

148

123

147

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

Page 12 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID rb	SampT	ype: ME	BLK	TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batcl	h ID: W	12829	F	RunNo: 4	2829				
Prep Date:	Analysis D	Date: 5 /	16/2017	5	SeqNo: 1	347122	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.6		10.00		95.5	70	130			

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	tCode: El	ATILES				
Client ID: LCSW	Batch	ID: W	12829	F	RunNo: 4	2829				
Prep Date:	Analysis D	ate: 5/	16/2017	S	SeqNo: 1	347123	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	25	1.0	20.00	0	125	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.8	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.6		10.00		95.6	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

Page 13 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB-31785	Samp	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batcl	h ID: 31 7	785	F	RunNo: 4	2940				
Prep Date: 5/17/2017	Analysis [Date: 5/	22/2017	S	SeqNo: 1	351255	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	16		20.00		80.6	49.1	127			

Sample ID LCS-31785	SampT	ype: LC	S	Test	tCode: EF	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 31	785	R	RunNo: 42	2940				
Prep Date: 5/17/2017	Analysis D	ate: 5/	22/2017	S	SeqNo: 13	351267	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	46	2.0	80.00	0	56.9	33.3	141			
1-Methylnaphthalene	46	2.0	80.20	0	57.4	35.5	139			
2-Methylnaphthalene	45	2.0	80.00	0	56.6	30.7	139			
Acenaphthylene	51	2.5	80.20	0	63.9	60.2	119			
Acenaphthene	50	2.0	80.00	0	62.5	56	126			
Fluorene	5.0	0.80	8.020	0	62.7	51.6	129			
Phenanthrene	2.6	0.60	4.020	0	65.7	58.8	129			
Anthracene	2.7	0.60	4.020	0	67.9	59.9	121			
Fluoranthene	5.7	0.30	8.020	0	71.3	48	145			
Pyrene	5.6	0.30	8.020	0	69.2	56.2	130			
Benz(a)anthracene	0.54	0.070	0.8020	0	67.3	50.4	142			
Chrysene	2.7	0.20	4.020	0	66.4	54.7	134			
Benzo(b)fluoranthene	0.66	0.10	1.002	0	65.9	61.8	120			
Benzo(k)fluoranthene	0.33	0.070	0.5000	0	66.0	55.9	134			

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

Page 14 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

SampType: LCSD

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Sample ID LCSD-31785

Quarterly RO Reject

Sample ID LCS-31785 SampType: LCS TestCode: EPA Method 8310: PAHs Client ID: LCSW Batch ID: 31785 RunNo: 42940 Prep Date: 5/17/2017 Analysis Date: 5/22/2017 SegNo: 1351267 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Benzo(a)pyrene 0.32 0.070 0.5020 63.7 49.1 0 142 Dibenz(a,h)anthracene 0.68 0.12 1.002 0 67.9 57.8 134 Benzo(g,h,i)perylene 0.66 0.12 1.000 0 66.0 57.2 134 Indeno(1,2,3-cd)pyrene 1.2 0.25 2.004 0 61.4 58.2 137 Surr: Benzo(e)pyrene 15 20.00 73.1 49.1 127

TestCode: EPA Method 8310: PAHs

	-									
Client ID: LCSS02	Batcl	n ID: 31	785	F	RunNo: 4	2940				
Prep Date: 5/17/2017	Analysis D)ate: 5/	22/2017	S	SeqNo: 1	351268	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	50	2.0	80.00	0	62.2	33.3	141	8.86	20.3	
1-Methylnaphthalene	51	2.0	80.20	0	63.0	35.5	139	9.30	22.7	
2-Methylnaphthalene	50	2.0	80.00	0	62.1	30.7	139	9.20	22.6	
Acenaphthylene	56	2.5	80.20	0	70.2	60.2	119	9.42	22.6	
Acenaphthene	55	2.0	80.00	0	68.7	56	126	9.39	21.4	
Fluorene	5.5	0.80	8.020	0	68.7	51.6	129	9.11	23.6	
Phenanthrene	2.9	0.60	4.020	0	71.9	58.8	129	9.04	24.7	
Anthracene	3.0	0.60	4.020	0	75.6	59.9	121	10.7	23.9	
Fluoranthene	6.3	0.30	8.020	0	78.9	48	145	10.1	25.1	
Pyrene	6.1	0.30	8.020	0	76.3	56.2	130	9.77	23.7	
Benz(a)anthracene	0.60	0.070	0.8020	0	74.8	50.4	142	10.5	19.2	
Chrysene	2.9	0.20	4.020	0	72.9	54.7	134	9.29	19.8	
Benzo(b)fluoranthene	0.73	0.10	1.002	0	72.9	61.8	120	10.1	22.1	
Benzo(k)fluoranthene	0.37	0.070	0.5000	0	74.0	55.9	134	11.4	27.2	
Benzo(a)pyrene	0.36	0.070	0.5020	0	71.7	49.1	142	11.8	30.2	
Dibenz(a,h)anthracene	0.75	0.12	1.002	0	74.9	57.8	134	9.79	23.8	
Benzo(g,h,i)perylene	0.72	0.12	1.000	0	72.0	57.2	134	8.70	19.1	
indeno(1,2,3-cd)pyrene	1.4	0.25	2.004	0	68.4	58.2	137	10.8	19.6	
Surr: Benzo(e)pyrene	16		20.00		80.6	49.1	127	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB-31898 SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID: **PBW**

Batch ID: 31898

RunNo: 42979

Prep Date: 5/23/2017

Analysis Date: 5/23/2017

SeqNo: 1352280

%REC LowLimit

Units: µg/L HighLimit

%RPD **RPDLimit**

Qual

Analyte Phenolics

Client ID:

Prep Date:

Result **PQL** ND 2.5

Sample ID LCS-31898

5/23/2017

LCSW

SampType: LCS

TestCode: Total Phenolics by SW-846 9067

Batch ID: 31898

RunNo: 42979 SeqNo: 1352281

62.4

Units: µg/L

146

%RPD

Analyte Phenolics

Analysis Date: 5/23/2017 **PQL**

2.5

2.5

SPK value SPK Ref Val

0

0

20.00

20.00

SPK value SPK Ref Val

%REC

HighLimit

RPDLimit

Qual

Qual

Sample ID LCSD-31898

SampType: LCSD

Result

23

TestCode: Total Phenolics by SW-846 9067

Client ID: LCSS02 Prep Date: 5/23/2017

Batch ID: 31898 Analysis Date: 5/23/2017

RunNo: 42979 SegNo: 1352282

Units: µg/L

%RPD

8.53

Page 16 of 18

Analyte Phenolics

Result

22

PQL

SPK value SPK Ref Val %REC LowLimit

108

62.4

HighLimit 146 **RPDLimit**

21

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н 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 В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits J

Sample pH Not In Range

RLReporting Detection Limit

P

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID rb

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

70

LowLimit

LowLimit

Client ID:

Batch ID: **B42857**

RunNo: 42857

Prep Date:

Analysis Date: 5/17/2017

SeqNo: 1348781

Units: %Rec

Analyte

Result

HighLimit

Surr: BFB

PQL

SPK value SPK Ref Val

9.6

10.00

%REC LowLimit

130

RPDLimit Qual

Sample ID 2.5ug gro Ics

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

%RPD

%RPD

Client ID: LCSW

Batch ID: **B42857**

RunNo: 42857

96.2

Prep Date:

Analysis Date: 5/17/2017

SeqNo: 1348782

Units: %Rec

Analyte

PQL

Surr: BFB

Sample ID rb1

Result 9.9

10.00

SPK value SPK Ref Val %REC 98.8

HighLimit 130 **RPDLimit** Qual

Client ID:

SampType: MBLK

Batch ID: GW42902

0.050

TestCode: EPA Method 8015D: Gasoline Range

RunNo: 42902

Units: mg/L

Page 17 of 18

Prep Date: Analyte

Surr: BFB

Analysis Date: 5/18/2017

ND

10

SeqNo: 1349973

HighLimit

%RPD **RPDLimit**

Qual

Gasoline Range Organics (GRO)

PBW

Result **PQL**

SPK value SPK Ref Val %REC

10.00

101

70

130

Qualifiers:

S

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit R RPD outside accepted recovery limits

RL

В

w Sample container temperature is out of limit as specified

Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

P Sample pH Not In Range

Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1705790

01-Jun-17

Client:

Navajo Refining Company

Project:

Quarterly RO Reject

Sample ID MB-31769

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW

Batch ID: 31769

RunNo: 42866

Prep Date: 5/16/2017 Analysis Date: 5/17/2017

SeqNo: 1348678

Units: mg/L

Qual

Analyte Total Dissolved Solids Result

PQL ND 20.0

Batch ID: 31769

SPK value SPK Ref Val %REC

LowLimit

HighLimit

%RPD **RPDLimit**

Sample ID LCS-31769

Prep Date: 5/16/2017

Client ID: LCSW

SampType: LCS

TestCode: SM2540C MOD: Total Dissolved Solids

RunNo: 42866

Units: mg/L

Analysis Date: 5/17/2017

SeqNo: 1348679

HighLimit

Qual

Analyte

Result

SPK value SPK Ref Val

%REC 103

80

%RPD **RPDLimit**

Total Dissolved Solids

1030

PQL 20.0

1000

0

LowLimit

120

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Н 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit Sample container temperature is out of limit as specified

Page 18 of 18



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:	17057	90		RoptNo	: 1
Received By:	Erin Melendrez	5/16/2017 9:35:00 AM			u_u		
					LUL-		
Completed By:	Ashley Gallegos	5/16/2017 10:11:58 AN	1		34-7		
Reviewed By:	2	5/16/17					
Chain of Cus	tody						
1. Custody sea	als intact on sample bottles?		Yes	- ;	No	Not Present 🗸	
2. Is Chain of 0	Custody complete?		Yes	V	No	Not Present	
3. How was the	e sample delivered?		Clien	<u>t</u>			
Log In							
4. Was an atte	empt made to cool the samp	les?	Yes	V.	No	NA :	
5. Were all sar	mples received at a tempera	ture of >0° C to 6.0°C	Yes	v	No	NA	
6. Sample(s) i	n proper container(s)?		Yes	v	No		
7. Sufficient sa	ample volume for indicated to	est(s)?	Yes	~	No		
8. Are samples	(except VOA and ONG) pro	pperly preserved?	Yes	~	No		
9. Was presen	vative added to bottles?		Yes		No 🗸	NA	
10. VOA vials h	ave zero headspace?		Yes	V	No :	No VOA Vials	
11. Were any s	ample containers received b	roken?	Yes		No 🗸	# of assessed	
						# of preserved bottles checked	61
	work match bottle labels? pancies on chain of custody	1	Yes	~	No !	for pH:	or £12 unless noted)
	s correctly identified on Chai		Yes	V	No	Adjusted?	No
	nat analyses were requested		Yes	v	No		6
	ding times able to be met? customer for authorization.)		Yes	**	No -	Checked by:	M
Special Hand	lling (if applicable)						
16. Was client r	notified of all discrepancies w	ith this order?	Yes		No	NA 🗸	
Perso	n Notified:	Date	. 1664 S.	ma il marti	etation (g. lacelle localities, teneral teneral conf		
By Wi	iom:	Via:	eMa	nil .	Phone Fax	In Person	
Regar	ding:	the his fact, and the first the first the second of the complete and the second	. See sai been de od	entificiti actic o	olio di Bin della stato di Antonia di Antonia della di Antonia della di Antonia della di Antonia della di Antonia	فيتتسعن وميشاه ستاور واستمشاهيت متوسعته المتدود	
Client	Instructions:	Medicina nimbahasar vitiba sa silika da miliba dib mping (、 別年1月) (智能が成。 (GANG) は代職。	ac 4944 frankrips activ	CHAPAC PROPERTY.	Brandist fortunders Components (1860)	ad i cround his interessables mare topology of Africa (Asia).	
17. Additional r	ernarks:						
18. Cooler Info	ormation						
Cooler N	o Temp °C Condition 0.3 Good	Seal Intact Seal No : Yes	Seal Da	ate	Signed By		

	HALL ENVIRONMENTAL	ANALYSIS LABORATORY										npples (,	'00'	2 2 4 ×						×								Welvills AS, Al, Bai, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Sc, Ag, U, Zn, VOCs: 1,1,1-Trichlot/bethane, 1,1,2,2-Tefrachloroethane, 1,1,2,2-Tefrachloroethane, 1,1,2,2-Terrachloroethylene, 1,1,2,2-Terrachloroethylene, 1,1,2,2,1,2,1,2,1,2,1,3,3,3,3,3,3,3,3,3,	Trichlotrothane; 1,1,2-Trichlorcelliylene; 1,1-Dirthoroethane 1,1-Dichloroethene; 1,2. Dirthoroethane; 1,2-Dict oncettane; Berzene; Carbon Tetrachforide; Chloroform; Carbon Tetrachforide; Chloroform; Chloroform; Carbon Total Xyloves, Villyl Chloride; Chloroform; Chloro
	E.	ZA I		60			0	0797	sp S	-		elinitie NossiO I			-										Ĺ			Zn Horoethy	Trichlotroethane; 1,1,2-Trichlorcethylene; 1,1-Dirthoroethane; 1,1-Dirthoroethane; 1,2-Dirthoroethane; 1,2-Dirthoroethane; 1,2-Dirthoroethane; 1,2-Dirthoroethane; Enylogene; 1,2-Dirthoroethane; 1,2-Di
	Z		E	Albuquerque, NM 87109	Fax 505-345-4107					u Ų		- it-tild\ \	4!	V ×					-	-						+	Remarks: erhall to Scott Denton, Robert Combs, Randy Dade	Welalis, As, A.; Ba, B, Lid, Cit, Co, Culifie Po, Mn, Hg, Mo, Mi, Sc, Ag, U, Zn, VOCs; 1,7,1-Trichloroethane; 1,1,2,7-Tefracialoroethane; 1,1,2,8-Tejracialoroethane; 1,1,	Trichlotroethane; 1,1,2-Trichlorcethylene; 1,1-Ditchloroethane 1,1-Ditchlor D bromoethane; 1,2-Ditch croethane; Bertzene; Cachon Tetrachlarde; Ch Dochkoroethane; Ethylorazne; Cholores; Polita Xilones; Vilnyl Chlaride; SVIDC: Persystems
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1	I	4	5	awkin	45.4	-			əp	ins	NAME OF TAXABLE PARTY.	istoT :4.		1	+	×	-	×	1					-		-	Scott	CG C	Trichk lictrono ylbenze
	Ш		:	ř (100						100	OB: WOO			-		×	17000								+	nail to	Rai in	2.1.2.0 8.1.2.0 8.1.2.0
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i Time:	Rush		600	O. # 231642		ager.	, _	38	Brady Hubbard	X Yes	1	Preservative Type		1-unpres 1- M2SO4	된	HNO3	HNO3	NaOH	HNO3	Na2S203	unpres	unpres	Ę	unpres	H2SO4	HCL			
Turn-Around Time:	X Stand.	Project Name,	O whatterio	Project #, P.O. # 231642		Project Manager.	Scott Denton	Robert Combs	Sampler	On Ice:	Sample Temperature: ()	Container Type and #		2 - 500ml P	3-40ml VOA	1-500ml P	1-125ml P	1-500ml P	2-1LP	3-40ml VOA	2 - 1L Glass	1 - 1L Glass	3-40ml VOA	A COLUMN TO SHAPE	-	Ş Ş	Received by:	アス	Received by
Chain-of-Custody Record			Mailing Address: P.O. Box 159 Artesia,			451		☐ Level 4 (Full Validation)	CHAPTER TO CHAPTER THE CONTRACT OF THE CONTRAC			Sample Request ID		R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject		Relinquished by: Ling H. H. Land		
n-of-C	Navajo Retinery		ss. P.O. Bo	59	Phone #: 575-748-3311	email or Fax#: 575-746-5451	ئة					Matrix		liquid	ilquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liquid	liguid	liquid	Relinquisher	. 58	Relinquished by:
Chail			g Addre	NM 88211-0159	9#: 575-	or Fax#	QA/QC Package:	X Standard	ler_	EDD (Type)		Time		3.37	3:37	3:37	3:37	3:37	3:37	3:37	3.37	3:37	3.37	3.37	3:37	XXX	ime:	0,0	au au
	Client		Mailin	NW 8	Рноп	email	QA/QC	X Sta				Date		Sirli7	2/11/1/2	challs	Class 12	412/5	Cytus 5	2/11/19	Clfuls	Shall	stato	Stalo	s/unu	2/11/10	7/15/7		Date:

if hirossary, samples submitted to Hall Environmental may be subconnected to other accredited (abovatories. The sames as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Tuesday, May 30, 2017 3:21 PM

To: 'Dade, Lewis (Randy)'

Cc: 'McWatters, Denise'; 'O'Brien, Robert (Bob) K.'; 'Holder, Mike'; Marks, Allison, EMNRD;

Brancard, Bill, EMNRD; 'Combs, Robert'; Griswold, Jim, EMNRD

Subject: Discharge Permit GW-028 Monthly Report dated May 15, 2017 - April 2017 Reporting

Period

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and finds the Permittee to be in compliance.

OCD observes that the last quarterly environmental analytical sampling event occurred in January of 2017, but the environmental analytical data was subsequently submitted with the Permittee's April 15, 2017 Monthly Report. OCD recommends for consistency in Monthly RO Reject Water Reporting that the quarterly environmental analytical data results should accompany the Monthly Report following the completion of quarterly environmental analyses for consistency in reporting.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")



May 15, 2017

2011 [...]

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

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

RE: Discharge Permit GW-028

Monthly Report - May 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2017 monthly report, for the period of April 1-30, 2017, under the Permit.

Specifically, this report covers the April 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

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

Name Date May 15, 2017 Page 2

Sincerely,

Scott M. Denton Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
Ì	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
4/1/2017	169.05	118.32	0.02	287.39	9,853.37
4/2/2017	134.30	118.87	0.02	253.19	8,680.80
4/3/2017	111.35	119.72	0.02	231.09	7,923.09
4/4/2017	111.76	120.08	0.02	231.86	7,949.49
4/5/2017	112.28	120.75	0.02	233.05	7,990.29
4/6/2017	111.85	120.71	0.02	232.58	7,974.17
4/7/2017	111.10	120.48	0.02	231.60	7,940.57
4/8/2017	110.57	120.67	0.02	231.26	7,928.91
4/9/2017	111.72	121.04	0.02	232.78	7,981.03
4/10/2017	114.19	122.19	0.02	236.40	8,105.14
4/11/2017	114.07	123.03	0.02	237.12	8,129.83
4/12/2017	114.42	123.60	0.02	238.04	8,161.37
4/13/2017	114.33	122.51	0.02	236.86	8,120.91
4/14/2017	113.60	122.19	0.02	235.81	8,084.91
4/15/2017	113.63	122.95	0.02	236.60	8,112.00
4/16/2017	113.38	123.25	0.02	236.65	8,113.71
4/17/2017	112.79	123.19	0.02	236.00	8,091.43
4/18/2017	111.77	122.77	0.02	234.56	8,042.06
4/19/2017	112.43	123.48	0.02	235.93	8,089.03
4/20/2017	119.46	114.61	0.02	234.09	8,025.94
4/21/2017	109.57	109.68	0.02	219.27	7,517.83
4/22/2017	135.05	110.59	0.02	245.66	8,422.63
4/23/2017	149.14	111.84	0.02	261.00	8,948.57
4/24/2017	132.65	111.71	0.02	244.38	8,378.74
4/25/2017	132.03	111.32	0.02	243.37	8,344.11
4/26/2017	132.81	112.26	0.02	245.09	8,403.09
4/27/2017	134.50	113.75	0.02	248.27	8,512.11
4/28/2017	133.79	113.44	0.02	247.25	8,477.14
4/29/2017	114.87	111.45	0.02	226.34	7,760.23
4/30/2017	111.99	112.47	0.04	224.50	7,697.14
TOTAL (bbls/mo	nth)				245,759.66

Chavez, Carl J, EMNRD

From:

Chavez, Carl J, EMNRD

Sent:

Friday, April 14, 2017 11:53 AM

To:

'Dade, Lewis (Randy)'

Cc:

'McWatters, Denise'; 'O'Brien, Robert (Bob) K.'; 'Holder, Mike'; Marks, Allison, EMNRD;

Brancard, Bill, EMNRD; 'Combs, Robert'; Griswold, Jim, EMNRD

Subject:

ACO WQA-OCD-CO-2015-002 RO Reject Water Discharge Monthly Report for March

2017

Randy:

The New Mexico Oil Conservation Division has completed its review of the above subject report and finds the Permittee to be in compliance.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division **Energy Minerals and Natural Resources Department** 1220 South St Francis Drive Santa Fe, New Mexico 87505

Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")



2017 (20, 72)

April 12, 2017

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

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

RE: Discharge Permit GW-028

Monthly Report - March 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's March 2017 monthly report, for the period of March 1-31, 2017, under the Permit.

Specifically, this report covers the March 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the first quarter, samples were collected for the RO reject streams from the permanent units on January 9, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the monthly report submitted on February 15, 2017, for the January 2017 reporting period.

Name Date April 12, 2017 Page 2

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanei	nt RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	·
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
3/1/2017	0.00	7.24	4.55	11.79	404.23
3/2/2017	0.00	0.13	0.03	0.16	5.49
3/3/2017	63.74	8.93	0.03	72.70	2,492.57
3/4/2017	13.12	0.06	18.37	31.55	1,081.71
3/5/2017	0.00	0.07	126.94	127.01	4,354.63
3/6/2017	0.00	0.08	106.72	106.80	3,661.71
3/7/2017	0.00	0.08	53.24	53.32	1,828.11
3/8/2017	0.00	0.08	0.04	0.12	4.11
3/9/2017	0.00	0.08	0.02	0.10	3.43
3/10/2017	0.00	0.08	0.02	0.10	3.43
3/11/2017	0.00	0.08	0.02	0.10	3.43
3/12/2017	0.00	0.08	0.02	0.10	3.43
3/13/2017	0.00	0.08	0.02	0.10	3.43
3/14/2017	0.00	0.08	0.02	0.10	3.43
3/15/2017	0.00	0.09	0.02	0.11	3.77
3/16/2017	0.00	0.08	0.02	0.10	3.43
3/17/2017	0.00	0.09	0.02	0.11	3.77
3/18/2017	85.92	4.81	0.02	90.75	3,111.43
3/19/2017	136.32	0.09	0.02	136.43	4,677.60
3/20/2017	138.28	0.09	0.02	138.39	4,744.80
3/21/2017	139.22	0.09	0.02	139.33	4,777.03
3/22/2017	138.66	30.51	0.02	169.19	5,800.80
3/23/2017	139.98	110.37	0.02	250.37	8,584.11
3/24/2017	140.95	110.13	0.02	251.10	8,609.14
3/25/2017	141.30	110.57	0.02	251.89	8,636.23
3/26/2017	140.80	111.31	0.02	252.13	8,644.46
3/27/2017	140.95	111.81	0.02	252.78	8,666.74
3/28/2017	140.32	110.36	0.02	250.70	8,595.43
3/29/2017	141.72	105.80	0.02	247.54	8,487.09
3/30/2017	132.85	109.43	0.02	242.30	8,307.43
3/31/2017	142.58	119.88	0.02	262.48	8,999.31
TOTAL (bbls/mor	nth)			-	114,505.71

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Thursday, April 13, 2017 11:34 AM

To: 'Dade, Lewis (Randy)'

Subject: RE: Emailing: 2017-02-15 GW-028 Monthly Report

Randy:

Yes, this is it. Don't know why my Jan. 2017 version was missing the lab data?

Anyway, I have reviewed the RO Reject discharge data from 1/9/17, and it looks good with the exception of the usual exceedances, i.e., F, SO4, and TDS. It is interesting Chlorides are well below the 250 ppm. Will get it into the Admin. Record.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

----Original Message----

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]

Sent: Thursday, April 13, 2017 10:57 AM

To: Chavez, Carl J, EMNRD < Carl J. Chavez@state.nm.us > Cc: Dade, Lewis (Randy) < Lewis.Dade@HollyFrontier.com > Subject: FW: Emailing: 2017-02-15 GW-028 Monthly Report

Carl,

Here is the GW-28 Report from 02-15-2017 with attached Analytical Data from 01/09/2017. If there is anything else you need, let me know. Have a great week and weekend. Thanks, Randy

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

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Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Thursday, April 13, 2017 9:44 AM

To: 'Dade, Lewis (Randy)'

Subject: RE: GW-28 March Report

Attachments: GW-28 March 2017 Report.pdf

Randy:

Good morning. I was reviewing the above subject report, the section with the following paragraph:

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the first quarter, samples were collected for the RO reject streams from the permanent units on January 9, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the monthly report submitted on February 15, 2017, for the January 2017 reporting period.

OCD did not receive the environmental analytical laboratory data results in the submitted February 15, 2017 monthly report. HollyFrontier should have conducted sampling again around April 9, 2017?

Could you please submit the January 9, 2017 environmental analytical data results to OCD by COB on Friday, April 21, 2017. Also, OCD should be receiving the next quarterly sampling data results with the April 2017 submittal.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]

Sent: Wednesday, April 12, 2017 11:33 AM

To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; McWatters, Denise <Denise.McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Marks, Allison, EMNRD

<AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD <bill.brancard@state.nm.us>

Cc: Dade, Lewis (Randy) < Lewis. Dade@HollyFrontier.com>

Subject: GW-28 March Report

Here is the monthly GW-28 Discharge Permit Report for March 2017. If there are any questions, please contact me. Thanks, Randy.



April 12, 2017

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

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

RE: Discharge Permit GW-028

Monthly Report - March 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's March 2017 monthly report, for the period of March 1-31, 2017, under the Permit.

Specifically, this report covers the March 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the first quarter, samples were collected for the RO reject streams from the permanent units on January 9, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the monthly report submitted on February 15, 2017, for the January 2017 reporting period.

Name Date April 12, 2017 Page 2

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
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3/9/2017	0.00	0.08	0.02	0.10	3.43
3/10/2017	0.00	0.08	0.02	0.10	3.43
3/11/2017	0.00	0.08	0.02	0.10	3.43
3/12/2017	0.00	0.08	0.02	0.10	3.43
3/13/2017	0.00	0.08	0.02	0.10	3.43
3/14/2017	0.00	0.08	0.02	0.10	3.43
3/15/2017	0.00	0.09	0.02	0.11	3.77
3/16/2017	0.00	0.08	0.02	0.10	3.43
3/17/2017	0.00	0.09	0.02	0.11	3.77
3/18/2017	85.92	4.81	0.02	90.75	3,111.43
3/19/2017	136.32	0.09	0.02	136.43	4,677.60
3/20/2017	138.28	0.09	0.02	138.39	4,744.80
3/21/2017	139.22	0.09	0.02	139.33	4,777.03
3/22/2017	138.66	30.51	0.02	169.19	5,800.80
3/23/2017	139.98	110.37	0.02	250.37	8,584.11
3/24/2017	140.95	110.13	0.02	251.10	8,609.14
3/25/2017	141.30	110.57	0.02	251.89	8,636.23
3/26/2017	140.80	111.31	0.02	252.13	8,644.46
3/27/2017	140.95	111.81	0.02	252.78	8,666.74
3/28/2017	140.32	110.36	0.02	250.70	8,595.43
3/29/2017	141.72	105.80	0.02	247.54	8,487.09
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3/31/2017	142.58	119.88	0.02	262.48	8,999.31
TOTAL (bbls/mont	th)				114,505.71

Chavez, Carl J, EMNRD

From: Dade, Lewis (Randy) < Lewis.Dade@HollyFrontier.com>

Sent: Thursday, April 13, 2017 10:57 AM

To: Chavez, Carl J, EMNRD
Cc: Dade, Lewis (Randy)

Subject: FW: Emailing: 2017-02-15 GW-028 Monthly Report

Attachments: 2017-02-15 GW-028 Monthly Report.pdf

Carl,

Here is the GW-28 Report from 02-15-2017 with attached Analytical Data from 01/09/2017. If there is anything else you need, let me know. Have a great week and weekend. Thanks, Randy

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February 15, 2017

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

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

RE: Discharge Permit GW-028
Monthly Report – January 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's January 2016 monthly report, for the period of January 1-31, 2017, under the Permit.

Specifically, this report covers the January 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the fourth quarter, samples were collected for the RO reject streams from the permanent units on January 5, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

On October 21, 2016, Navajo notified OCD of its selection of a Class 1 disposal well as an alternative disposal method for the RO reject. Navajo submitted a revised application to renew and modify Discharge Permit GW-028 on January 13, 2017, to reflect this selection.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanent	: RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
1/1/2017	0.00	128.70	125.72	254.42	8,722.97
1/2/2017	0.00	128.90	125.67	254.57	8,728.11
1/3/2017	0.00	128.73	125.77	254.50	8,725.71
1/4/2017	0.00	128.72	125.61	254.33	8,719.89
1/5/2017	0.15	128.90	125.86	254.90	8,739.43
1/6/2017	0.00	126.99	125.41	252.40	8,653.71
1/7/2017	0.00	124.68	124.50	249.19	8,543.66
1/8/2017	0.00	124.60	124.03	248.63	8,524.46
1/9/2017	0.00	115.64	116.60	232.25	7,962.86
1/10/2017	0.00	121.95	125.59	247.54	8,487.09
1/11/2017	0.00	122.38	126.03	248.41	8,516.91
1/12/2017	0.00	122.27	127.79	250.06	8,573.49
1/13/2017	21.23	107.10	128.94	257.27	8,820.69
1/14/2017	134.75	38.19	129.63	302.57	10,373.83
1/15/2017	136.47	39.28	130.72	306.47	10,507.54
1/16/2017	135.08	38.13	130.27	303.48	10,405.03
1/17/2017	135.69	38.65	130.06	304.40	10,436.57
1/18/2017	138.87	10.23	132.21	281.31	9,644.91
1/19/2017	123.39	64.66	131.14	319.18	10,943.31
1/20/2017	100.50	123.69	129.28	353.46	12,118.63
1/21/2017	97.46	122.80	129.00	349.26	11,974.63
1/22/2017	110.04	72.43	130.03	312.49	10,713.94
1/23/2017	125.38	42.27	131.51	299.15	10,256.57
1/24/2017	126.09	44.09	131.21	301.39	10,333.37
1/25/2017	126.86	43.15	131.16	301.16	10,325.49
1/26/2017	127.32	42.46	131.19	300.98	10,319.31
1/27/2017	127.20	42.55	130.96	300.72	10,310.40
1/28/2017	127.16	40.74	130.99	298.89	10,247.66
1/29/2017	127.49	16.81	131.11	275.41	9,442.63
1/30/2017	127.90	0.10	131.11	259.11	8,883.77
1/31/2017	127.71	0.07	130.88	258.66	8,868.34
TOTAL (bbls/mor	nth)				297,824.91

Attachment 2 Analytical Lab Report



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

February 14, 2017

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

FAX

RE: Quarterly R.O. Reject

OrderNo.: 1701253

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 06, 2017.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject

Collection Date: 1/5/2017 4:30:00 PM

Lab ID: 1701253-001

Matrix: AQUEOUS

Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS					as balan Panel I (1976) (Seneral Indiana)	Analyst	: JLF
Arsenic	ND	0.0050		mg/L	5	1/13/2017 5:17:37 PM	C40026
Lead	ND	0.0025		mg/L	5	1/13/2017 5:17:37 PM	C4002
Selenium	0.010	0.0050		mg/L	5	1/13/2017 5:17:37 PM	C4002
Uranium	0.0052	0.0025		mg/L	5	1/13/2017 5:17:37 PM	C4002
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-226	1.29	0.662		pCi/L	1	2/2/2017	R4052
Radium-226 ±	0.644	0.662		pCi/L	1	2/2/2017	R4052
Radium-228	0.624	1.02		pCi/L	1	2/2/2017	R4052
Radium-228 ±	0.507	1.02		pCi/L	1	2/2/2017	R4052
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	3.5	2.0		mg/L	20	1/9/2017 10:08:12 PM	R3991
Chloride	74	10		mg/L	20	1/9/2017 10:08:12 PM	R3991
Sulfate	1400	50		mg/L	100	1/11/2017 1:08:20 AM	R3995
Nitrate+Nitrite as N	2.3	1.0		mg/L	5	1/10/2017 12:12:18 AM	R3991
SM2540C MOD: TOTAL DISSOLVED S	OLIDS					Analyst	: KS
Total Dissolved Solids	3410	20.0	*	mg/L	1	1/11/2017 5:59:00 PM	29623
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	LSB
Cyanide	ND	0.0100		mg/L	1	1/16/2017	R4052
SM4500-H+B: PH						Analyst	JRR
рН	7.87	1.68	Н	pH units	1	1/9/2017 3:34:06 PM	R3993
EPA METHOD 200.7: DISSOLVED MET	ALS					Analyst	TES
Aluminum	ND	0.020		mg/L	1	1/22/2017 9:55:24 PM	A4018
Barium	0.066	0.0020		mg/L	1	1/24/2017 11:12:53 AM	
Boron	0.10	0.040		mg/L	1	1/24/2017 11:12:53 AM	
Cadmium	ND	0.0020		mg/L	1	1/24/2017 11:12:53 AM	A4022
Chromium	ND	0.0060		mg/L	1	1/24/2017 11:12:53 AM	
Cobalt	ND	0.0060		mg/L	1	1/24/2017 11:12:53 AM	A40223
Copper	ND	0.0060		mg/L	1	1/26/2017 9:36:42 AM	A4028
Iron	ND	0.020		mg/L	1	1/24/2017 11:12:53 AM	A40223
Manganese	ND	0.0020		mg/L	1	1/24/2017 11:12:53 AM	A4022
Molybdenum	0.0088	0.0080		mg/L	1	1/24/2017 11:12:53 AM	A4022
Nickel	ND	0.010		mg/L	1	1/24/2017 11:12:53 AM	A40223
Silver	ND	0.0050		mg/L	1	1/24/2017 11:12:53 AM	A4022
Zinc	0.023	0.010		mg/L	1	1/24/2017 11:40:30 AM	A4022
EPA METHOD 245.1: MERCURY						Analyst:	MED
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:14:44 PM	29608

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

- 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 Page 1 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject Collection Date: 1/5/2017 4:30:00 PM Received Date: 1/9/2017 9:20:00 AM

Lab ID: 1701253-001 Matrix: AQUEOUS

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/12/2017 2:15:17 PM	G39990
Surr: BFB	87.6	70-130	%Rec	1	1/12/2017 2:15:17 PM	G39990
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/10/2017 10:10:43 AN	1 29609
EPA METHOD 8082: PCB'S					Analys	t: SCC
Aroclor 1016	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1221	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1232	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1242	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1248	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1254	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1260	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	1 29618
Surr: Decachlorobiphenyl	60.4	26.1-140	%Rec	1	1/11/2017 10:44:00 AN	1 29618
Surr: Tetrachloro-m-xylene	53.2	15-123	%Rec	1	1/11/2017 10:44:00 AN	1 29618
EPA METHOD 8015M/D: DIESEL RAN	GE				Analys	t: TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	1/12/2017 4:33:48 PM	29657
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	1/12/2017 4:33:48 PM	29657
Surr: DNOP	115	77.1-144	%Rec	1	1/12/2017 4:33:48 PM	29657
EPA METHOD 8310: PAHS					Analys	t: SCC
Naphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PN	1 29615
1-Methylnaphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PN	1 29615
2-Methylnaphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PM	1 29615
Benzo(a)pyrene	ND	0.070	μg/L	1	1/11/2017 12:16:05 PN	
Surr: Benzo(e)pyrene	81.0	24.4-130	%Rec	1	1/11/2017 12:16:05 PM	1 29615
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Toluene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Ethylbenzene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Carbon Tetrachloride	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Chloroform	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1-Dichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1-Dichloroethene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Methylene Chloride	ND	3.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912

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

- 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
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 2 of 22
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject Collection Date: 1/5/2017 4:30:00 PM

Lab ID: 1701253-001

Matrix: AQUEOUS

Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Vinyl chloride	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Xylenes, Total	ND	1.5	μg/L	1	1/9/2017 5:53:01 PM	W39912
Surr: 1,2-Dichloroethane-d4	107	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
Surr: 4-Bromofluorobenzene	86.6	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
Surr: Dibromofluoromethane	118	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
Surr: Toluene-d8	87.9	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	1/25/2017	29866

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

- 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
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 22
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Quarterly R.O. Reject **Collection Date:**

Lab ID: 1701253-002 Matrix: TRIP BLANK

Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst	: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/12/2017 3:43:50 PM	G39990
Surr: BFB	83.7	70-130	%Rec	1	1/12/2017 3:43:50 PM	G39990
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/10/2017 10:25:50 AM	29609
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
Benzene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Toluene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Ethylbenzene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Carbon Tetrachloride	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Chloroform	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1-Dichloroethane	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1-Dichloroethene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Methylene Chloride	ND	3.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Vinyl chloride	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Xylenes, Total	ND	1.5	μg/L	1	1/9/2017 6:22:09 PM	W39912
Surr: 1,2-Dichloroethane-d4	103	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912
Surr: 4-Bromofluorobenzene	86.8	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912
Surr: Dibromofluoromethane	116	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912
Surr: Toluene-d8	88.9	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912

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

- 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
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 22
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: A40181 RunNo: 40181 Prep Date: Analysis Date: 1/22/2017 SeqNo: 1259966 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020

Sample ID LLLCS-A SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals Client ID: **BatchQC** Batch ID: A40181 RunNo: 40181 Prep Date: Analysis Date: 1/22/2017 SegNo: 1259967 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 0.01000 104 50 150

Sample ID LCS-A SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals Client ID: LCSW Batch ID: A40181 RunNo: 40181 Prep Date: Analysis Date: 1/22/2017 SeqNo: 1259968 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** LowLimit Qual Aluminum 0.53 0.020 0.5000 106 85 115

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A40223 RunNo: 40223 Prep Date: Analysis Date: 1/24/2017 SeqNo: 1261933 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 ND Iron 0.020 ND Manganese 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050

Sample ID LCS-A	SampTy	S	Test	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: A40223 RunNo: 40223									
Prep Date:	Analysis Da	ate: 1/2	24/2017	SeqNo: 1261934			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.4	85	115		***************************************	
Boron	0.50	0.040	0.5000	0	99.6	85	115			

Qualifiers:

Zinc

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND

0.010

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

Page 5 of 22

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701253**

14-Feb-17

Client:

Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID LCS-A	·	SampType: LCS			estCode: EPA Method 200.7: Dissolved Metals					
Client ID: LCSW Prep Date:		Batch ID: A40223 Analysis Date: 1/24/2017			RunNo: 4 SegNo: 1:		Unite: mad			
Trep Date.	Allalysis	Date. II.	24/2017		sequo. I.	201934	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	97.1	85	115			
Chromium	0.48	0.0060	0.5000	0	95.4	85	115			
Cobalt	0.46	0.0060	0.5000	0	91.8	85	115			
Iron	0.47	0.020	0.5000	0	93.5	85	115			
Manganese	0.47	0.0020	0.5000	0	94.2	85	115			
Molybdenum	0.50	0.0080	0.5000	0	101	85	115			
Nickel	0.45	0.010	0.5000	0	90.4	85	115			
Silver	0.098	0.0050	0.1000	0	97.9	85	115			
Zinc	0.47	0.010	0.5000	0	93.5	85	115			

		**************************************			****					
Sample ID LLLCS-A	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Disso	ved Meta	ls	
Client ID: BatchQC	Bato	ch ID: A4	0223	F	RunNo: 4	0223				
Prep Date:	Analysis	Date: 1/	24/2017	S	SeqNo: 1	261935	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	112	50	150			
Boron	0.040	0.040	0.04000	0	101	50	150			
Cadmium	ND	0.0020	0.002000	0	98.5	50	150			
Chromium	0.0060	0.0060	0.006000	0	101	50	150			
Cobalt	ND	0.0060	0.006000	0	98.5	50	150			
Iron	ND	0.020	0.02000	0	99.3	50	150			
Manganese	ND	0.0020	0.002000	0	92.5	50	150			
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150			
Nickel	ND	0.010	0.005000	0	110	50	150			
Silver	0.0052	0.0050	0.005000	0	105	50	150			
Zinc	ND	0.010	0.005000	0	109	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
- W Sample container temperature is out of limit as specified

Analyte detected in the associated Method Bian

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Hall Environmental Analysis Laboratory, Inc.

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID 1701253-001GMS	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals	With the state of				
Client ID: R.O. Reject	et Batch ID: C40026			F	RunNo: 40026					
Prep Date:	Analysis Date: 1/13/2017				SeqNo: 1254502					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.14	0.0050	0.1250	0.002183	108	70	130	0.715	20	
Lead	0.064	0.0025	0.06250	0	102	70	130	0.187	20	
Selenium	0.14	0.0050	0.1250	0.01048	106	70	130	1.86	20	
Uranium	0.071	0.0025	0.06250	0.005175	105	70	130	0.245	20	

Sample ID	1701253-001GMSI	Гуре: М.	;	Tes							
Client ID:	R.O. Reject	Batc	h ID: C4	0026	F	RunNo: 4					
Prep Date:		13/2017	S	SeqNo: 1	254503	Units: mg/L					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.14	0.0050	0.1250	0.002183	107	70	130			
Lead		0.064	0.0025	0.06250	0	102	70	130			
Selenium		0.14	0.0050	0.1250	0.01048	104	70	130			
Uranium		0.071	0.0025	0.06250	0.005175	105	70	130			

Sample ID LCS	TestCode: EPA 200.8: Dissolved Metals								
Client ID: LCSW	Batch ID: C	40026	F	RunNo: 4	0026				
Prep Date:	Analysis Date:	SeqNo: 1254506			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	98.8	85	115			
Lead	0.013 0.00050	0.01250	0	100	85	115			
Selenium	0.026 0.0010	0.02500	0	103	85	115			
Uranium	0.012 0.00050	0.01250	0	98.4	85	115			

Sample ID LLLCS	SampType: LCSLL			Tes	tCode: El	tals				
Client ID: BatchQC	Batch ID: C40026			R	RunNo: 4	0026				
Prep Date:	Analysis Date: 1/13/2017			S	SeqNo: 1	254507	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	98.2	50	150			
Lead	0.00052	0.00050	0.0005000	0	104	50	150			
Selenium	0.0010	0.0010	0.001000	0	102	50	150			
Uranium	0.00050	0.00050	0.0005000	0	100	50	150			

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals	
Client ID: PBW	Batch ID: C40026	RunNo: 40026	
Prep Date:	Analysis Date: 1/13/2017	SeqNo: 1254508 Units: mg/L	
Analyte	Result PQL SPK value SF	PK Ref Val %REC LowLimit HighLimit %RPD	RPDLimit Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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WO#:

1701253

14-Feb-17

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID:

PBW

Batch ID: C40026

RunNo: 40026

Prep Date:

Analysis Date: 1/13/2017

SeqNo: 1254508

SPK value SPK Ref Val %REC LowLimit

Units: mg/L HighLimit

%RPD **RPDLimit**

Qual

Analyte **PQL** 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
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-29608

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID: PBW

Batch ID: 29608

PQL

RunNo: 39928

Prep Date: 1/9/2017

HighLimit

Analysis Date: 1/10/2017

SeqNo: 1251284

%REC LowLimit

Units: mg/L

Qual

Analyte Mercury

Client ID:

ND 0.00020

Sample ID LCS-29608 LCSW

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Batch ID: 29608

RunNo: 39928

Units: mg/L

Prep Date: 1/9/2017 Analysis Date: 1/10/2017

SeqNo: 1251285

HighLimit

RPDLimit

RPDLimit

Analyte

SPK value SPK Ref Val

%RPD

PQL Result

SPK value SPK Ref Val

%REC 98.3

Qual

Mercury

0.0049 0.00020 0.005000

120

%RPD

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

O#: 1701253 14-Feb-17

WO#:

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB	SampT	SampType: MBLK			tCode: E	PA Method	300.0: Anions	3		THE ASSESSMENT OF THE SECOND S		
Client ID: PBW	Batch	ID: R3	9919	F	RunNo: 39919							
Prep Date:	Analysis D	ate: 1/	9/2017	5	SeqNo: 1251098			Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Fluoride	ND	0.10							THE PARTY OF THE P			
Chloride	ND	0.50										
Nitrate+Nitrite as N	ND	0.20										
Sample ID LCS	SampT	S	Tes									
Client ID: LCSW	Batch	ID: R3	9919	F	RunNo: 3	9919						
Prep Date:	Analysis D	ate: 1/	9/2017	\$	SeqNo: 1251099							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Fluoride	0.49	0.10	0.5000	0	97.8	90	110	***************************************				
Chloride	4.8	0.50	5.000	0	96.8	90	110					
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110					
Sample ID MB	SampType: MBLK			-T		PA Method	NAME OF THE OWNER OWNER OF THE OWNER OW	MULTIPLE TO THE STATE OF THE PARTY OF THE PA				

Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	1
Client ID: PBW	Batch ID: R39952	RunNo: 39952		
Prep Date:	Analysis Date: 1/10/2017	SeqNo: 1251860	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	Tes	tCode: El	PA Method	5				
Client ID: LCSW	Batch ID	R39952	F	RunNo: 3	9952				
Prep Date:	Analysis Date	1/10/2017	9	SeqNo: 1	251861	Units: mg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	94 (0.50 10.00	0	94.5	90	110			

- * 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
- Page 10 of 22

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#:

1701253 14-Feb-17

Client: Navajo Refining Company Project: Quarterly R.O. Reject

Sample ID MB-29609 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 29609 RunNo: 39918

Prep Date: 1/10/2017 Analysis Date: 1/10/2017 SeqNo: 1251243 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-29609 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 29609 RunNo: 39918

Prep Date: 1/10/2017 Analysis Date: 1/10/2017 SeqNo: 1251245 Units: µg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit**

1,2-Dibromoethane 0.094 0.010 0.1000 93.8 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В 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 container temperature is out of limit as specified W

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

RPDLimit

Qual

%RPD

HighLimit

144

14-Feb-17

Client:

Navajo Refining Company

Result

ND

ND

1.1

PQL

1.0

5.0

1.000

Project:

Analyte

Surr: DNOP

Diesel Range Organics (DRO)

Motor Oil Range Organics (MRO)

Quarterly R.O. Reject

Sample ID LCS-29657	SampType: LC	s	Tes	TestCode: EPA Method 8015M/D: Diesel Range						
Client ID: LCSW	Batch ID: 29	Batch ID: 29657			9973					
Prep Date: 1/12/2017	Analysis Date: 1	S	SeqNo: 1	252916	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	110	63.2	155				
Surr: DNOP	0.56	0.5000		111	77.1	144				
Sample ID MB-29657	SampType: MI	BLK	Tes	TestCode: EPA Method 8015M/D: Diesel Range						
Client ID: PBW	Batch ID: 29	Batch ID: 29657			RunNo: 39973					
Prep Date: 1/12/2017	Analysis Date: 1	S	SeqNo: 1	252917	Units: mg/L					

SPK value SPK Ref Val %REC LowLimit

108

77.1

Qualifiers:

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

Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory, Inc.

3.4

1.8

1.3

1.0

5.000

2.500

2.500

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-29618	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: PBW	Batch	n ID: 29	618	F	RunNo: 3	9949				
Prep Date: 1/10/2017	Analysis D	ate: 1/	11/2017	S	SeqNo: 1	251667	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		63.2	26.1	140			
Surr: Tetrachloro-m-xylene	1.4		2.500		55.2	15	123			
Sample ID LCS-29618(1221)	SampT	ype: LC	S	Tes	tCode: E	PA Method	8082: PCB's			
Sample ID LCS-29618(1221) Client ID: LCSW	•	ype: LC n ID: 29			tCode: E RunNo: 3		8082: PCB's			
	•	iD: 29	618	F		9949	8082: PCB's Units: μg/L			
Client ID: LCSW	Batch	iD: 29	618 11/2017	F	RunNo: 3	9949		%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017	Batch Analysis D	n ID: 29 vate: 1 /	618 11/2017	F	RunNo: 3 SeqNo: 1	9949 251690	Units: µg/L	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte	Batch Analysis D Result	n ID: 29 Pate: 1 /	618 11/2017 SPK value	SPK Ref Val	RunNo: 3 GeqNo: 1 %REC	9949 251690 LowLimit	Units: µg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221	Batch Analysis D Result 3.1	n ID: 29 Pate: 1 /	618 11/2017 SPK value 5.000	SPK Ref Val	RunNo: 3 SeqNo: 1 %REC 61.8	9949 251690 LowLimit	Units: µg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221 Surr: Decachlorobiphenyl	Batch Analysis D Result 3.1 1.8 1.2	n ID: 29 Pate: 1 /	618 11/2017 SPK value 5.000 2.500 2.500	F S SPK Ref Val 0	RunNo: 3 SeqNo: 1 **REC 61.8 71.6 48.0	9949 251690 LowLimit 15 26.1 15	Units: µg/L HighLimit 200 140	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene	Batch Analysis D Result 3.1 1.8 1.2 SampT	PQL 1.0	618 11/2017 SPK value 5.000 2.500 2.500	SPK Ref Val 0	RunNo: 3 SeqNo: 1 %REC 61.8 71.6 48.0	9949 251690 LowLimit 15 26.1 15	Units: µg/L HighLimit 200 140 123	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene Sample ID LCSD-29618(1221	Batch Analysis D Result 3.1 1.8 1.2 SampT	PQL 1.0 1D: 29	618 (11/2017 SPK value 5.000 2.500 2.500	SPK Ref Val 0	RunNo: 3 SeqNo: 1 **REC 61.8 71.6 48.0 tCode: E	9949 251690 LowLimit 15 26.1 15 PA Method 9949	Units: µg/L HighLimit 200 140 123	%RPD	RPDLimit	Qual

Sample ID LCS-29618(1232)	SampT	SampType: LCS			tCode: El					
Client ID: LCSW	Batch	Batch ID: 29618			RunNo: 39949					
Prep Date: 1/10/2017	Analysis D	ate: 1/	11/2017	SeqNo: 1252021			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1232	3.6	1.0	5.000	0	73.0	15	200			
Surr: Decachlorobiphenyl	1.8		2.500		70.4	26.1	140			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.4	15	123			

0

68.4

72.8

50.8

15

15

26.1

200

140

123

10.1

0

0

Qualifiers:

Aroclor 1221

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Page 13 of 22

0

0

0

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253 14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

							accounted to the second				
Sample ID	LCSD-29618(1232)	SampT	ype: LC	SD	Tes	PA Method					
Client ID:	LCSS02	Batch	ID: 29	618	F	RunNo: 3	9949				
Prep Date:	1/10/2017	Analysis Da	ate: 1/	11/2017	SeqNo: 1252022 Units: μg/L						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1232		3.6	1.0	5.000	0	72.0	15	200	1.38	0	
Surr: Decach	lorobiphenyl	1.7		2.500		68.8	26.1	140	0	0	
Surr: Tetrach	loro-m-xylene	1.5		2.500		61.6	15	123	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

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- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Client: Navajo Refining Company Project: Quarterly R.O. Reject

Sample ID rb SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: PBW Batch ID: W39912 RunNo: 39912 Prep Date: Analysis Date: 1/9/2017 SeqNo: 1250932 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 Toluene ND 1.0 Ethylbenzene ND 1.0 1,2-Dichloroethane (EDC) ND 1.0 1,2-Dibromoethane (EDB) ND 1.0 Carbon Tetrachloride ND 1.0 Chloroform ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 Methylene Chloride ND 3.0 1,1,2,2-Tetrachloroethane ND 2.0 Tetrachloroethene (PCE) ND 1.0 1,1,1-Trichloroethane ND 1.0 1,1,2-Trichloroethane ND 1.0 Trichloroethene (TCE) ND 1.0 Vinyl chloride ND 1.0 Xylenes, Total ND 1.5 Surr: 1,2-Dichloroethane-d4 9.1 10.00 70 91.4 130 Surr: 4-Bromofluorobenzene 9.1 10.00 91.2 70 130 Surr: Dibromofluoromethane 9.7 10.00 97.5 70 130 Surr: Toluene-d8 8.9 10.00 88.9 70 130

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: W3	39912	F	RunNo: 3	9912				
Prep Date:	Analysis D	ate: 1/	9/2017	S	SeqNo: 1	250933	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	19	1.0	20.00	0	97.2	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	109	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.1		10.00		91.5	70	130			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

WO#:

1701253

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-29615	Samp	Гуре: МВ	LK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batc	h ID: 29 6	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [Date: 1/	11/2017	S	SeqNo: 1	252566	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0			*****************				Petro de consecuencia de la cons	***************************************
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	17		20.00		83.8	24.4	130			

Sample ID LCS-29615	Samp	Type: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 29	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [Date: 1/	11/2017	S	SeqNo: 1	252567	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	47	2.0	80.00	0	59.0	33.3	141	***************************************		
1-Methylnaphthalene	45	2.0	80.20	0	56.4	35.5	139			
2-Methylnaphthalene	43	2.0	80.00	0	54.1	30.7	139			
Acenaphthylene	53	2.5	80.20	0	65.8	60.2	119			
Acenaphthene	49	2.0	80.00	0	61.9	56	126			
Fluorene	5.0	0.80	8.020	0	61.7	51.6	129			
Phenanthrene	2.8	0.60	4.020	0	69.7	58.8	129			
Anthracene	2.7	0.60	4.020	0	66.9	59.9	121			
Fluoranthene	5.9	0.30	8.020	0	72.9	48	145			
Pyrene	6.3	0.30	8.020	0	78.7	56.2	130			
Benz(a)anthracene	0.58	0.070	0.8020	0	72.3	50.4	142			
Chrysene	3.0	0.20	4.020	0	73.9	54.7	134			
Benzo(b)fluoranthene	0.73	0.10	1.002	0	72.9	61.8	120			
Benzo(k)fluoranthene	0.37	0.070	0.5000	0	74.0	55.9	134			

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

Page 16 of 22

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

0.66

0.33

0.32

0.69

0.69

1.2

14

0.10

0.070

0.070

0.12

0.12

0.25

1.002

0.5000

0.5020

1.002

1.000

2.004

20.00

14-Feb-17

1701253

WO#:

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID LCS-29615	Samp1	ype: LC	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batcl	h ID: 29 6	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [Date: 1/	11/2017	S	SeqNo: 1	252567	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.36	0.070	0.5020	0	71.7	49.1	142		`	
Dibenz(a,h)anthracene	0.76	0.12	1.002	0	75.8	57.8	134			
Benzo(g,h,i)perylene	0.77	0.12	1.000	0	77.0	57.2	134			
Indeno(1,2,3-cd)pyrene	1.4	0.25	2.004	0	68.9	58.2	137			
Surr: Benzo(e)pyrene	15		20.00		75.3	24.4	130			
Sample ID LCSD-29615	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSS02	Batcl	n ID: 29 6	615	F	lunNo: 3	9968				
Prep Date: 1/10/2017	Analysis D)ate: 1/	11/2017	S	eqNo: 1	252568	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Naphthalene	Result 43	PQL 2.0	SPK value 80.00	SPK Ref Val	%REC 53.3	LowLimit 33.3	HighLimit 141	%RPD 10.2	RPDLimit 20.3	Qual
										Qual
Naphthalene	43	2.0	80.00	0	53.3	33.3	141	10.2	20.3	Qual
Naphthalene 1-Methylnaphthalene	43 41	2.0 2.0	80.00 80.20	0	53.3 51.0	33.3 35.5	141 139	10.2 10.0	20.3 22.7	Qual S
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene	43 41 39	2.0 2.0 2.0	80.00 80.20 80.00	0 0 0	53.3 51.0 49.0	33.3 35.5 30.7	141 139 139	10.2 10.0 9.91	20.3 22.7 22.6	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene	43 41 39 48	2.0 2.0 2.0 2.5	80.00 80.20 80.00 80.20	0 0 0	53.3 51.0 49.0 59.6	33.3 35.5 30.7 60.2	141 139 139 119	10.2 10.0 9.91 9.90	20.3 22.7 22.6 22.6	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene	43 41 39 48 45	2.0 2.0 2.0 2.5 2.0	80.00 80.20 80.00 80.20 80.00	0 0 0 0	53.3 51.0 49.0 59.6 56.1	33.3 35.5 30.7 60.2 56	141 139 139 119 126	10.2 10.0 9.91 9.90 9.70	20.3 22.7 22.6 22.6 21.4	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene	43 41 39 48 45 4.6	2.0 2.0 2.0 2.5 2.0 0.80	80.00 80.20 80.00 80.20 80.00 8.020	0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1	33.3 35.5 30.7 60.2 56 51.6	141 139 139 119 126 129	10.2 10.0 9.91 9.90 9.70 7.76	20.3 22.7 22.6 22.6 21.4 23.6	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene	43 41 39 48 45 4.6 2.5	2.0 2.0 2.0 2.5 2.0 0.80 0.60	80.00 80.20 80.00 80.20 80.00 8.020 4.020	0 0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1 62.2	33.3 35.5 30.7 60.2 56 51.6 58.8	141 139 139 119 126 129	10.2 10.0 9.91 9.90 9.70 7.76 11.3	20.3 22.7 22.6 22.6 21.4 23.6 24.7	S
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene	43 41 39 48 45 4.6 2.5 2.4	2.0 2.0 2.5 2.0 0.80 0.60	80.00 80.20 80.00 80.20 80.00 8.020 4.020	0 0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1 62.2 59.5	33.3 35.5 30.7 60.2 56 51.6 58.8 59.9	141 139 139 119 126 129 129	10.2 10.0 9.91 9.90 9.70 7.76 11.3 11.8	20.3 22.7 22.6 22.6 21.4 23.6 24.7 23.9	S
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene	43 41 39 48 45 4.6 2.5 2.4 5.3	2.0 2.0 2.5 2.0 0.80 0.60 0.60 0.30	80.00 80.20 80.00 80.20 80.00 8.020 4.020 4.020	0 0 0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1 62.2 59.5 65.6	33.3 35.5 30.7 60.2 56 51.6 58.8 59.9 48	141 139 139 119 126 129 129 121	10.2 10.0 9.91 9.90 9.70 7.76 11.3 11.8	20.3 22.7 22.6 22.6 21.4 23.6 24.7 23.9 25.1	S

0

0

0

0

0

65.9

66.0

63.7

68.9

69.0

61.4

67.6

61.8

55.9

49.1

57.8

57.2

58.2

24.4

120

134

142

134

134

137

130

10.1

11.4

11.8

9.66

11.0

11.5

0

22.1

27.2

30.2

23.8

19.1

19.6

Qualifiers:

Benzo(b)fluoranthene

Benzo(k)fluoranthene

Dibenz(a,h)anthracene

Indeno(1,2,3-cd)pyrene

Surr: Benzo(e)pyrene

Benzo(g,h,i)perylene

Benzo(a)pyrene

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-29866

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID:

PBW

RunNo: 40252

Prep Date:

Analyte

1/25/2017

Batch ID: 29866 Analysis Date: 1/25/2017

SeqNo: 1262095

Units: µg/L

RPDLimit

Qual

Phenolics, Total Recoverable

Result

PQL

SPK value SPK Ref Val %REC LowLimit HighLimit

%RPD

ND

SampType: LCS

2.5

TestCode: Total Phenolics by SW-846 9067

Sample ID LCS-29866 Client ID: LCSW

Batch ID: 29866

Analysis Date: 1/25/2017

RunNo: 40252

Units: µg/L

PQL

SPK value SPK Ref Val

%REC

LowLimit HighLimit 62.4

%RPD

Phenolics, Total Recoverable

Client ID: LCSS02

21

2.5 20.00 0

104

SeqNo: 1262096

146

RPDLimit

Qual

Sample ID LCSD-29866

Prep Date: 1/25/2017

SampType: LCSD

Batch ID: 29866

TestCode: Total Phenolics by SW-846 9067

RunNo: 40252

Units: µg/L

RPDLimit Qual

Analyte Phenolics, Total Recoverable

Prep Date:

1/25/2017

Analysis Date: 1/25/2017 Result

SPK value SPK Ref Val %REC LowLimit

0

113

62.4

HighLimit 146 %RPD 8.32

21

23 2.5

20.00

SeqNo: 1262097

Qualifiers:

S

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Page 18 of 22

P Sample pH Not In Range RLReporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-R40523

SampType: MBLK

TestCode: EPA 335.4: Total Cyanide Subbed

LowLimit

LowLimit

Client ID: Prep Date:

PBW

Batch ID: R40523

RunNo: 40523

Analysis Date: 1/16/2017

SPK value SPK Ref Val

SPK value SPK Ref Val

SeqNo: 1269895

Units: mg/L HighLimit

%RPD **RPDLimit**

Qual

Analyte Cyanide

Result **PQL** ND 0.0100

SampType: LCS

TestCode: EPA 335.4: Total Cyanide Subbed

%REC

RunNo: 40523

Client ID: LCSW Prep Date:

Sample ID LCS-R40523

Batch ID: R40523

%REC

Units: mg/L

Analyte

Analysis Date: 1/16/2017

PQL

SeqNo: 1269896

HighLimit

RPDLimit

Qual

0.5000

97.0

90

%RPD

Cyanide

0.485

0

110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н 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 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 container temperature is out of limit as specified W

Page 19 of 22

Hall Environmental Analysis Laboratory, Inc.

14-Feb-17

WO#:

1701253

Client: Navajo Refining Company Quarterly R.O. Reject Project:

Sample ID rb SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range Client ID: PBW Batch ID: G39990 RunNo: 39990 Prep Date: Analysis Date: 1/12/2017 SeqNo: 1253120 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 8.8 10.00 87.5 70 130

Sample ID 2.5ug gro Ics SampType: LCS TestCode: EPA Method 8015D: Gasoline Range Client ID: LCSW Batch ID: G39990 RunNo: 39990 Analysis Date: 1/12/2017 Prep Date: SeqNo: 1253121 Units: mg/L Result Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.55 0.050 0.5000 110 75.4 118 Surr: BFB 9.2 10.00 92.5 70 130

Sample ID 1701253-001a msd SampType: MSD TestCode: EPA Method 8015D: Gasoline Range Client ID: R.O. Reject Batch ID: G39990 RunNo: 39990 Prep Date: Analysis Date: 1/12/2017 SeqNo: 1253124 Units: mg/L Result Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.46 0.050 0.5000 0.01760 89.1 70 130 12.9 20 Surr: BFB 9.0 10.00 89.7 70 130 0 0

Sample ID 1701253-001a ms g SampType: MS TestCode: EPA Method 8015D: Gasoline Range Client ID: R.O. Reject Batch ID: G39990 RunNo: 40004 Prep Date: Analysis Date: 1/13/2017 SeqNo: 1254101 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.53 0.050 0.5000 0.01760 102 70 130 Surr: BFB 8.8 10.00 87.8 70 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Value above quantitation range Е

J Analyte detected below quantitation limits

Page 20 of 22

P Sample pH Not In Range

RLReporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

Qual

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-R40526
Client ID: PBW

SampType: MBLK

TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed

SPK value SPK Ref Val %REC LowLimit

RunNo: 40526

Prep Date:

Batch ID: **R40526**Analysis Date: **2/2/2017**

SeqNo: **1269905**

Units: pCi/L

HighLimit

%RPD

RPDLimit

Analyte Radium-226

Result PQL

0.127 0.468

0.291 0.468

Radium-226 ± Radium-228 Radium-228 ±

0.0949 0.653 0.29 0.653

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

on range

Page 21 of 22

Hall Environmental Analysis Laboratory, Inc.

WO#:

1701253 14-Feb-17

Client: Navajo Refining Company Project: Quarterly R.O. Reject

Sample ID MB-29623 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 29623 RunNo: 39966

Prep Date: 1/10/2017 Analysis Date: 1/11/2017 SeqNo: 1252489 Units: mg/L

Result Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-29623 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

LCSW Client ID: Batch ID: 29623 RunNo: 39966

Prep Date: 1/10/2017 Analysis Date: 1/11/2017 SeqNo: 1252490 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC %RPD LowLimit HighLimit **RPDLimit** Qual

Total Dissolved Solids 1060 20.0 1000 0 106 80 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RLReporting Detection Limit

W Sample container temperature is out of limit as specified

Page 22 of 22



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 Numb	er: 1701253		RcptNo:	1
Received by/dat	e: RE	0/09/1	7			
Logged By:	Ashley Gallegos	1/9/2017 9:20:00 AN	ň.	A		
Completed By:	Ashley Gallegos	1/9/2017 9:54:08 AN	1	A		
Reviewed By: /	XQ 01/09/1	7		. 0		
Chain of Cus	/ 001			more at the headersteen section (1991) No. 10.		
1. Custody sea	ils intact on sample bottles'	?	Yes 🗌	No 🗀	Not Present	
	Custody complete?		Yes 🗸	No []	Not Present	
3. How was the	sample delivered?		Courier			
Log In						
4. Was an atte	empt made to cool the samp	ples?	Yes 🔽	No [NA []	
5. Were all san	nples received at a tempera	ature of >0° C to 6.0°C	Yes 🗹	No []	NA []	
6. Sample(s) in	n proper container(s)?		Yes 🗹	No 🗌		
7. Sufficient sa	mple volume for indicated to	est(s)?	Yes 🗹	No 🗌		
8. Are samples	(except VOA and ONG) pr	operly preserved?	Yes 🔽	No 🗔		
9. Was preserv	rative added to bottles?		Yes 🗌	No 🔀	NA []	
10.VOA vials ha	ave zero headspace?		Yes 🗹	No 🗔	No VOA Vials	
11. Were any sa	ample containers received b	roken?	Yes 🗆	No 🗸		
12 Doos nones.	weeks to the total to the		tra		# of preserved bottles checked	, l
	vork match bottle labels? Dancies on chain of custody)	Yes 🗹	No L_i	for pH:	>12 unless noted)
	correctly identified on Chai		Yes 🗹	No 🗌	Adjusted?	No
14, Is it clear who	at analyses were requested	?	Yes 🔽	No 📋		0
	ling times able to be met? customer for authorization.)		Yes 🗸	No 📋	Checked by:	Ke
<u>Special Hand</u>	ling (if applicable)					
16, Was client no	otified of all discrepancies w	ith this order?	Yes 🗔	No 🔲	NA 🗸	
Person	Notified:	Date		WATER WEIGHT WITH MANAGEMENT TO		
By Who	om:	Via:	eMail F	Phone [] Fax	In Person	
Regard	9				With the same of t	
1	nstructions:					
17. Additional re	marks:					
18. Cooler Info						
Cooler No		Seal Intact Seal No Yes	Seal Date	Signed By		
Adaman in management in the par	1	THE PROPERTY OF THE PROPERTY O	With the territory and the ter	MITTER COMES TO STATE AND STATE AND ADDRESS OF A STATE ADD		

J	<u>ر</u> م	10-to-	Chain-of-Custody Record	ומוויסוע-ווומו					2	<	L		SALI ENVIDONMENTAL	7	<u> </u>	2	•	
Client	Navajo	Navajo Refinery		X Standard	□ Rush						ANALYSIS			00	LABORATORY			. >-
				Project Name:	enconsumerament and analysis (EGA PRE)				1	WWW.	allen	ironr	(1)	E03		I	i I	ı
Mailing	Address	5: P.O. Bo	Mailing Address: P.O. Box 159 Artesia,	Source (2)	Reject			4901	4901 Hawkins NE	S NE	1	enbno	Albuquerque, NM 87109	NM 8	7109			
NM 882	NM 88211-0159	9		Project #: P.O	0, # 167796			Tel. 5	505-345-3975	5-397		Fax 5	505-345-4107	5-41()7			1
Phone #	¢: 575-7.	Phone #: 575-748-3311									Anal	/sis F	Analysis Request	st				
email o	r Fax#: {	email or Fax#: 575-746-5451	451	Project Manager:	jer.							(8			PARTICIPATE AND ADDRESS OF THE		2	
QA/QC I	QA/QC Package:							S		- Desirable of the Control of the Co	2	322-	111111111111111111		www.middell	***************************************	armanumum.	······································
X Standard	dard		☐ Level 4 (Full Validation)	Robert Combs	8		SOC	~~~				3ਸ+				\$	***********	предположения
□ Other				Ø	ad, His	સત્વ	οΛ 1 ^s				O 'C	-226			-	bilo		(N
☐ EDD (Type)	(Type)					2 A	C FI) (Ra	epin	V	ə	S bav		10 Y)
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	S S BTULL! "Ny page	8560B:WQC	8270C: WQ 	stoT :4.388	7470: Merc	8015: GRO 8015: PCB	Radioactivit	Sulfate Chlo Phenols	Fluoride	Nitrate/Nitrit	Total Dissol	Н	504.1:EDB Air Bubbles
1/5/11	4:30	liquid	R.O. Reject	2 - 500ml P	1-unpres 1- H2SO4	100-							×	×	×	×	×	<u> </u> >
1/z/n	4:30	liquid	R.O. Reject	3-40ml VOA	HCL		×											
<i>U/s/</i> 11	4:30	liquid	R.O. Reject	1-500ml P	HN03					×						***************************************		
1/5/17	4:30	liquid	R.O. Reject	1-125ml P	HN03			×										
1/2/11	4:30	liquid	R.O. Reject	1-500ml P	NaOH				×				-	_				
u/s/1	ાં./ન	liquid	R.O. Reject	2-1L P	HN03							×						
1/5/17 4:30	4:30	liquid	R.O. Reject	3-40ml VOA	Na2S203													×
i/s/n	4:30	liquid	R.O. Reject	2 - 1L Glass	nnpres			nementet HET			×							
1/2/1	4:3°	liquid	R.O. Reject	1 - 1L Glass	unpres			×									_	
1/5/11	4:30	liquid	R.O. Reject	3-40ml VOA	БĊ			_			×						7	
U/s/I	of:}h	liquid	R.O. Reject	1-250mlGlas	unpres						×						_	
i/s/n	n:30	liquid	R.O. Reject		H2SO4	7	*********						×					_
I/S/I	ž	liquid		2-40ml VOA	HCL					\dashv	-		\dashv	_		7	\exists	-
Date:	Time: :30	Relinquished b	Stat Hospin	Received by:	1	Date Time $(9 /7 O 726)$		Remarks: Metals: As, Al, Ba, 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; 1,1,2,2-Tetrachloroethylene; 1,1,2	a, B, Cd,	Cr, Co, ane; 1,1	Cu, Fe, 2,2-Tetr	Pb, Min, achloroe	B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn toroethane; 1,1,2,2-Tetrachtoroethane; 1,1,2,2-Tetrachton	Ni, Se, .	^k g, U, Z etrachli	n oroethy	fene; 1	1,2-
Date:	Time:	Relinquished by:	ed by:	Received by:		Date Time	Dibrom	Inchroroethane; 1,1,2-Inchloroethylene; 1,1-Lichloroethane; 1,1-Lichloroethene; 1,2-Dichloroethane; Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Tolluene; Total Xylenes; Vinyl Chloride	1,1,2-Inchloroethylene; 1,1-Ulchloroemane; 1,1-Ulchloroemene; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride	inioroet proethal rzene; ⁻	iylene; 1 e; Benz oluene;	ine; Car Total Xy	Iroeman bon Tetr enes; V	er, 1,1-L achloric inyl Chli	icilara le; Chla oride	eurene, roform	<u>'</u>	
	, neasonad j	-	exmeter cultimitated to Livil Equipopopostal many to entry	so souther at betweendern and some	madited laboratoris	SVOCs: It serves as notice of this mossibility	SVOCS	9 I	inzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalei Anv suh-contracted data will be clearly notated on the analytical	phenol,	1-methy	naphtha	lene, 2-r	nethyln	aphthai	ene, nag	phthak	e

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



Quarterly RO Reject Sample Details Attachment



	Z		methals One	
Harasa et al.				

South Field R.O. Reject Discarge

☐ North Field R.O. Reject Discarge

And the state of t	PH, CI, F, S04, 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
		-									
70											
e de la composição de l					×						
	×										
19			×	×		×					_
		×					×				×
North	×							×	×	×	
	2	3	1	1	2	3	2	-	2	2	2
Valenti	Plastic	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA
	500ml	40ml	500ml	125ml	500ml	1,	40ml	1	1	40ml	40ml
Container	P		e6			ij.					

Storings referred		enem Solutions	
of Date Weamer Obstitutions Bits 2017 Tmp.42.8°F, Humidity 42% , Wind Dir, East, Wind Speed 10.4 mph, Conditions Clear	eld Temp. 17.1C Field pH 7.69		

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Thursday, March 16, 2017 8:42 AM

To: 'Dade, Lewis (Randy)'; Griswold, Jim, EMNRD; O'Brien, Robert (Bob) K.; Holder, Mike; McWatters,

Denise

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD

Subject: ACO WQA-OCD-CO-2015-002 RO Reject Water Discharge Monthly Report for February 2017

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and finds the Permittee to be in compliance.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

----Original Message----

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]

Sent: Wednesday, March 15, 2017 11:22 AM

To: Griswold, Jim, EMNRD < Jim. Griswold@state.nm.us>; Chavez, Carl J, EMNRD

<CarlJ.Chavez@state.nm.us>; O'Brien, Robert (Bob) K. <Robert.OBrien@HollyFrontier.com>; Holder, Mike

<Michael.Holder@hollyfrontier.com>; McWatters, Denise <Denise.McWatters@HollyFrontier.com>

Cc: Marks, Allison, EMNRD < AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD

<bill.brancard@state.nm.us>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>

Subject: Emailing: 2017-03-15 GW-028 Monthly Report

Please see attached the 2017-03-15 GW-028 Monthly Report.

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled. CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential. If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.



March 15, 2017

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

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

RE: Discharge Permit GW-028
Monthly Report – February 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's monthly report, for the period of February 1-28, 2017, under the Permit.

This report includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid are monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1 as specified in the Permit. Additionally, the monthly total is also included.

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

OCD March 15, 2017 Page 2 of 2

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
2/1/2017	128.97	25.26	131.54	285.77	9,797.83
2/2/2017	130.92	38.72	133.04	302.68	10,377.60
2/3/2017	132.16	37.22	134.00	303.38	10,401.60
2/4/2017	131.56	35.51	133.79	300.86	10,315.20
2/5/2017	131.62	38.34	133.72	303.68	10,411.89
2/6/2017	131.41	40.62	133.38	305.41	10,471.20
2/7/2017	131.35	40.82	133.37	305.54	10,475.66
2/8/2017	131.31	41.13	133.21	305.65	10,479.43
2/9/2017	134.20	44.22	133.25	311.67	10,685.83
2/10/2017	137.35	42.49	132.84	312.68	10,720.46
2/11/2017	136.69	41.79	132.36	310.84	10,657.37
2/12/2017	136.04	41.59	129.25	306.88	10,521.60
2/13/2017	133.06	39.47	125.82	298.35	10,229.14
2/14/2017	130.93	39.47	120.26	290.66	9,965.49
2/15/2017	128.60	49.12	117.45	295.17	10,120.11
2/16/2017	126.95	50.17	117.72	294.84	10,108.80
2/17/2017	126.12	49.54	48.41	224.07	7,682.40
2/18/2017	125.88	50.41	138.53	314.82	10,793.83
2/19/2017	126.48	54.54	167.71	348.73	11,956.46
2/20/2017	126.10	60.34	169.28	355.72	12,196.11
2/21/2017	123.65	60.78	168.48	352.91	12,099.77
2/22/2017	122.47	60.04	167.91	350.42	12,014.40
2/23/2017	121.64	57.47	167.37	346.48	11,879.31
2/24/2017	121.93	58.37	168.24	348.54	11,949.94
2/25/2017	122.70	57.91	168.33	348.94	11,963.66
2/26/2017	124.18	60.68	168.92	353.78	12,129.60
2/27/2017	19.11	61.26	168.78	249.15	8,542.29
2/28/2017	0.00	64.81	144.31	209.12	7,169.83
TOTAL (bbls/mont	h)	,			296,116.80

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Thursday, February 16, 2017 2:16 PM

To: 'Dade, Lewis (Randy)'

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Marks, Allison, EMNRD; Brancard, Bill,

EMNRD; Combs, Robert; Griswold, Jim, EMNRD

Subject: ACO WQA-OCD-CO-2015-002 RO Reject Water Discharge Monthly Report for January 2017

Attachments: Memo Jan 2017.pdf

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and finds the Permittee to be in compliance.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

Chavez, Carl J, EMNRD

From: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>

Sent: Wednesday, February 15, 2017 11:24 AM **To:** Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Marks, Allison, EMNRD; Brancard, Bill,

EMNRD; Combs, Robert

Subject: January 2017 GW-028 Monthly Report 2017-02-15 GW-028 Monthly Report.pdf

Please find the January 2017 GW-028 monthly report. If there are any questions or comments, please feel free to contact me.

Dade, Lewis (RANDY)

HF Navajo Ref LLC Environmental Specialist IV Environmental - Artesia (575) 746-5281 Work (575) 703-4735 Mobile Lewis.Dade@HollyFrontier.com 501 E. MAIN ARTESIA, NM. 88210

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential. If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.



February 15, 2017

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

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

RE: Discharge Permit GW-028

Monthly Report - January 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's January 2016 monthly report, for the period of January 1-31, 2017, under the Permit.

Specifically, this report covers the January 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the fourth quarter, samples were collected for the RO reject streams from the permanent units on January 5, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

On October 21, 2016, Navajo notified OCD of its selection of a Class 1 disposal well as an alternative disposal method for the RO reject. Navajo submitted a revised application to renew and modify Discharge Permit GW-028 on January 13, 2017, to reflect this selection.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

cc.

Attachment 1: Daily Discharge Flowrates and Volumes

Attachment 2: Analytical Lab Report

HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

-		Permanen	t RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
1/1/2017	0.00	128.70	125.72	254.42	8,722.97
1/2/2017	0.00	128.90	125.67	254.57	8,728.11
1/3/2017	0.00	128.73	125.77	254.50	8,725.71
1/4/2017	0.00	128.72	125.61	254.33	8,719.89
1/5/2017	0.15	128.90	125.86	254.91	8,739.77
1/6/2017	0.00	126.99	125.41	252.40	8,653.71
1/7/2017	0.00	124.68	124.50	249.18	8,543.31
1/8/2017	0.00	124.60	124.03	248.63	8,524.46
1/9/2017	0.00	115.64	116.60	232.24	7,962.51
1/10/2017	0.00	121.95	125.59	247.54	8,487.09
1/11/2017	0.00	122.38	126.03	248.41	8,516.91
1/12/2017	0.00	122.27	127.79	250.06	8,573.49
1/13/2017	21.23	107.10	128.94	257.27	8,820.69
1/14/2017	134.75	38.19	129.63	302.57	10,373.83
1/15/2017	136.47	39.28	130.72	306.47	10,507.54
1/16/2017	135.08	38.13	130.27	303.48	10,405.03
1/17/2017	135.69	38.65	130.06	304.40	10,436.57
1/18/2017	138.87	10.23	132.21	281.31	9,644.91
1/19/2017	123.39	64.66	131.14	319.19	10,943.66
1/20/2017	100.50	123.69	129.28	353.47	12,118.97
1/21/2017	97.46	122.80	129.00	349.26	11,974.63
1/22/2017	110.04	72.43	130.03	312.50	10,714.29
1/23/2017	125.38	42.27	131.51	299.16	10,256.91
1/24/2017	126.09	44.09	131.21	301.39	10,333.37
1/25/2017	126.86	43.15	131.16	301.17	10,325.83
1/26/2017	127.32	42.46	131.19	300.97	10,318.97
1/27/2017	127.20	42.55	130.96	300.71	10,310.06
1/28/2017	127.16	40.74	130.99	298.89	10,247.66
1/29/2017	127.49	16.81	131.11	275.41	9,442.63
1/30/2017	127.90	0.10	131.11	259.11	8,883.77
1/31/2017	127.71	0.07	130.88	258.66	8,868.34
OTAL (bbls/mont	:h)				297,825.60

Attachment 2 Analytical Lab Report



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

February 14, 2017

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

FAX

RE: Quarterly R.O. Reject

OrderNo.: 1701253

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 06, 2017.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject

Collection Date: 1/5/2017 4:30:00 PM

Lab ID: 1701253-001

Matrix: AQUEOUS

Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS					as balan Panel I (1976) (Seneral Indiana)	Analyst	: JLF
Arsenic	ND	0.0050		mg/L	5	1/13/2017 5:17:37 PM	C40026
Lead	ND	0.0025		mg/L	5	1/13/2017 5:17:37 PM	C4002
Selenium	0.010	0.0050		mg/L	5	1/13/2017 5:17:37 PM	C4002
Uranium	0.0052	0.0025		mg/L	5	1/13/2017 5:17:37 PM	C4002
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-226	1.29	0.662		pCi/L	1	2/2/2017	R4052
Radium-226 ±	0.644	0.662		pCi/L	1	2/2/2017	R4052
Radium-228	0.624	1.02		pCi/L	1	2/2/2017	R4052
Radium-228 ±	0.507	1.02		pCi/L	1	2/2/2017	R4052
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	3.5	2.0		mg/L	20	1/9/2017 10:08:12 PM	R3991
Chloride	74	10		mg/L	20	1/9/2017 10:08:12 PM	R3991
Sulfate	1400	50		mg/L	100	1/11/2017 1:08:20 AM	R3995
Nitrate+Nitrite as N	2.3	1.0		mg/L	5	1/10/2017 12:12:18 AM	R3991
SM2540C MOD: TOTAL DISSOLVED S	OLIDS					Analyst	: KS
Total Dissolved Solids	3410	20.0	*	mg/L	1	1/11/2017 5:59:00 PM	29623
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	LSB
Cyanide	ND	0.0100		mg/L	1	1/16/2017	R4052
SM4500-H+B: PH						Analyst	JRR
рН	7.87	1.68	Н	pH units	1	1/9/2017 3:34:06 PM	R3993
EPA METHOD 200.7: DISSOLVED MET	ALS					Analyst	TES
Aluminum	ND	0.020		mg/L	1	1/22/2017 9:55:24 PM	A4018
Barium	0.066	0.0020		mg/L	1	1/24/2017 11:12:53 AM	
Boron	0.10	0.040		mg/L	1	1/24/2017 11:12:53 AM	
Cadmium	ND	0.0020		mg/L	1	1/24/2017 11:12:53 AM	A4022
Chromium	ND	0.0060		mg/L	1	1/24/2017 11:12:53 AM	
Cobalt	ND	0.0060		mg/L	1	1/24/2017 11:12:53 AM	A40223
Copper	ND	0.0060		mg/L	1	1/26/2017 9:36:42 AM	A4028
Iron	ND	0.020		mg/L	1	1/24/2017 11:12:53 AM	A40223
Manganese	ND	0.0020		mg/L	1	1/24/2017 11:12:53 AM	A4022
Molybdenum	0.0088	0.0080		mg/L	1	1/24/2017 11:12:53 AM	A4022
Nickel	ND	0.010		mg/L	1	1/24/2017 11:12:53 AM	A40223
Silver	ND	0.0050		mg/L	1	1/24/2017 11:12:53 AM	A4022
Zinc	0.023	0.010		mg/L	1	1/24/2017 11:40:30 AM	A4022
EPA METHOD 245.1: MERCURY						Analyst:	MED
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:14:44 PM	29608

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

- 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 Page 1 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject Collection Date: 1/5/2017 4:30:00 PM Received Date: 1/9/2017 9:20:00 AM

Lab ID: 1701253-001 Matrix: AQUEOUS

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/12/2017 2:15:17 PM	G39990
Surr: BFB	87.6	70-130	%Rec	1	1/12/2017 2:15:17 PM	G39990
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/10/2017 10:10:43 AN	1 29609
EPA METHOD 8082: PCB'S					Analys	t: SCC
Aroclor 1016	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1221	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1232	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1242	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1248	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1254	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	
Aroclor 1260	ND	1.0	μg/L	1	1/11/2017 10:44:00 AN	1 29618
Surr: Decachlorobiphenyl	60.4	26.1-140	%Rec	1	1/11/2017 10:44:00 AN	1 29618
Surr: Tetrachloro-m-xylene	53.2	15-123	%Rec	1	1/11/2017 10:44:00 AN	1 29618
EPA METHOD 8015M/D: DIESEL RAN	GE				Analys	t: TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	1/12/2017 4:33:48 PM	29657
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	1/12/2017 4:33:48 PM	29657
Surr: DNOP	115	77.1-144	%Rec	1	1/12/2017 4:33:48 PM	29657
EPA METHOD 8310: PAHS					Analys	t: SCC
Naphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PN	1 29615
1-Methylnaphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PN	1 29615
2-Methylnaphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PM	1 29615
Benzo(a)pyrene	ND	0.070	μg/L	1	1/11/2017 12:16:05 PN	
Surr: Benzo(e)pyrene	81.0	24.4-130	%Rec	1	1/11/2017 12:16:05 PM	1 29615
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Toluene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Ethylbenzene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Carbon Tetrachloride	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Chloroform	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1-Dichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1-Dichloroethene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Methylene Chloride	ND	3.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912

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

- 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
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 2 of 22
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject Collection Date: 1/5/2017 4:30:00 PM

Lab ID: 1701253-001

Matrix: AQUEOUS

Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Vinyl chloride	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Xylenes, Total	ND	1.5	μg/L	1	1/9/2017 5:53:01 PM	W39912
Surr: 1,2-Dichloroethane-d4	107	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
Surr: 4-Bromofluorobenzene	86.6	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
Surr: Dibromofluoromethane	118	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
Surr: Toluene-d8	87.9	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	1/25/2017	29866

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

- 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
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 22
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Lab Order 1701253

Date Reported: 2/14/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Quarterly R.O. Reject **Collection Date:**

Lab ID: 1701253-002 Matrix: TRIP BLANK

Received Date: 1/9/2017 9:20:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst	: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/12/2017 3:43:50 PM	G39990
Surr: BFB	83.7	70-130	%Rec	1	1/12/2017 3:43:50 PM	G39990
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/10/2017 10:25:50 AM	29609
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
Benzene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Toluene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Ethylbenzene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Carbon Tetrachloride	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Chloroform	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1-Dichloroethane	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1-Dichloroethene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Methylene Chloride	ND	3.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Vinyl chloride	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W39912
Xylenes, Total	ND	1.5	μg/L	1	1/9/2017 6:22:09 PM	W39912
Surr: 1,2-Dichloroethane-d4	103	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912
Surr: 4-Bromofluorobenzene	86.8	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912
Surr: Dibromofluoromethane	116	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912
Surr: Toluene-d8	88.9	70-130	%Rec	1	1/9/2017 6:22:09 PM	W39912

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

- 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
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 22
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: A40181 RunNo: 40181 Prep Date: Analysis Date: 1/22/2017 SeqNo: 1259966 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020

Sample ID LLLCS-A SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals Client ID: **BatchQC** Batch ID: A40181 RunNo: 40181 Prep Date: Analysis Date: 1/22/2017 SegNo: 1259967 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 0.01000 104 50 150

Sample ID LCS-A SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals Client ID: LCSW Batch ID: A40181 RunNo: 40181 Prep Date: Analysis Date: 1/22/2017 SeqNo: 1259968 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** LowLimit Qual Aluminum 0.53 0.020 0.5000 106 85 115

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A40223 RunNo: 40223 Prep Date: Analysis Date: 1/24/2017 SeqNo: 1261933 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 ND Iron 0.020 ND Manganese 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050

Sample ID LCS-A	SampTy	S	Test	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch	ID: A4 0	0223	R	unNo: 4	0223				
Prep Date:	Analysis Da	ate: 1/2	24/2017	S	eqNo: 1	261934	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.4	85	115		***************************************	
Boron	0.50	0.040	0.5000	0	99.6	85	115			

Qualifiers:

Zinc

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND

0.010

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

Page 5 of 22

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1701253**

14-Feb-17

Client:

Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID LCS-A	SampType: LCS						200.7: Dissol	ved Meta	ls	1000
Client ID: LCSW Prep Date:		Batch ID: A40223 Analysis Date: 1/24/2017			RunNo: 4 SegNo: 1:		Unite: mad			
Trep Date.	Allalysis	Date. II.	24/2017		sequo. I	201934	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	97.1	85	115			
Chromium	0.48	0.0060	0.5000	0	95.4	85	115			
Cobalt	0.46	0.0060	0.5000	0	91.8	85	115			
Iron	0.47	0.020	0.5000	0	93.5	85	115			
Manganese	0.47	0.0020	0.5000	0	94.2	85	115			
Molybdenum	0.50	0.0080	0.5000	0	101	85	115			
Nickel	0.45	0.010	0.5000	0	90.4	85	115			
Silver	0.098	0.0050	0.1000	0	97.9	85	115			
Zinc	0.47	0.010	0.5000	0	93.5	85	115			

Sample ID LLLCS-A	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Disso	ved Meta	ls	
Client ID: BatchQC	Bato	Batch ID: A40223 RunNo: 40223								
Prep Date:	Analysis	Date: 1/	24/2017	S	SeqNo: 1	261935	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	112	50	150			
Boron	0.040	0.040	0.04000	0	101	50	150			
Cadmium	ND	0.0020	0.002000	0	98.5	50	150			
Chromium	0.0060	0.0060	0.006000	0	101	50	150			
Cobalt	ND	0.0060	0.006000	0	98.5	50	150			
Iron	ND	0.020	0.02000	0	99.3	50	150			
Manganese	ND	0.0020	0.002000	0	92.5	50	150			
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150			
Nickel	ND	0.010	0.005000	0	110	50	150			
Silver	0.0052	0.0050	0.005000	0	105	50	150			
Zinc	ND	0.010	0.005000	0	109	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
- W Sample container temperature is out of limit as specified

Analyte detected in the associated Method Bian

Page 6 of 22

Hall Environmental Analysis Laboratory, Inc.

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID 1701253-001GMS	Sample ID 1701253-001GMSDL SampType: MSD					PA 200.8: I	Dissolved Me	tals	With the state of				
Client ID: R.O. Reject	Bato	h ID: C4	0026	F	RunNo: 4	0026							
Prep Date:	Analysis Date: 1/13/2017					SeqNo: 1254502 Units:				mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Arsenic	0.14	0.0050	0.1250	0.002183	108	70	130	0.715	20				
Lead	0.064	0.0025	0.06250	0	102	70	130	0.187	20				
Selenium	0.14	0.0050	0.1250	0.01048	106	70	130	1.86	20				
Uranium	0.071	0.0025	0.06250	0.005175	105	70	130	0.245	20				

Sample ID	1701253-001GMSI	LL Samp	Гуре: М.	;	TestCode: EPA 200.8: Dissolved Metals						
Client ID:	R.O. Reject	Batc	h ID: C4	0026	RunNo: 40026						
Prep Date:		Analysis [Date: 1/	13/2017	S	SeqNo: 1	254503	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.14	0.0050	0.1250	0.002183	107	70	130			
Lead		0.064	0.0025	0.06250	0	102	70	130			
Selenium		0.14	0.0050	0.1250	0.01048	104	70	130			
Uranium		0.071	0.0025	0.06250	0.005175	105	70	130			

Sample ID LCS	SampType: L	cs	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID: LCSW	Batch ID: C	Batch ID: C40026 RunNo: 40026							
Prep Date:	Analysis Date:	1/13/2017	5	SeqNo: 1	254506	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	98.8	85	115			
Lead	0.013 0.00050	0.01250	0	100	85	115			
Selenium	0.026 0.0010	0.02500	0	103	85	115			
Uranium	0.012 0.00050	0.01250	0	98.4	85	115			

Sample ID LLLCS	Samp	Type: LC	SLL	Tes	TestCode: EPA 200.8: Dissolved Metals					
Client ID: BatchQC	Batch ID: C40026			R	RunNo: 4	0026				
Prep Date:	Analysis	Date: 1/	13/2017	S	SeqNo: 1	254507	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	98.2	50	150			
Lead	0.00052	0.00050	0.0005000	0	104	50	150			
Selenium	0.0010	0.0010	0.001000	0	102	50	150			
Uranium	0.00050	0.00050	0.0005000	0	100	50	150			

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals	
Client ID: PBW	Batch ID: C40026	RunNo: 40026	
Prep Date:	Analysis Date: 1/13/2017	SeqNo: 1254508 Units: mg/L	
Analyte	Result PQL SPK value SF	PK Ref Val %REC LowLimit HighLimit %RPD	RPDLimit Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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WO#:

1701253

14-Feb-17

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID:

PBW

Batch ID: C40026

RunNo: 40026

Prep Date:

Analysis Date: 1/13/2017

SeqNo: 1254508

SPK value SPK Ref Val %REC LowLimit

Units: mg/L HighLimit

%RPD **RPDLimit**

Qual

Analyte **PQL** 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
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-29608

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID: PBW

Batch ID: 29608

PQL

RunNo: 39928

Prep Date: 1/9/2017

HighLimit

Analysis Date: 1/10/2017

SeqNo: 1251284

%REC LowLimit

Units: mg/L

%RPD

%RPD

Qual

Analyte Mercury

Client ID:

ND 0.00020

Sample ID LCS-29608 LCSW

SampType: LCS

TestCode: EPA Method 245.1: Mercury

RunNo: 39928

Prep Date: 1/9/2017

Batch ID: 29608 Analysis Date: 1/10/2017

SeqNo: 1251285

Units: mg/L

HighLimit

RPDLimit

RPDLimit

Analyte

PQL Result

0.005000

SPK value SPK Ref Val

SPK value SPK Ref Val

%REC 98.3

Mercury

0.0049 0.00020

120

Qual

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit ND

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

1701253 14-Feb-17

WO#:

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	300.0: Anions	5	N. W. S. C.	
Client ID: PBW	Batch	n ID: R3	9919	F	RunNo: 3	9919				
Prep Date:	Analysis D	ate: 1/	9/2017	5	SeqNo: 1	251098	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10					V-24-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	***************************************	THE STATE OF THE S	
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								
Sample ID LCS	SampT	ype: LC	S	Tes	tCode: E	PA Method	300.0: Anions	}		
Client ID: LCSW	Batch	ID: R3	9919	F	RunNo: 3	9919				
Prep Date:	Analysis D	ate: 1/	9/2017	\$	SeqNo: 1	251099	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	97.8	90	110	***************************************		
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			
Sample ID MB	SamnT	vne. MF	SI K	Toc	tCodo: E	DA Mathad	300 0: Anions			

Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	-
Client ID: PBW	Batch ID: R39952	RunNo: 39952		
Prep Date:	Analysis Date: 1/10/2017	SeqNo: 1251860	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	e: LCS	Tes	tCode: El	PA Method	300.0: Anions	5		
Client ID: LCSW	Batch ID	: R39952	F	RunNo: 3	9952				
Prep Date:	Analysis Date	: 1/10/2017	S	SeqNo: 1	251861	Units: mg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.4	0.50 10.00	0	94.5	90	110		***************************************	

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1701253 14-Feb-17

Client: Navajo Refining Company Project: Quarterly R.O. Reject

Sample ID MB-29609 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 29609 RunNo: 39918

Prep Date: 1/10/2017 Analysis Date: 1/10/2017 SeqNo: 1251243 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-29609 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 29609 RunNo: 39918

Prep Date: 1/10/2017 Analysis Date: 1/10/2017 SeqNo: 1251245 Units: µg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit**

1,2-Dibromoethane 0.094 0.010 0.1000 93.8 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В 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 container temperature is out of limit as specified W

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

RPDLimit

Qual

%RPD

HighLimit

144

14-Feb-17

Client:

Navajo Refining Company

Result

ND

ND

1.1

PQL

1.0

5.0

1.000

Project:

Analyte

Surr: DNOP

Diesel Range Organics (DRO)

Motor Oil Range Organics (MRO)

Quarterly R.O. Reject

Sample ID LCS-29657	SampType: LCS		Tes	TestCode: EPA Method 8015M/D: Diesel Range					
Client ID: LCSW	Batch ID: 29657		RunNo: 39973						
Prep Date: 1/12/2017	Analysis Date: 1/	12/2017	S	SeqNo: 1	252916	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	110	63.2	155			
Surr: DNOP	0.56	0.5000		111	77.1	144			
Sample ID MB-29657	SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range								
Client ID: PBW	Batch ID: 29657 RunNo: 39973								
Prep Date: 1/12/2017	Analysis Date: 1/	12/2017	S	SeqNo: 1	252917	Units: mg/L			

SPK value SPK Ref Val %REC LowLimit

108

77.1

Qualifiers:

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

Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory, Inc.

3.4

1.8

1.3

1.0

5.000

2.500

2.500

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-29618	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: PBW	Batch	n ID: 29	618	F	RunNo: 3	9949				
Prep Date: 1/10/2017	Analysis D	ate: 1/	11/2017	S	SeqNo: 1	251667	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		63.2	26.1	140			
Surr: Tetrachloro-m-xylene	1.4		2.500		55.2	15	123			
				TestCode: EPA Method 8082: PCB's						
Sample ID LCS-29618(1221)	SampT	ype: LC	S	Tes	tCode: E	PA Method	8082: PCB's			
Sample ID LCS-29618(1221) Client ID: LCSW	•	ype: LC n ID: 29			tCode: E RunNo: 3		8082: PCB's			
	•	iD: 29	618	F		9949	8082: PCB's Units: μg/L			
Client ID: LCSW	Batch	iD: 29	618 11/2017	F	RunNo: 3	9949		%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017	Batch Analysis D	n ID: 29 vate: 1 /	618 11/2017	F	RunNo: 3 SeqNo: 1	9949 251690	Units: µg/L	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte	Batch Analysis D Result	n ID: 29 Pate: 1 /	618 11/2017 SPK value	SPK Ref Val	RunNo: 3 GeqNo: 1 %REC	9949 251690 LowLimit	Units: µg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221	Batch Analysis D Result 3.1	n ID: 29 Pate: 1 /	618 11/2017 SPK value 5.000	SPK Ref Val	RunNo: 3 SeqNo: 1 %REC 61.8	9949 251690 LowLimit	Units: µg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221 Surr: Decachlorobiphenyl	Batch Analysis D Result 3.1 1.8 1.2	n ID: 29 Pate: 1 /	618 11/2017 SPK value 5.000 2.500 2.500	F S SPK Ref Val 0	RunNo: 3 SeqNo: 1 **REC 61.8 71.6 48.0	9949 251690 LowLimit 15 26.1 15	Units: µg/L HighLimit 200 140	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene	Batch Analysis D Result 3.1 1.8 1.2 SampT	PQL 1.0	618 11/2017 SPK value 5.000 2.500 2.500	SPK Ref Val 0	RunNo: 3 SeqNo: 1 **REC 61.8 71.6 48.0	9949 251690 LowLimit 15 26.1 15	Units: µg/L HighLimit 200 140 123	%RPD	RPDLimit	Qual
Client ID: LCSW Prep Date: 1/10/2017 Analyte Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene Sample ID LCSD-29618(1221	Batch Analysis D Result 3.1 1.8 1.2 SampT	PQL 1.0 1D: 29	618 (11/2017 SPK value 5.000 2.500 2.500	SPK Ref Val 0	RunNo: 3 SeqNo: 1 **REC 61.8 71.6 48.0 tCode: E	9949 251690 LowLimit 15 26.1 15 PA Method 9949	Units: µg/L HighLimit 200 140 123	%RPD	RPDLimit	Qual

Sample ID LCS-29618(1232)	SampT	ype: LC	s	Tes	tCode: El	A Method	8082: PCB's			
Client ID: LCSW	Batch	1D: 29	618	RunNo: 39949						
Prep Date: 1/10/2017	Analysis D	ate: 1/	11/2017	S	SeqNo: 1	252021	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1232	3.6	1.0	5.000	0	73.0	15	200			
Surr: Decachlorobiphenyl	1.8		2.500		70.4	26.1	140			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.4	15	123			

0

68.4

72.8

50.8

15

15

26.1

200

140

123

10.1

0

0

Qualifiers:

Aroclor 1221

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Page 13 of 22

0

0

0

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253 14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID LCSD-29618(1	1 232) SampT	ype: LC	SD	Tes	tCode: El	A Method	8082: PCB's			
Client ID: LCSS02	Batcl	n ID: 29	618	F	RunNo: 3	9949				
Prep Date: 1/10/2017	Analysis D	Date: 1/	11/2017	S	SeqNo: 1	252022	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1232	3.6	1.0	5.000	0	72.0	15	200	1.38	0	
Surr: Decachlorobiphenyl	1.7		2.500	-			140	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		61.6	15	123	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

Page 14 of 22

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Client: Navajo Refining Company Project: Quarterly R.O. Reject

Sample ID rb SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: PBW Batch ID: W39912 RunNo: 39912 Prep Date: Analysis Date: 1/9/2017 SeqNo: 1250932 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 Toluene ND 1.0 Ethylbenzene ND 1.0 1,2-Dichloroethane (EDC) ND 1.0 1,2-Dibromoethane (EDB) ND 1.0 Carbon Tetrachloride ND 1.0 Chloroform ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 Methylene Chloride ND 3.0 1,1,2,2-Tetrachloroethane ND 2.0 Tetrachloroethene (PCE) ND 1.0 1,1,1-Trichloroethane ND 1.0 1,1,2-Trichloroethane ND 1.0 Trichloroethene (TCE) ND 1.0 Vinyl chloride ND 1.0 Xylenes, Total ND 1.5 Surr: 1,2-Dichloroethane-d4 9.1 10.00 70 91.4 130 Surr: 4-Bromofluorobenzene 9.1 10.00 91.2 70 130 Surr: Dibromofluoromethane 9.7 10.00 97.5 70 130 Surr: Toluene-d8 8.9 10.00 88.9 70 130

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: W3	39912	F	RunNo: 3	9912				
Prep Date:	Analysis D	ate: 1/	9/2017	S	SeqNo: 1	250933	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	19	1.0	20.00	0	97.2	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	109	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.1		10.00		91.5	70	130			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

WO#:

1701253

14-Feb-17

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-29615	Samp	Гуре: МВ	LK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batc	h ID: 29 6	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [Date: 1/	11/2017	S	SeqNo: 1	252566	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0			*****************				Petro de consecuencia de la cons	***************************************
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	17		20.00		83.8	24.4	130			

Sample ID LCS-29615	Samp	Type: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 29	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [Date: 1/	11/2017	S	SeqNo: 1252567 U					
Analyte	Result PQL SPK value			SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	47	2.0	80.00	0	59.0	33.3	141	***************************************		
1-Methylnaphthalene	45	2.0	80.20	0	56.4	35.5	139			
2-Methylnaphthalene	43	2.0	80.00	0	54.1	30.7	139			
Acenaphthylene	53	2.5	80.20	0	65.8	60.2	119			
Acenaphthene	49	2.0	80.00	0	61.9	56	126			
Fluorene	5.0	0.80	8.020	0	61.7	51.6	129			
Phenanthrene	2.8	0.60	4.020	0	69.7	58.8	129			
Anthracene	2.7	0.60	4.020	0	66.9	59.9	121			
Fluoranthene	5.9	0.30	8.020	0	72.9	48	145			
Pyrene	6.3	0.30	8.020	0	78.7	56.2	130			
Benz(a)anthracene	0.58	0.070	0.8020	0	72.3	50.4	142			
Chrysene	3.0	0.20	4.020	0	73.9	54.7	134			
Benzo(b)fluoranthene	0.73	0.10	1.002	0	72.9	61.8	120			
Benzo(k)fluoranthene	0.37	0.070	0.5000	0	74.0	55.9	134			

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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

0.66

0.33

0.32

0.69

0.69

1.2

14

0.10

0.070

0.070

0.12

0.12

0.25

1.002

0.5000

0.5020

1.002

1.000

2.004

20.00

14-Feb-17

1701253

WO#:

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID LCS-29615	Samp1	ype: LCS TestCode: EPA Method 831				8310: PAHs				
Client ID: LCSW	Batcl	h ID: 29 6	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [Date: 1/	11/2017	S	SeqNo: 1	252567	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.36	0.070	0.5020	0	71.7	49.1	142		`	
Dibenz(a,h)anthracene	0.76	0.12	1.002	0	75.8	57.8	134			
Benzo(g,h,i)perylene	0.77	0.12	1.000	0	77.0	57.2	134			
Indeno(1,2,3-cd)pyrene	1.4	0.25	2.004	0	68.9	58.2	137			
Surr: Benzo(e)pyrene	15		20.00		75.3	24.4	130			
Sample ID LCSD-29615	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSS02	Batcl	n ID: 29 6	615	F	lunNo: 3	9968				
Prep Date: 1/10/2017	Analysis D)ate: 1/	11/2017	S	eqNo: 1	252568	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Naphthalene	Result 43	PQL 2.0	SPK value 80.00	SPK Ref Val	%REC 53.3	LowLimit 33.3	HighLimit 141	%RPD 10.2	RPDLimit 20.3	Qual
										Qual
Naphthalene	43	2.0	80.00	0	53.3	33.3	141	10.2	20.3	Qual
Naphthalene 1-Methylnaphthalene	43 41	2.0 2.0	80.00 80.20	0	53.3 51.0	33.3 35.5	141 139	10.2 10.0	20.3 22.7	Qual S
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene	43 41 39	2.0 2.0 2.0	80.00 80.20 80.00	0 0 0	53.3 51.0 49.0	33.3 35.5 30.7	141 139 139	10.2 10.0 9.91	20.3 22.7 22.6	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene	43 41 39 48	2.0 2.0 2.0 2.5	80.00 80.20 80.00 80.20	0 0 0	53.3 51.0 49.0 59.6	33.3 35.5 30.7 60.2	141 139 139 119	10.2 10.0 9.91 9.90	20.3 22.7 22.6 22.6	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene	43 41 39 48 45	2.0 2.0 2.0 2.5 2.0	80.00 80.20 80.00 80.20 80.00	0 0 0 0	53.3 51.0 49.0 59.6 56.1	33.3 35.5 30.7 60.2 56	141 139 139 119 126	10.2 10.0 9.91 9.90 9.70	20.3 22.7 22.6 22.6 21.4	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene	43 41 39 48 45 4.6	2.0 2.0 2.0 2.5 2.0 0.80	80.00 80.20 80.00 80.20 80.00 8.020	0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1	33.3 35.5 30.7 60.2 56 51.6	141 139 139 119 126 129	10.2 10.0 9.91 9.90 9.70 7.76	20.3 22.7 22.6 22.6 21.4 23.6	
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene	43 41 39 48 45 4.6 2.5	2.0 2.0 2.0 2.5 2.0 0.80 0.60	80.00 80.20 80.00 80.20 80.00 8.020 4.020	0 0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1 62.2	33.3 35.5 30.7 60.2 56 51.6 58.8	141 139 139 119 126 129	10.2 10.0 9.91 9.90 9.70 7.76 11.3	20.3 22.7 22.6 22.6 21.4 23.6 24.7	S
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene	43 41 39 48 45 4.6 2.5 2.4	2.0 2.0 2.5 2.0 0.80 0.60	80.00 80.20 80.00 80.20 80.00 8.020 4.020	0 0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1 62.2 59.5	33.3 35.5 30.7 60.2 56 51.6 58.8 59.9	141 139 139 119 126 129 129	10.2 10.0 9.91 9.90 9.70 7.76 11.3 11.8	20.3 22.7 22.6 22.6 21.4 23.6 24.7 23.9	S
Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene	43 41 39 48 45 4.6 2.5 2.4 5.3	2.0 2.0 2.5 2.0 0.80 0.60 0.60 0.30	80.00 80.20 80.00 80.20 80.00 8.020 4.020 4.020	0 0 0 0 0 0 0	53.3 51.0 49.0 59.6 56.1 57.1 62.2 59.5 65.6	33.3 35.5 30.7 60.2 56 51.6 58.8 59.9 48	141 139 139 119 126 129 129 121	10.2 10.0 9.91 9.90 9.70 7.76 11.3 11.8	20.3 22.7 22.6 22.6 21.4 23.6 24.7 23.9 25.1	S

0

0

0

0

0

65.9

66.0

63.7

68.9

69.0

61.4

67.6

61.8

55.9

49.1

57.8

57.2

58.2

24.4

120

134

142

134

134

137

130

10.1

11.4

11.8

9.66

11.0

11.5

0

22.1

27.2

30.2

23.8

19.1

19.6

Qualifiers:

Benzo(b)fluoranthene

Benzo(k)fluoranthene

Dibenz(a,h)anthracene

Indeno(1,2,3-cd)pyrene

Surr: Benzo(e)pyrene

Benzo(g,h,i)perylene

Benzo(a)pyrene

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-29866

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID:

PBW

RunNo: 40252

Prep Date:

Analyte

1/25/2017

Batch ID: 29866 Analysis Date: 1/25/2017

SeqNo: 1262095

Units: µg/L

RPDLimit

Qual

Phenolics, Total Recoverable

Result

PQL

SPK value SPK Ref Val %REC LowLimit HighLimit

%RPD

ND

SampType: LCS

2.5

TestCode: Total Phenolics by SW-846 9067

Sample ID LCS-29866 Client ID: LCSW

Batch ID: 29866

Analysis Date: 1/25/2017

RunNo: 40252

Units: µg/L

PQL

SPK value SPK Ref Val

%REC

LowLimit HighLimit 62.4

%RPD

Phenolics, Total Recoverable

Client ID: LCSS02

21

2.5 20.00 0

104

SeqNo: 1262096

146

RPDLimit

Qual

Sample ID LCSD-29866

Prep Date: 1/25/2017

SampType: LCSD

Batch ID: 29866

TestCode: Total Phenolics by SW-846 9067

RunNo: 40252

Units: µg/L

RPDLimit Qual

Analyte Phenolics, Total Recoverable

Prep Date:

1/25/2017

Analysis Date: 1/25/2017 Result

SPK value SPK Ref Val %REC LowLimit

0

113

62.4

HighLimit 146 %RPD 8.32

21

23 2.5

20.00

SeqNo: 1262097

Qualifiers:

S

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Page 18 of 22

P Sample pH Not In Range

RLReporting Detection Limit W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-R40523

SampType: MBLK

TestCode: EPA 335.4: Total Cyanide Subbed

LowLimit

LowLimit

Client ID: Prep Date:

PBW

Batch ID: R40523

RunNo: 40523

Analysis Date: 1/16/2017

SPK value SPK Ref Val

SPK value SPK Ref Val

SeqNo: 1269895

Units: mg/L HighLimit

%RPD **RPDLimit**

Qual

Analyte Cyanide

Result **PQL** ND 0.0100

SampType: LCS

TestCode: EPA 335.4: Total Cyanide Subbed

%REC

RunNo: 40523

Client ID: LCSW Prep Date:

Sample ID LCS-R40523

Batch ID: R40523

%REC

Units: mg/L

Analyte

Analysis Date: 1/16/2017

PQL

SeqNo: 1269896

HighLimit

RPDLimit

Qual

0.5000

97.0

90

%RPD

Cyanide

0.485

0

110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н 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 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 container temperature is out of limit as specified W

Page 19 of 22

Hall Environmental Analysis Laboratory, Inc.

14-Feb-17

WO#:

1701253

Client: Navajo Refining Company Quarterly R.O. Reject Project:

Sample ID rb SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range Client ID: PBW Batch ID: G39990 RunNo: 39990 Prep Date: Analysis Date: 1/12/2017 SeqNo: 1253120 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 8.8 10.00 87.5 70 130

Sample ID 2.5ug gro Ics SampType: LCS TestCode: EPA Method 8015D: Gasoline Range Client ID: LCSW Batch ID: G39990 RunNo: 39990 Analysis Date: 1/12/2017 Prep Date: SeqNo: 1253121 Units: mg/L Result Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.55 0.050 0.5000 110 75.4 118 Surr: BFB 9.2 10.00 92.5 70 130

Sample ID 1701253-001a msd SampType: MSD TestCode: EPA Method 8015D: Gasoline Range Client ID: R.O. Reject Batch ID: G39990 RunNo: 39990 Prep Date: Analysis Date: 1/12/2017 SeqNo: 1253124 Units: mg/L Result Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.46 0.050 0.5000 0.01760 89.1 70 130 12.9 20 Surr: BFB 9.0 10.00 89.7 70 130 0 0

Sample ID 1701253-001a ms g SampType: MS TestCode: EPA Method 8015D: Gasoline Range Client ID: R.O. Reject Batch ID: G39990 RunNo: 40004 Prep Date: Analysis Date: 1/13/2017 SeqNo: 1254101 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.53 0.050 0.5000 0.01760 102 70 130 Surr: BFB 8.8 10.00 87.8 70 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Value above quantitation range Е

J Analyte detected below quantitation limits

Page 20 of 22

P Sample pH Not In Range

RLReporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1701253

Qual

14-Feb-17

Client:

Navajo Refining Company

Project:

Quarterly R.O. Reject

Sample ID MB-R40526
Client ID: PBW

SampType: MBLK

TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed

SPK value SPK Ref Val %REC LowLimit

RunNo: 40526

Prep Date:

Batch ID: **R40526**Analysis Date: **2/2/2017**

SeqNo: **1269905**

Units: pCi/L

HighLimit

%RPD

RPDLimit

Analyte Radium-226

Result PQL

0.127 0.468

0.291 0.468

Radium-226 ± Radium-228 Radium-228 ±

0.0949 0.653 0.29 0.653

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

on range

Page 21 of 22

Hall Environmental Analysis Laboratory, Inc.

WO#:

1701253 14-Feb-17

Client: Navajo Refining Company Project: Quarterly R.O. Reject

Sample ID MB-29623 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 29623 RunNo: 39966

Prep Date: 1/10/2017 Analysis Date: 1/11/2017 SeqNo: 1252489 Units: mg/L

Result Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Total Dissolved Solids ND 20.0

Sample ID LCS-29623 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

LCSW Client ID: Batch ID: 29623 RunNo: 39966

Prep Date: 1/10/2017 Analysis Date: 1/11/2017 SeqNo: 1252490 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC %RPD LowLimit HighLimit **RPDLimit** Qual

Total Dissolved Solids 1060 20.0 1000 0 106 80 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RLReporting Detection Limit

W Sample container temperature is out of limit as specified

Page 22 of 22



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 Numb	er: 1701253		RcptNo:	1
Received by/dat	e: RE	0/09/1	7			
Logged By:	Ashley Gallegos	1/9/2017 9:20:00 AN	ň.	A		
Completed By:	Ashley Gallegos	1/9/2017 9:54:08 AN	1	A		
Reviewed By: /	XQ 01/09/1	7		. 0		
Chain of Cus	/ 001			more at the headersteen section (1991) No. 10.		
1. Custody sea	ils intact on sample bottles'	?	Yes 🗀	No 🗀	Not Present	
	Custody complete?		Yes 🗸	No []	Not Present	
3. How was the	sample delivered?		Courier			
Log In						
4. Was an atte	empt made to cool the samp	ples?	Yes 🔽	No [NA []	
5. Were all san	nples received at a tempera	ature of >0° C to 6.0°C	Yes 🗹	No []	NA []	
6. Sample(s) in	n proper container(s)?		Yes 🗹	No 🗌		
7. Sufficient sa	mple volume for indicated to	est(s)?	Yes 🗹	No 🗌		
8. Are samples	(except VOA and ONG) pr	operly preserved?	Yes 🔽	No 🗔		
9. Was preserv	rative added to bottles?		Yes 🗌	No 🔀	NA []	
10.VOA vials ha	ave zero headspace?		Yes 🗹	No 🗔	No VOA Vials	
11. Were any sa	ample containers received b	roken?	Yes 🗆	No 🗸		
12 Doos nones.	weeks to the total to the		tra		# of preserved bottles checked	, l
	vork match bottle labels? Dancies on chain of custody)	Yes 🗹	No 🗔	for pH:	>12 unless noted)
	correctly identified on Chai		Yes 🗹	No 🗌	Adjusted?	No
14, Is it clear who	at analyses were requested	?	Yes 🔽	No 📋		0
	ling times able to be met? customer for authorization.)		Yes 🗸	No 📋	Checked by:	Ke
<u>Special Hand</u>	ling (if applicable)					
16, Was client no	otified of all discrepancies w	ith this order?	Yes 🗔	No 🔲	NA 🗸	
Person	Notified:	Date		WATER WEIGHT WITH MANAGEMENT TO		
By Who	om:	Via:	eMail F	Phone [] Fax	In Person	
Regard	9				With the same of t	
1	nstructions:					
17. Additional re	marks:					
18. Cooler Info						
Cooler No		Seal Intact Seal No Yes	Seal Date	Signed By		
Adaman in management in the par	1	THE PROPERTY OF THE PROPERTY O	With the territory and the ter	MITTER COMES TANKS AND REAL ASSESSMENT OF A SECURITION OF A SE		

J	<u>ر</u> م	10-to-	Chain-of-Custody Record	ומוויסוע-ווומו					2	<	L		SALI ENVIDONMENTAL	7	<u> </u>	2	•	
Client	Navajo	Navajo Refinery		X Standard	□ Rush						ANALYSIS			, M	LABORATORY			. >-
				Project Name:	enconsumerament and analysis (ACA) (ACA)				1	WWW.	allen	ironr	(1)	E03		I	i I	ı
Mailing	Address	5: P.O. Bo	Mailing Address: P.O. Box 159 Artesia,	Source (2)	Reject			4901	4901 Hawkins NE	S NE	1	enbno	Albuquerque, NM 87109	NM 8	7109			
NM 882	NM 88211-0159	9		Project #: P.O	0, # 167796			Tel. 5	505-345-3975	5-397		Fax 5	505-345-4107	5-41()7			1
Phone #	¢: 575-7.	Phone #: 575-748-3311									Anal	/sis F	Analysis Request	st				
email o	r Fax#: {	email or Fax#: 575-746-5451	451	Project Manager:	jer.							(8			PARTICIPATE AND ADDRESS OF THE		2	
QA/QC I	QA/QC Package:							S		TOTAL PROPERTY.	2	322-	11 12 18 18 18 18 18 18 18 18 18 18 18 18 18 		www.middell	***************************************	armanumum.	······································
X Standard	dard		☐ Level 4 (Full Validation)	Robert Combs	8		SOC	~~~				3ਸ+				\$	***********	предположения
□ Other				Ø	ad, His	સત્વ	οΛ 1 ^s				O 'C	-226			-	bilo		(N
☐ EDD (Type)	(Type)					2 A	C FI) (Ra	epin	V	ə	S bav		10 Y)
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	S S BTULL! "Ny page	8560B:WQC	8270C: WQ 	stoT :4.388	7470: Merc	8015: GRO 8015: PCB	Radioactivit	Sulfate Chlo Phenols	Fluoride	Nitrate/Nitrit	lossiO lstoT	Н	504.1:EDB Air Bubbles
1/5/11	4:30	liquid	R.O. Reject	2 - 500ml P	1-unpres 1- H2SO4	100-							×	×	×	×	×	<u> </u> >
1/2/L	4:30	liquid	R.O. Reject	3-40ml VOA	HCL		×											
<i>U/s/</i> 11	4:30	liquid	R.O. Reject	1-500ml P	HN03					×						***************************************		
1/5/17	4:30	liquid	R.O. Reject	1-125ml P	HN03			×										
1/2/11	4:30	liquid	R.O. Reject	1-500ml P	NaOH				×				-	_				
u/s/1	ાં./ન	liquid	R.O. Reject	2-1L P	HN03							×						
1/5/17 4:30	4:30	liquid	R.O. Reject	3-40ml VOA	Na2S203													×
i/s/n	4:30	liquid	R.O. Reject	2 - 1L Glass	nnpres			nemanahah MBP			×							
1/2/1	4:3°	liquid	R.O. Reject	1 - 1L Glass	unpres			×										
1/5/11	4:30	liquid	R.O. Reject	3-40ml VOA	НĊ			_			×						7	
U/s/I	of:}h	liquid	R.O. Reject	1-250mlGlas	unpres						×						_	
i/s/n	n:30	liquid	R.O. Reject		H2SO4	7	********						×					_
I/S/I	ž	liquid		2-40ml VOA	HCL					\dashv	-		\dashv	_		7	\exists	-
Date:	Time: :30	Relinquished b	Stat Hospin	Received by:	1	Date Time $(9 /7 O 726)$		Remarks: Metals: As, Al, Ba, 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; 1,1,2,2-Tetrachloroethylene; 1,1,2	a, B, Cd,	Cr, Co, ane; 1,1	Cu, Fe, 2,2-Tetr	Pb, Min, achloroe	B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn toroethane; 1,1,2,2-Tetrachlonoethane; 1,1,2,2-Tetrachlon	Ni, Se, 1,1,2,2-T	^k g, U, Z etrachli	n oroethy	fene; 1	1,2-
Date:	Time:	Relinquished by:	ed by:	Received by:		Date Time	Dibrom	Inchroroethane; 1,1,2-Inchloroethylene; 1,1-Lichloroethane; 1,1-Lichloroethene; 1,2-Dichloroethane; Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Tolluene; Total Xylenes; Vinyl Chloride	1,1,2-Inchloroethylene; 1,1-Ulchloroemane; 1,1-Ulchloroemene; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride	inioroet proethal rzene; ⁻	iylene; 1 e; Benz oluene;	ine; Car Total Xy	Iroeman bon Tetr enes; V	er, 1,1-L achloric inyl Chli	icilara le; Chla oride	eurene, roform	<u>'</u>	
	, neasonad j	-	examples submitted to Unit Environmental menute to subs	so souther at betweendern and some	madited laboratoris	SVOCs: It serves as notice of this mossibility	SVOCS	9 I	inzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalen Anv sub-contracted data will be clearly notated on the analytical	phenol,	1-methy	naphtha	lene, 2-r	nethyln	aphthai	ene, nag	phthak	e

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



Quarterly RO Reject Sample Details Attachment



	Z		methals One	
Harasa et al.			artification (Fig.	

South Field R.O. Reject Discarge

☐ North Field R.O. Reject Discarge

And the state of t	PH, CI, F, S04, 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
		-									
70											
e de la composição de l					×						
	×										
19			×	×		×					_
		×					×				×
North	×							×	×	×	
	2	3	1	1	2	3	2	-	2	2	2
Valenti	Plastic	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA
	500ml	40ml	500ml	125ml	500ml	1,	40ml	1	1	40ml	40ml
Container	P		e6			ij.					

Storings referred		ellell goldling	
of Date Weamer Obstitutions Bits 2017 Tmp.42.8°F, Humidity 42% , Wind Dir, East, Wind Speed 10.4 mph, Conditions Clear	eld Temp. 17.1C Field pH 7.69		

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Tuesday, January 17, 2017 2:52 PM

To: 'Dade, Lewis (Randy)'; Griswold, Jim, EMNRD

Cc: O'Brien, Robert (Bob) K.; McWatters, Denise; Holder, Mike; Denton, Scott; Combs, Robert; Marks,

Allison, EMNRD; Brancard, Bill, EMNRD

Subject: RE: December RO Reject Monthly Report WQA-OCD-CO-2015-002 ACO RO Reject Water Discharge

Monthly Report for December 2016

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and finds the Permittee to be in compliance.

OCD is in receipt of the revised application and schedule on 1/13/17 for the UIC Class I (Non-hazardous) Disposal Well. OCD is currently reviewing and making final revisions to its discharge permit renewal and public notice for the newspapers.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505

Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]

Sent: Thursday, January 12, 2017 1:52 PM

To: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>

Cc: O'Brien, Robert (Bob) K. <Robert.OBrien@HollyFrontier.com>; McWatters, Denise

<Denise.McWatters@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott

<Scott.Denton@HollyFrontier.com>; Combs, Robert <Robert.Combs@HollyFrontier.com>; Dade, Lewis (Randy)

<Lewis.Dade@HollyFrontier.com>; Marks, Allison, EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD

<bill.brancard@state.nm.us>

Subject: December 2016 Monthly Report: Discharge Permit GW - 028

Please find the December 2016 GW-028 monthly report. If there are any questions or comments, please feel free to contact me.

Dade, Lewis (RANDY)

HF Navajo Ref LLC Environmental Specialist IV Environmental - Artesia (575) 746-5281 Work (575) 703-4735 Mobile Lewis.Dade@HollyFrontier.com 501 E. MAIN ARTESIA, NM. 88210

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January 12, 2017

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

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

RE: Discharge Permit GW-028

Monthly Penert December 2016 Per

Monthly Report – December 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's December 2016 monthly report, for the period of December 1-31, 2016, under the Permit.

Specifically, this report covers the December 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the fourth quarter, samples were collected for the RO reject streams from the permanent units on October 11, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the report submitted on December 16, 2016, for the November 2016 reporting period.

On October 21, 2016, Navajo notified OCD of its selection of a Class 1 disposal well as an alternative disposal method for the RO reject. Navajo is in the process of revising the application to renew and modify Discharge Permit GW-028 submitted on June 23, 2016, to reflect this selection.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
12/1/2016	132.08	142.87	38.88	313.83	10,759.89
12/2/2016	36.35	127.17	110.62	274.14	9,399.09
12/3/2016	11.88	123.09	133.81	268.78	9,215.31
12/4/2016	8.73	122.92	133.77	265.43	9,100.46
12/5/2016	2.12	122.94	133.69	258.76	8,871.77
12/6/2016	0.05	110.20	126.98	237.23	8,133.60
12/7/2016	0.00	119.56	120.85	240.41	8,242.63
12/8/2016	0.00	123.28	121.52	244.80	8,393.14
12/9/2016	0.00	124.34	121.65	245.99	8,433.94
12/10/2016	0.00	123.05	122.00	245.05	8,401.71
12/11/2016	0.00	124.81	122.27	247.08	8,471.31
12/12/2016	0.00	125.03	122.51	247.54	8,487.09
12/13/2016	0.00	125.22	122.58	247.80	8,496.00
12/14/2016	0.00	123.96	122.44	246.41	8,448.34
12/15/2016	0.00	125.47	122.87	248.33	8,514.17
12/16/2016	0.00	126.86	124.03	250.88	8,601.60
12/17/2016	0.00	126.26	123.46	249.72	8,561.83
12/18/2016	0.00	127.98	124.22	252.20	8,646.86
12/19/2016	0.00	126.95	125.10	252.05	8,641.71
12/20/2016	0.00	126.69	125.33	252.01	8,640.34
12/21/2016	0.00	129.02	126.26	255.27	8,752.11
12/22/2016	0.00	130.12	126.58	256.69	8,800.80
12/23/2016	0.00	128.41	125.62	254.03	8,709.60
12/24/2016	0.00	128.31	125.11	253.43	8,689.03
12/25/2016	0.00	128.06	125.01	253.07	8,676.69
12/26/2016	0.00	129.05	125.70	254.75	8,734.29
12/27/2016	0.00	129.81	126.25	256.05	8,778.86
12/28/2016	0.00	127.44	124.91	252.35	8,652.00
12/29/2016	0.00	127.62	124.88	252.50	8,657.14
12/30/2016	0.00	126.30	124.54	250.83	8,599.89
12/31/2016	0.00	127.45	124.82	252.27	8,649.26
TOTAL (bbls/mo	nth)				270,160.46

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Tuesday, December 20, 2016 4:35 PM

To: 'Combs, Robert'

Cc: Griswold, Jim, EMNRD; McWatters, Denise (Denise.McWatters@hollyfrontier.com); O'Brien, Robert

(Bob) K.; Holder, Mike (Mike.Holder@hollyfrontier.com); Denton, Scott

(Scott.Denton@HollyFrontier.com); Marks, Allison, EMNRD

Subject: RE: November RO Reject Monthly Report WQA-OCD-CO-2015-002 ACO RO Reject Water Discharge

Monthly Report for November 2016

Robert:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and finds the Permittee to be in compliance.

Please contact me if you have questions. Thank you.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]

Sent: Friday, December 16, 2016 7:55 AM

To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>

Cc: McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott

<Scott.Denton@HollyFrontier.com>; Marks, Allison, EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD

<bill.brancard@state.nm.us>

Subject: November RO Reject Monthly Report

Jim & Carl,

Attached is the monthly report for the month of November concerning the RO Reject, as required by the GW-028 condition 4.B.7. This report will be mailed today.

Please let me know if you have any questions.

Thanks, Robert

Robert Combs

Environmental Specialist The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159

office: 575-746-5382 cell: 575-308-2718 fax: 575-746-5451

Robert.Combs@hollyfrontier.com

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and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.



December 16, 2016

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

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

RE: Discharge Permit GW-028

Monthly Report – November 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's November 2016 monthly report, for the period of November 1-30, 2016, under the Permit.

Specifically, this report covers the November 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on October 11, 2016 in accordance with Condition 4.B.1 for the fourth calendar quarter.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the fourth quarter, samples were collected for the RO reject streams from the permanent units on October 11, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

On October 21, 2016, Navajo notified OCD of its selection of a Class 1 disposal well as an alternative disposal method for the RO reject. Navajo is currently revising the application to renew and modify Discharge Permit GW-028 submitted on June 23, 2016, to reflect this selection.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units		Daily Discharge Volume
·		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
11/1/2016	131.18	143.05	55.20	329.43	11,294.74
11/2/2016	131.71	143.11	56.78	331.59	11,368.80
11/3/2016	29.73	141.18	63.04	233.94	8,020.80
11/4/2016	73.35	142.31	58.64	274.30	9,404.57
11/5/2016	136.65	142.76	50.95	330.36	11,326.63
11/6/2016	137.55	142.70	52.06	332.30	11,393.14
11/7/2016	137.78	142.64	49.69	330.12	11,318.40
11/8/2016	139.07	143.06	53.20	335.33	11,497.03
11/9/2016	137.83	139.52	52.77	330.12	11,318.40
11/10/2016	139.04	142.68	55.00	336.72	11,544.69
11/11/2016	139.33	142.09	50.60	332.02	11,383.54
11/12/2016	139.06	142.09	52.70	333.85	11,446.29
11/13/2016	117.00	143.18	53.42	313.60	10,752.00
11/14/2016	55.16	137.56	38.91	231.63	7,941.60
11/15/2016	129.27	140.70	45.95	315.93	10,831.89
11/16/2016	129.66	140.82	45.01	315.50	10,817.14
11/17/2016	131.01	142.57	50.37	323.95	11,106.86
11/18/2016	130.93	142.10	49.35	322.39	11,053.37
11/19/2016	130.83	141.64	47.23	319.70	10,961.14
11/20/2016	131.05	141.62	45.90	318.57	10,922.40
11/21/2016	130.67	141.51	43.17	315.35	10,812.00
11/22/2016	131.03	141.94	44.67	317.65	10,890.86
11/23/2016	131.04	141.77	42.89	315.70	10,824.00
11/24/2016	132.65	142.55	49.49	324.70	11,132.57
11/25/2016	132.32	142.03	45.79	320.14	10,976.23
11/26/2016	132.91	142.02	47.08	322.01	11,040.34
11/27/2016	132.82	142.17	45.35	320.34	10,983.09
11/28/2016	133.01	142.55	45.24	320.80	10,998.86
11/29/2016	132.18	142.57	41.93	316.67	10,857.26
11/30/2016	132.44	142.71	42.61	317.77	10,894.97
TOTAL (bbls/mor	nth)				325,113.60

Attachment 2 Analytical Lab Report



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

November 16, 2016

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly RO Reject OrderNo.: 1610613

Dear Robert Combs:

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

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

and st

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/16/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly RO Reject
 Collection Date: 10/11/2016 11:00:00 AM

 Lab ID:
 1610613-001
 Matrix: AQUEOUS
 Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL	Qual	Units	DF 1	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst:	JLF
Arsenic	ND	0.0050		mg/L	5	10/28/2016 2:36:13 PM	A38300
Lead	ND	0.00050		mg/L	1	10/25/2016 7:44:19 PM	B38214
Selenium	0.0089	0.0010		mg/L	1	10/25/2016 7:44:19 PM	B38214
Uranium	0.0064	0.00050		mg/L	1	10/25/2016 7:44:19 PM	B38214
EPA 903.1: RA 226 AND EPA 904.0: RA 2	228-SUBBE	D				Analyst	SUB
Radium-226	0.525	0.552		pCi/L	1	11/16/2016	R38749
Radium-226 ±	0.445	0.552		pCi/L	1	11/16/2016	R38749
Radium-228	0.442	0.785		pCi/L	1	11/16/2016	R38749
Radium-228 ±	0.389	0.785		pCi/L	1	11/16/2016	R38749
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	3.6	2.0		mg/L	20	10/14/2016 12:43:59 AM	/I R37942
Chloride	280	10		mg/L	20	10/14/2016 12:43:59 AM	/I R37942
Sulfate	1900	50		mg/L	100	10/25/2016 4:52:17 PM	R38212
Nitrate+Nitrite as N	1.9	1.0		mg/L	5	10/14/2016 1:33:37 AM	R37942
SM2540C MOD: TOTAL DISSOLVED SO	LIDS					Analyst	KS
Total Dissolved Solids	3960	20.0	*	mg/L	1	10/20/2016 2:01:00 PM	28134
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	10/19/2016	R38749
SM4500-H+B: PH						Analyst	JRR
рН	7.82	1.68	Н	pH units	1	10/18/2016 1:22:12 PM	R38048
EPA METHOD 200.7: DISSOLVED META	LS					Analyst	MED
Aluminum	ND	0.020		mg/L	1	10/25/2016 12:47:24 PM	/I A38197
Barium	0.079	0.0020		mg/L	1	10/21/2016 6:01:00 PM	B38141
Boron	0.092	0.040		mg/L	1	10/21/2016 6:01:00 PM	B38141
Cadmium	ND	0.0020		mg/L	1	10/21/2016 6:01:00 PM	B38141
Chromium	ND	0.0060		mg/L	1	10/21/2016 6:01:00 PM	B38141
Cobalt	ND	0.0060		mg/L	1	10/21/2016 6:01:00 PM	B38141
Copper	ND	0.0060		mg/L	1	10/25/2016 12:47:24 PM	/I A38197
Iron	ND	0.020		mg/L	1	10/25/2016 12:47:24 PM	/I A38197
Manganese	ND	0.0020		mg/L	1	10/21/2016 6:01:00 PM	B38141
Molybdenum	ND	0.0080		mg/L	1	10/21/2016 6:01:00 PM	B38141
Nickel	ND	0.010		mg/L	1	10/21/2016 6:01:00 PM	B38141
Silver	ND	0.0050		mg/L	1	10/21/2016 6:01:00 PM	B38141
Zinc	0.014	0.010		mg/L	1	10/21/2016 6:01:00 PM	B38141
EPA METHOD 245.1: MERCURY						Analyst	JLF
Mercury	ND	0.00020		mg/L	1	10/21/2016 12:15:12 PM	Л 28201

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

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 Page 1 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Date Reported: 11/16/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly RO Reject
 Collection Date: 10/11/2016 11:00:00 AM

 Lab ID:
 1610613-001
 Matrix: AQUEOUS
 Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RA	ANGE				Analyst	: AG
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	10/19/2016 9:14:28 PM	W38060
Surr: BFB	90.7	70-130	%Rec	1	10/19/2016 9:14:28 PM	W38060
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	10/17/2016 4:51:55 PM	28082
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	28040
Aroclor 1221	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	
Aroclor 1232	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	28040
Aroclor 1242	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	28040
Aroclor 1248	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	28040
Aroclor 1254	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	28040
Aroclor 1260	ND	1.0	μg/L	1	10/19/2016 8:28:00 AM	28040
Surr: Decachlorobiphenyl	117	26.1-140	%Rec	1	10/19/2016 8:28:00 AM	28040
Surr: Tetrachloro-m-xylene	112	15-123	%Rec	1	10/19/2016 8:28:00 AM	28040
EPA METHOD 8015M/D: DIESEL RA	NGE				Analyst	: ТОМ
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	10/14/2016 10:46:55 PI	M 28063
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	10/14/2016 10:46:55 PI	M 28063
Surr: DNOP	117	77.1-144	%Rec	1	10/14/2016 10:46:55 PI	M 28063
EPA METHOD 8310: PAHS					Analyst	: SCC
Naphthalene	ND	2.0	μg/L	1	10/20/2016 3:19:37 PM	28041
1-Methylnaphthalene	ND	2.0	μg/L	1	10/20/2016 3:19:37 PM	28041
2-Methylnaphthalene	ND	2.0	μg/L	1	10/20/2016 3:19:37 PM	28041
Benzo(a)pyrene	ND	0.070	μg/L	1	10/20/2016 3:19:37 PM	28041
Surr: Benzo(e)pyrene	80.6	20-153	%Rec	1	10/20/2016 3:19:37 PM	28041
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Benzene	ND	1.0	μg/L	1	10/14/2016 10:07:29 Al	M R37973
Toluene	ND	1.0	μg/L	1	10/14/2016 10:07:29 Af	M R37973
Ethylbenzene	ND	1.0	μg/L	1	10/14/2016 10:07:29 Af	M R37973
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	10/14/2016 10:07:29 Al	M R37973
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	10/14/2016 10:07:29 Af	M R37973
Carbon Tetrachloride	ND	1.0	μg/L	1	10/14/2016 10:07:29 Af	M R37973
Chloroform	ND	1.0	μg/L	1	10/14/2016 10:07:29 Af	M R37973
1,1-Dichloroethane	ND	1.0	μg/L	1	10/14/2016 10:07:29 Al	M R37973
1,1-Dichloroethene	ND	1.0	μg/L	1	10/14/2016 10:07:29 Al	M R37973
Methylene Chloride	ND	3.0	μg/L	1	10/14/2016 10:07:29 Al	M R37973
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	10/14/2016 10:07:29 Al	M R37973
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	10/14/2016 10:07:29 Af	M R37973

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

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 Page 2 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/16/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly RO Reject
 Collection Date: 10/11/2016 11:00:00 AM

 Lab ID:
 1610613-001
 Matrix: AQUEOUS
 Received Date: 10/13/2016 8:30:00 AM

Analyses	Result	PQL Qua	al Units	DF Date Analyzed Batch
EPA METHOD 8260B: VOLATILES				Analyst: AG
1,1,1-Trichloroethane	ND	1.0	μg/L	1 10/14/2016 10:07:29 AM R37973
1,1,2-Trichloroethane	ND	1.0	μg/L	1 10/14/2016 10:07:29 AM R37973
Trichloroethene (TCE)	ND	1.0	μg/L	1 10/14/2016 10:07:29 AM R37973
Vinyl chloride	ND	1.0	μg/L	1 10/14/2016 10:07:29 AM R37973
Xylenes, Total	ND	1.5	μg/L	1 10/14/2016 10:07:29 AM R37973
Surr: 1,2-Dichloroethane-d4	96.3	70-130	%Rec	1 10/14/2016 10:07:29 AM R37973
Surr: 4-Bromofluorobenzene	100	70-130	%Rec	1 10/14/2016 10:07:29 AM R37973
Surr: Dibromofluoromethane	103	70-130	%Rec	1 10/14/2016 10:07:29 AM R37973
Surr: Toluene-d8	97.8	70-130	%Rec	1 10/14/2016 10:07:29 AM R37973
TOTAL PHENOLICS BY SW-846 9067				Analyst: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1 10/18/2016 28115

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

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 Page 3 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 11/16/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Quarterly RO Reject Collection Date:

Lab ID: 1610613-002 **Matrix:** TRIP BLANK **Received Date:** 10/13/2016 8:30:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analy	/st: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	10/17/2016 5:07:17 F	PM 28082
EPA METHOD 8260B: VOLATILES					Analy	/st: AG
Benzene	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Toluene	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Ethylbenzene	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Carbon Tetrachloride	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Chloroform	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,1-Dichloroethane	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,1-Dichloroethene	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Methylene Chloride	ND	3.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,1,1-Trichloroethane	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
1,1,2-Trichloroethane	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Trichloroethene (TCE)	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Vinyl chloride	ND	1.0	μg/L	1	10/14/2016 11:33:59	AM R37973
Xylenes, Total	ND	1.5	μg/L	1	10/14/2016 11:33:59	AM R37973
Surr: 1,2-Dichloroethane-d4	93.1	70-130	%Rec	1	10/14/2016 11:33:59	AM R37973
Surr: 4-Bromofluorobenzene	95.7	70-130	%Rec	1	10/14/2016 11:33:59	AM R37973
Surr: Dibromofluoromethane	98.5	70-130	%Rec	1	10/14/2016 11:33:59	AM R37973
Surr: Toluene-d8	104	70-130	%Rec	1	10/14/2016 11:33:59	AM R37973

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

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 Page 4 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

0.010

ND

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB-B SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: **B38141** RunNo: 38141 Prep Date: Analysis Date: 10/21/2016 SeqNo: 1190207 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Barium ND 0.0020 ND Boron 0.040 0.0020 Cadmium ND Chromium ND 0.0060 Cobalt ND 0.0060 Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050

Sample ID LLLCS-B	Samp	SampType: LCSLL TestCode: EPA Method 200						ved Metal	ls	
Client ID: BatchQC	Bato	h ID: B3	8141	41 RunNo: 38141						
Prep Date:	Analysis	alysis Date: 10/21/2016			seqNo: 1	190211	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0026	0.0020	0.002000	0	130	50	150	•		
Boron	0.040	0.040	0.04000	0	101	50	150			
Cadmium	ND	0.0020	0.002000	0	84.5	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	0.0064	0.0060	0.006000	0	106	50	150			
Manganese	0.0021	0.0020	0.002000	0	106	50	150			
Molybdenum	ND	0.0080	0.008000	0	97.5	50	150			
Nickel	ND	0.010	0.005000	0	96.6	50	150			
Silver	ND	0.0050	0.005000	0	99.4	50	150			
Zinc	ND	0.010	0.005000	0	105	50	150			

Sample ID LCS-B	Samp	Type: LC	S	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: LCSW	Bato	ch ID: B3	8141	R	RunNo: 38141							
Prep Date:	Analysis Date: 10/21/2016			S	SeqNo: 1190212			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	101	85	115					
Boron	0.53	0.040	0.5000	0	106	85	115					
Cadmium	0.52	0.0020	0.5000	0	104	85	115					
Chromium	0.50	0.0060	0.5000	0	101	85	115					
Cobalt	0.49	0.0060	0.5000	0	97.8	85	115					
Manganese	0.50	0.0020	0.5000	0	100	85	115					
Molybdenum	0.53	0.0080	0.5000	0	105	85	115					
Nickel	0.48	0.010	0.5000	0	96.3	85	115					

Qualifiers:

Zinc

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

Page 5 of 22

Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

Result

0.0064

0.021

ND

PQL

0.020

0.0060

0.020

SPK value SPK Ref Val

0

0

0

0.01000

0.006000

0.02000

WO#: **1610613**

16-Nov-16

Project:	Quarterly	RO Rejec										
Sample ID LC	S-B	Samp	Гуре: L (cs	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LC	sw	Batc	h ID: B 3	38141	R	RunNo: 38141						
Prep Date:		Analysis [Date: 1	0/21/2016	S	SeqNo: 1	190212	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Silver		0.10	0.0050	0.1000	0	99.9	85	115				
Zinc		0.49	0.010	0.5000	0	97.9	85	115				
Sample ID ME	B-A	Samp	Гуре: М І	BLK	Tes	Code: El	PA Method	200.7: Dissol	ved Metal	s		
Client ID: PE	BW	Batc	Batch ID: A38197 RunNo: 38197									
Prep Date:		Analysis [Date: 1	0/25/2016	S	seqNo: 1	192092	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		ND	0.020									
Copper		ND	0.0060									
Iron		ND	0.020									
Sample ID LC	S-A	Samp	Гуре: L (cs	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s		
Client ID: LC	sw	Batc	h ID: A3	8197	R	tunNo: 3	8197					
Prep Date:		Analysis D	Date: 1	0/25/2016	S	SeqNo: 1	192093	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		0.57	0.020	0.5000	0	114	85	115				
Copper		0.49	0.0060	0.5000	0	97.8	85	115				
Iron		0.50	0.020	0.5000	0	99.1	85	115				
Sample ID LL	LCS-A	Samp	Гуре: L (SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s		
Client ID: Ba	tchQC	Batc	h ID: A3	88197	R	tunNo: 3	8197					
Prep Date:		Analysis D	Date: 1	0/25/2016	S	SeqNo: 1	192094	Units: mg/L				

Qualifiers:

Analyte

Aluminum

Copper

Iron

- * 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

%REC

123

106

107

LowLimit

50

50

50

HighLimit

150

150

150

%RPD

RPDLimit

Qual

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Project:	Navajo Refining (Quarterly RO Rej									
Sample ID LCS	Samp	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals					
Client ID: LCS	W Bat	Batch ID: B38214			RunNo: 38214					
Prep Date:	Analysis	Date: 10	/25/2016	S	eqNo: 11	192768	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	95.6	85	115			
Selenium	0.025	0.0010	0.02500	0 0	99.1	85 85	115			
Uranium	0.012	0.00050	0.01250		96.0	85	115			
Sample ID LLL	CS Samp	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID: Bato	chQC Bat	Batch ID: B38214			RunNo: 38214					
Prep Date:	Analysis	Analysis Date: 10/25/2016			SeqNo: 1192770					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00051		0.0005000	0	101	50	150			
Selenium	0.0011	0.0010	0.001000	0	113	50 50	150 150			
Uranium	ND	0.00050	0.0005000	0	97.5	50	150			
Sample ID MB	Samp	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBV		Batch ID: B38214		RunNo: 38214						
Ciletit ID. PBV	I Bat	ch ID: B3 8	8214	R	unNo: 38	3214				
Prep Date:		ch ID: B38 Date: 10			unNo: 38 eqNo: 1 1		Units: mg/L			
			/25/2016		eqNo: 11		Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead	Analysis Result ND	PQL 0.00050	/25/2016	S	eqNo: 11	192772	J	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead Selenium	Analysis Result ND ND	PQL 0.00050 0.0010	/25/2016	S	eqNo: 11	192772	J	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead	Analysis Result ND ND	PQL 0.00050	/25/2016	S	eqNo: 11	192772	J	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead Selenium	Analysis Result ND ND ND	PQL 0.00050 0.0010	SPK value	SPK Ref Val	eqNo: 11	LowLimit	J		RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium	Analysis Result ND ND ND	PQL 0.00050 0.0010 0.00050	SPK value	SPK Ref Val	eqNo: 11	192772 LowLimit	HighLimit		RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID LCS	Analysis Result ND ND ND Samp W Bat	PQL 0.00050 0.0010 0.00050	SPK value S 8 3 3 3 0 0	SPK Ref Val	eqNo: 11 %REC	LowLimit PA 200.8: E	HighLimit		RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID LCS Client ID: LCS	Analysis Result ND ND ND Samp W Bat	PQL 0.00050 0.0010 0.00050 DType: LC3	SPK value S 8 3 3 0 0 1/28/2016	SPK Ref Val	eqNo: 11 %REC Code: EF	LowLimit PA 200.8: E	HighLimit Dissolved Me		RPDLimit RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID LCS Client ID: LCS Prep Date:	Analysis Result ND ND ND Samp W Bat Analysis	PQL 0.00050 0.0010 0.00050 DType: LC: ch ID: A38	SPK value S 8 3 3 0 0 1/28/2016	SPK Ref Val Test	eqNo: 11 %REC Code: EF unNo: 38	PA 200.8: E	HighLimit Dissolved Met Units: mg/L	tals		
Prep Date: Analyte Lead Selenium Uranium Sample ID LCS Client ID: LCS Prep Date: Analyte	Analysis Result ND ND ND Samp W Bat Analysis Result 0.025	PQL 0.00050 0.0010 0.00050 DType: LC: ch ID: A38 Date: 10	SPK value SBB300 1/28/2016 SPK value 0.02500	SPK Ref Val Test R S SPK Ref Val 0	Code: EF unNo: 38 eqNo: 11 %REC 98.3	PA 200.8: E3300 LowLimit 85	HighLimit Dissolved Me Units: mg/L HighLimit	tals %RPD		
Prep Date: Analyte Lead Selenium Uranium Sample ID LCS Client ID: LCS Prep Date: Analyte Arsenic Sample ID LLL	Analysis Result ND ND ND Samp W Bat Analysis Result 0.025 CS Samp	PQL 0.00050 0.0010 0.00050 DType: LC: ch ID: A38 Date: 10 PQL 0.0010	SPK value SBB300 V28/2016 SPK value 0.02500 SLL	Test SPK Ref Val O Test	Code: EF unNo: 38 eqNo: 11 %REC 98.3	PA 200.8: E 3300 195760 LowLimit 85	HighLimit Dissolved Mer Units: mg/L HighLimit 115	tals %RPD		
Prep Date: Analyte Lead Selenium Uranium Sample ID LCS Client ID: LCS Prep Date: Analyte Arsenic Sample ID LLL	Analysis Result ND ND ND Samp W Bat Analysis Result 0.025 CS Samp chQC Bat	PQL 0.00050 0.0010 0.00050 Type: LC: ch ID: A38 Date: 10 PQL 0.0010	SPK value SBB300 SPK value 0.02500 SLL B300	Test R SPK Ref Val 0 Test R R R R R R	Code: EF	PA 200.8: E 3300 LowLimit 85	HighLimit Dissolved Mer Units: mg/L HighLimit 115	tals %RPD		

Qualifiers:

Arsenic

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

ND

0.0010

0.001000

- 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

150

E Value above quantitation range

99.2

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A38300 RunNo: 38300

Prep Date: Analysis Date: 10/28/2016 SeqNo: 1195762 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB-28201 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 28201 RunNo: 38122

Prep Date: 10/20/2016 Analysis Date: 10/21/2016 SeqNo: 1189575 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-28201 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 28201 RunNo: 38122

Prep Date: 10/20/2016 Analysis Date: 10/21/2016 SeqNo: 1189576 Units: mg/L

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

Mercury 0.0049 0.00020 0.005000 0 97.4 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

Result

9.7

WO#: **1610613**

16-Nov-16

Client:	Navajo Refining Company			
Project:	Quarterly RO Reject			
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R37942	RunNo: 37942		
Prep Date:	Analysis Date: 10/13/2016	SeqNo: 1182401	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Fluoride	ND 0.10			
Chloride	ND 0.50			
Nitrate+Nitrite as N	ND 0.20			
Sample ID LCS	SampType: LCS	TestCode: EPA Method	300.0: Anions	
Client ID: LCS	N Batch ID: R37942	RunNo: 37942		
Prep Date:	Analysis Date: 10/13/2016	SeqNo: 1182402	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Fluoride	0.54 0.10 0.5000	0 107 90	110	
Chloride	4.7 0.50 5.000	0 93.9 90	110	
Nitrate+Nitrite as N	3.4 0.20 3.500	0 97.3 90	110	
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R38212	RunNo: 38212		
Prep Date:	Analysis Date: 10/25/2016	SeqNo: 1192608	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: LCS	W Batch ID: R38212	RunNo: 38212		
Prep Date:	Analysis Date: 10/25/2016	SeqNo: 1192609	Units: mg/L	

SPK value SPK Ref Val

10.00

Qualifiers:

Analyte

Sulfate

- * 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

LowLimit

%REC

96.9

HighLimit

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

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%RPD

RPDLimit

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB-28082 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 28082 RunNo: 37992

Prep Date: 10/17/2016 Analysis Date: 10/17/2016 SeqNo: 1183982 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-28082 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 28082 RunNo: 37992

Prep Date: 10/17/2016 Analysis Date: 10/17/2016 SeqNo: 1183984 Units: μg/L

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

1,2-Dibromoethane 0.093 0.010 0.1000 0 93.2 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

W Sample container temperature is out of limit as specified

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Client:

Hall Environmental Analysis Laboratory, Inc.

Batch ID: 28063

Analysis Date: 10/14/2016

PQL

1.0

5.0

1.000

Result

ND

ND

1.1

Navajo Refining Company

WO#: **1610613**

16-Nov-16

Project: (Quarterly RO Reject	et .					
Sample ID 1610613-	•001AMS SampT	Гуре: МЅ	Tes	tCode: EPA Method	8015M/D: Diesel	Range	
Client ID: R.O. Rej	ect Batch	h ID: 28063	1	RunNo: 37940			
Prep Date: 10/14/2	016 Analysis D	Date: 10/14/20	16	SeqNo: 1183256	Units: mg/L		
Analyte	Result	PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %F	RPD RPDLimit	Qual
Diesel Range Organics (DI	RO) 6.1	1.0 5	.000 0	121 79.6	148		
Surr: DNOP	0.51	0.9	5000	103 77.1	144		
Sample ID 1610613	001AMSD SampT	Гуре: MSD	Tes	stCode: EPA Method	8015M/D: Diesel	Range	
Client ID: R.O. Rej	ect Batch	h ID: 28063	1	RunNo: 37940			
Prep Date: 10/14/2	016 Analysis D	Date: 10/14/20	16	SeqNo: 1183257	Units: mg/L		
Analyte	Result	PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %F	RPD RPDLimit	Qual
Diesel Range Organics (DI	RO) 5.8	1.0 5	.000 0	115 79.6	148	5.02 20	
Surr: DNOP	0.49	0.9	5000	98.6 77.1	144	0 0	
Sample ID LCS-280	63 SampT	Гуре: LCS	Tes	stCode: EPA Method	8015M/D: Diesel	Range	
Client ID: LCSW	Batch	h ID: 28063	1	RunNo: 37940			
Prep Date: 10/14/2	016 Analysis D	Date: 10/14/20	16	SeqNo: 1183264	Units: mg/L		
Analyte	Result	PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %F	RPD RPDLimit	Qual
Diesel Range Organics (DI	RO) 5.8	1.0 5	.000 0	116 63.2	155		
Surr: DNOP	0.49	0.9	5000	97.8 77.1	144		
Sample ID MB-2806	3 SampT	Гуре: МВLК	Tes	tCode: EPA Method	8015M/D: Diesel	Range	

Qualifiers:

Client ID: PBW

Surr: DNOP

Prep Date: 10/14/2016

Diesel Range Organics (DRO)

Motor Oil Range Organics (MRO)

- * 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

RunNo: 37940

114

77.1

SPK value SPK Ref Val %REC LowLimit

SeqNo: 1183265

Units: mg/L

HighLimit

144

%RPD

RPDLimit

Qual

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1610613

16-Nov-16

Client: Navajo Refining Company **Project:** Quarterly RO Reject

Sample ID MB-28040	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method				
Client ID: PBW	ent ID: PBW Batch ID: 28040					RunNo: 38063				
Prep Date: 10/13/2016	Analysis D	ate: 10)/18/2016	S	SeqNo: 1	187392	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	2.7		2.500		110	26.1	140			
Surr: Tetrachloro-m-xylene	2.7		2.500		108	15	123			

Sample ID LCS-28040	SampT	ype: LC	s	Tes	tCode: El	PA Method				
Client ID: LCSW	Batch	ID: 28	040	F	RunNo: 3	8063				
Prep Date: 10/13/2016	Analysis D	ate: 10)/18/2016	S	SeqNo: 1	187408	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.2	1.0	5.000	0	103	15	147			
Aroclor 1260	5.2	1.0	5.000	0	105	15	200			
Surr: Decachlorobiphenyl	2.8		2.500		112	26.1	140			
Surr: Tetrachloro-m-xvlene	2.8		2.500		112	15	123			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID 100ng lcs	SampT	ype: LC	s	Tes	tCode: El	ATILES				
Client ID: LCSW	Batch	n ID: R3	7973	F	RunNo: 3					
Prep Date:	Analysis D	ate: 10)/14/2016	8	SeqNo: 1	183336	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	20	1.0	20.00	0	98.9	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.7	70	130			
Trichloroethene (TCE)	16	1.0	20.00	0	78.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID 1610613-001bms	SampT	ype: MS	5	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: R.O. Reject	Batch ID: R37973			R	RunNo: 3	7973				
Prep Date:	Analysis D	oate: 10	0/14/2016	S	SeqNo: 1	183339	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.2	70	130			
Toluene	19	1.0	20.00	0	97.4	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	88.0	70	130			
Trichloroethene (TCE)	16	1.0	20.00	0	77.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.7	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.3	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.3	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 1610613-001bmsd	SampT	ype: MS	SD	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: R.O. Reject	Batch	ID: R3	7973	R	RunNo: 3	7973				
Prep Date:	Analysis D	ate: 10	0/14/2016	S	SeqNo: 1	183340	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.0	70	130	1.25	20	
Toluene	18	1.0	20.00	0	92.4	70	130	5.28	20	
1,1-Dichloroethene	17	1.0	20.00	0	86.1	70	130	2.18	20	
Trichloroethene (TCE)	15	1.0	20.00	0	76.1	70	130	2.11	20	
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130	0	0	
Surr: Dibromofluoromethane	9.9		10.00		98.9	70	130	0	0	
Surr: Toluene-d8	9.7		10.00		97.3	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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID rb	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: R3	7973	F	RunNo: 3	7973				
Prep Date:	Analysis D	ate: 10)/14/2016	9	SeqNo: 1	183360	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.6	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.9		10.00		99.2	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

0 1 10 110 110										
Sample ID MB-28041	Samp1	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batcl	h ID: 28	041	F	RunNo: 3	8100				
Prep Date: 10/13/2016	Analysis D	Date: 10	0/20/2016	8	SeqNo: 1	188744	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	13		20.00		64.1	20	153			

Sample ID LCS-28041	Samp	ype: LC	s	Tes	tCode: El	PA Method	8310: PAHs	•		
Client ID: LCSW	Batc	n ID: 28	041	R	RunNo: 3	8100				
Prep Date: 10/13/2016	Analysis [Date: 10)/20/2016	S	SeqNo: 1	188746	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	81	2.0	80.00	0	101	55.6	124			
1-Methylnaphthalene	82	2.0	80.20	0	102	55.3	124			
2-Methylnaphthalene	79	2.0	80.00	0	99.2	55.4	124			
Acenaphthylene	85	2.5	80.20	0	106	60.2	119			
Acenaphthene	81	2.0	80.00	0	101	56	126			
Fluorene	7.5	0.80	8.020	0	93.9	51.6	129			
Phenanthrene	3.4	0.60	4.020	0	84.6	58.8	129			
Anthracene	4.0	0.60	4.020	0	98.8	59.9	121			
Fluoranthene	7.4	0.30	8.020	0	92.4	48	145			
Pyrene	8.2	0.30	8.020	0	102	56.2	130			
Benz(a)anthracene	0.81	0.070	0.8020	0	101	50.4	142			
Chrysene	3.9	0.20	4.020	0	95.8	54.7	134			
Benzo(b)fluoranthene	0.93	0.10	1.002	0	92.8	61.8	120			
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	55.9	134			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID LCS-28041	SampType: LCS			Tes	tCode: El	PA Method				
Client ID: LCSW	Batch	n ID: 28	041	R	RunNo: 3	8100				
Prep Date: 10/13/2016					SeqNo: 1	188746	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	51.3	137			
Dibenz(a,h)anthracene	0.98	0.12	1.002	0	97.8	57.8	134			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	57.2	134			
Indeno(1,2,3-cd)pyrene	2.2	0.25	2.004	0	108	58.2	137			
Surr: Benzo(e)pyrene	20		20.00		100	20	153			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB-28115 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 28115 RunNo: 38004

Prep Date: 10/18/2016 Analysis Date: 10/18/2016 SeqNo: 1184471 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-28115 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 28115 RunNo: 38004

Prep Date: 10/18/2016 Analysis Date: 10/18/2016 SeqNo: 1184472 Units: μg/L

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

Phenolics, Total Recoverable 22 2.5 20.00 0 109 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB-R38749 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R38749 RunNo: 38749

Prep Date: Analysis Date: 10/19/2016 SeqNo: 1210509 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R38749 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R38749 RunNo: 38749

Prep Date: Analysis Date: 10/19/2016 SeqNo: 1210510 Units: mg/L

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

Cyanide 0.543 0.5000 0 109 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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

9.3

10.00

WO#: **1610613**

16-Nov-16

Client: Project:	•	efining Cor RO Reject									
Sample ID	1610613-001bms	SampTy	/pe: M \$	<u> </u>	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	е	
Client ID:	R.O. Reject	Batch	ID: W	38060	F	RunNo: 3	8060				
Prep Date:		Analysis Da	ate: 10	0/20/2016	9	SeqNo: 1	187259	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	0.49	0.050	0.5000	0	97.8	53.8	128			
Surr: BFB		9.2		10.00		92.3	70	130			
Sample ID	1610613-001bmsd	I SampTy	/pe: M \$	SD	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	R.O. Reject	Batch	ID: W	38060	F	RunNo: 3	8060				
Prep Date:		Analysis Da	ate: 10	0/20/2016	5	SeqNo: 1	187260	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	0.44	0.050	0.5000	0	88.0	53.8	128	10.6	20	
Surr: BFB		8.6		10.00		86.5	70	130	0	0	
Sample ID	rb	SampTy	/pe: M	BLK	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	PBW	Batch	ID: W	38060	F	RunNo: 3	8060				
Prep Date:		Analysis Da	ate: 10	0/19/2016	\$	SeqNo: 1	187443	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	0.050								
Surr: BFB		8.9		10.00		88.8	70	130			
Sample ID	2.5ug gro lcs	SampTy	/pe: LC	s	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSW	Batch	ID: W	38060	F	RunNo: 3	8060				
Prep Date:		Analysis Da	ate: 10	0/19/2016	5	SeqNo: 1	188464	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rand	e Organics (GRO)	0.53	0.050	0.5000	0	105	75.4	118			

Qualifiers:

Surr: BFB

- * 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

93.3

70

130

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

7 maryte detected in the associated viction Blank

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1610613

16-Nov-16

Client: Navajo Refining Company **Project:** Quarterly RO Reject

Sample ID MB-R38749 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed

PBW Client ID: Batch ID: R38749 RunNo: 38749

SeqNo: **1210512** Prep Date: Analysis Date: 11/16/2016 Units: pCi/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

,		
Radium-226	0	0.518
Radium-226 ±	0.321	0.518
Radium-228	0.2	0.627
Radium-228 ±	0.292	0.627

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1610613**

16-Nov-16

Client: Navajo Refining Company
Project: Quarterly RO Reject

Sample ID MB-28134 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 28134 RunNo: 38086

Prep Date: 10/18/2016 Analysis Date: 10/20/2016 SeqNo: 1188295 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-28134 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 28134 RunNo: 38086

Prep Date: 10/18/2016 Analysis Date: 10/20/2016 SeqNo: 1188296 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

Page 22 of 22

P Sample pH Not In Range

REPORTING Detection LimitW Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory

4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO-REFINING CO Work Order Numl	per: 1610613		RcptNo: 1	
Received by/date:)			
Logged By: Ashley Gallegos 10/13/2016 8:30:00	AM	A		
Completed By: Ashley Gallegos 10/13/2016 11:53:1	5 AM	A		
Reviewed By: 10/10/16		0 ,		
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?	<u>Courier</u>			
<u>Log In</u>				
4. Was an attempt made to cool the samples?	Yes 🗹	No 🗌	NA 🗆	
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes 🗹	No 🗌	NA \square	
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 \square	
10.VOA vials have zero headspace?	Yes 🗹	No 🗌	No VOA Vials	
11. Were any sample containers received broken?	Yes	No 🗹	# of preserved	
12. Does paperwork match bottle labels?	Yes 🗸	No 🗆	bottles checked for pH:	
(Note discrepancies on chain of custody)	v	No 🗀	(£2)or £12)unk Adjusted?	ess noted)
13. Are matrices correctly identified on Chain of Custody? 14. Is it clear what analyses were requested?	Yes ✔ Yes ✔	No □ No □	110	
15. Were all holding times able to be met?	Yes ✓	No 🗆	Checked by:	
(If no, notify customer for authorization.)		L		
Special Handling (if applicable)				
16. Was client notified of all discrepancies with this order?	Yes 🗌	No 🗆	NA 🗹	
Person Notified: Date		 		
By Whom: Via:	eMail 🔲 l	Phone Fax	☐ In Person	
Regarding:				
Client Instructions:				
17. Additional remarks:				
18. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No	Seal Date	Signed By		
1 1.0 Good Yes		· · · · · · · · · · · · · · · · · · ·		

Air Bubbles (Y or N) VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-**ANALYSIS LABORATORY** SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene 2041EDB × HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Hd × Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Vitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride Fax 505-345-4107 **-**Huoride www.hallenvironmental.com Analysis Request Phenols × Sulfate Chloride × Radioactivity (Ra-226+Ra-228) × **bCB**² :2808 × Tel. 505-345-3975 еко' рко' око :9108 × × Mercury :0747 × Total Cyanide 335.4 × 8010B: WQCC Metals × 8270C: WQCC list SVOCs Remarks: × 8260B:WQCC List VOCs × **WIDIOL** OBZO Time HEAL NO. 21181161 Date **Brady Hubbard** □ Rush Preservative Project # P.O. # 167796 3-40ml VOA | Na2S2O3 Type sample Temperature Quarterly R.O. Reject 1 - 1L Glass | H2SO4 2 - 1L Glass unpres 1 - 1L Glass unpres 1-250mlGlastunpres HN03 HN03 H2S04 NaOH HN03 3-40ml VOA HCL 2-40ml VOA HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name: X Standard Type and # 2 - 500m! P Container Vanadani 1-500ml P 1-500ml P 1-125ml P Regeived by: Received by Sampler: 2-11 P On los □ Level 4 (Full Validation) Sample Request ID SHAIII-OI-CUSIONY NACOLD Relinquished by: Srack, Hubbard Brady Hubbal Relinquished by: R.O. Reject Trip Blank Mailing Address: P.O. Box 159 Artesia email or Fax#: 575-746-5451 Client: Navajo Refinery Matrix Phone #: 575-748-3311 10:00 liquid NM 88211-0159 <u>8</u>::: QA/QC Package: Time ☐ EDD (Type) Ime. X Standard □ Other e1.01 Date <u>\$</u> **≓** į 무으 10 \$ <u></u>=0 10 5 7-0

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

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Wednesday, November 16, 2016 2:37 PM **To:** 'Dade, Lewis (Randy)'; Griswold, Jim, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Marks, Allison, EMNRD; Bada, Cheryl,

EMNRD

Subject: ACO WQA-OCD-CO-2015-002 RO Reject Water Discharge Monthly Report for October 2016

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and concurs with the Permittee's report.

In accordance with WQA-OCD-CO-2016-OOl, Section III Order, 1(a) ii & iii:

ii. After an alternative disposal method for the RO reject fluid stream has been selected, Navajo will promptly revise the permit renewal application for Discharge Permit GW-028 to incorporate a description of the alternative disposal method for the RO reject fluid stream, including a schedule for the installation and commencement of operation of the alternative disposal method.

iii. Navajo is authorized to continue land application of the RO reject fluid stream in accordance with the current terms of Discharge Permit GW-028 until such time as OCD approves a permit renewal application for Discharge Permit GW-028 that incorporates an alternative disposal method for the RO reject fluid stream. The parties intend that a permit renewal, which incorporates an alternative disposal method, will provide for the continuation of the current land application of the RO reject fluid until the alternative disposal method is operationally capable of accepting the waste stream.

The Permittee on October 21, 2016 selected the UIC Class I (Non-Hazardous) Disposal Well "WDW-4" and will be meeting with OCD on October 29, 2016 to address the schedule for installation and commencement of operation of the alternate disposal method.

Please contact me if you have questions. Thank you.

----Original Message----

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]

Sent: Wednesday, November 16, 2016 12:07 PM

To: Griswold, Jim, EMNRD < Jim. Griswold@state.nm.us >; Chavez, Carl J, EMNRD

<CarlJ.Chavez@state.nm.us>

Cc: McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Marks, Allison,

EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD <bill.brancard@state.nm.us>; Dade, Lewis

(Randy) <Lewis.Dade@HollyFrontier.com>

Subject: Emailing: OCT 2016 MONTHLY REPORT GW-028

Your message is ready to be sent with the following file or link attachments:

OCT 2016 MONTHLY REPORT GW-028

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled. CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential. If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.



November 15, 2016

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

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

RE: Discharge Permit GW-028
Monthly Report – October 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's October 2016 monthly report, for the period of October 1-31, 2016, under the Permit.

Specifically, this report covers the October 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on October 11, 2016 in accordance with Condition 4.B.1 for the fourth calendar quarter. We are still waiting on lab results.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the fourth quarter, samples were collected for the RO reject streams from the permanent units on October 11, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP).

On June 23, 2016, Navajo submitted an application to renew and modify Discharge Permit GW-028 in accordance with Condition 1.F of the Permit. Navajo received notification from OCD that the application was deemed administratively complete on July 28, 2016, and notification that the application was determined to be technically incomplete on September 9, 2016.

On October 21,2016, in compliance with the requirements of WQA-OCD-CO-2013-001, Navajo notified OCD of the recommended alternative management of the RO Reject stream.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanent	RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
ŀ	GPM	GPM	GPM	GPM	BBL/DAY
Ī	SOUTH	NORTH	MIDDLE		
10/1/2016	120.85	121.19	43.85	285.88	9,801.60
10/2/2016	123.33	121.61	44.95	289.89	9,939.09
10/3/2016	122.52	119.24	39.90	281.66	9,656.91
10/4/2016	122.89	120.11	42.41	285.41	9,785.49
10/5/2016	123.08	119.88	41.94	284.90	9,768.00
10/6/2016	123.25	120.72	43.43	287.40	9,853.71
10/7/2016	123.73	122.59	42.18	288.50	9,891.43
10/8/2016	126.33	123.99	47.82	298.14	10,221.94
10/9/2016	129.05	126.43	52.65	308.13	10,564.46
10/10/2016	129.21	125.56	50.49	305.26	10,466.06
10/11/2016	128.90	124.34	47.96	301.20	10,326.86
10/12/2016	129.30	123.40	46.25	298.95	10,249.71
10/13/2016	128.23	122.64	44.72	295.59	10,134.51
10/14/2016	122.93	123.29	45.72	291.94	10,009.37
10/15/2016	123.07	123.14	45.89	292.09	10,014.51
10/16/2016	121.08	121.87	43.35	286.29	9,815.66
10/17/2016	121.89	122.59	47.16	291.64	9,999.09
10/18/2016	121.88	121.42	44.68	287.98	9,873.60
10/19/2016	123.55	123.35	48.45	295.34	10,125.94
10/20/2016	123.60	123.53	48.39	295.52	10,132.11
10/21/2016	124.41	125.17	49.46	299.03	10,252.46
10/22/2016	124.54	125.54	50.29	300.37	10,298.40
10/23/2016	123.88	124.35	47.41	295.64	10,136.23
10/24/2016	124.23	124.82	48.58	297.64	10,204.80
10/25/2016	122.90	122.97	44.04	289.90	9,939.43
10/26/2016	123.77	124.18	46.65	294.60	10,100.57
10/27/2016	125.13	119.98	52.15	297.26	10,191.77
10/28/2016	137.25	0.08	136.10	273.43	9,374.74
10/29/2016	135.86	49.33	107.93	293.13	10,050.17
10/30/2016	129.12	142.56	49.82	321.49	11,022.51
10/31/2016	130.05	142.39	51.71	324.15	11,113.71
TOTAL (bbls/mor		deares representative and the second second second			313,314.86

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Tuesday, October 18, 2016 11:29 AM

To: Dade, Lewis (Randy)

Cc: Holder, Mike (Mike.Holder@hollyfrontier.com)

Subject: ACO WQA-OCD-CO-2015-002 RO Reject Water Discharge Monthly Report for September 2016

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and concurs with the Permittee's report.

OCD recommends the Permittee add a "Total" row at the bottom of the flow rate measurements and calculated daily discharge value, since the data appears to be in spreadsheet form with the total calculated figures for the month depicted below each column for the month.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505

Ph. (505) 476-3490

E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

STATE OF NEW MEXICO ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION COMMISSION OIL CONSERVATION DIVISION

IN THE MATTER OF HollyFrontier Navajo Refining Company, LLC

No. WQA-OCD-CO-2016-001

AGREED COMPLIANCE ORDER

Pursuant to the New Mexico Water Quality Act, NMSA 1978, Section 74-6-1 through 74-6-17, as amended ("Act"), and the regulations promulgated under the Act, the Oil Conservation Commission and the Oil Conservation Division of the Energy, Minerals and Natural Resources Department of the State of New Mexico (together "OCD") issue this Agreed Compliance Order (the "Order") to HollyFrontier Navajo Refining Company LLC ("Navajo"), directing compliance with the Act, the Water Quality Control Commission ("WQCC") Regulations, and permits issued under the Act.

I. FINDINGS AND DETERMINATIONS

- 1. The Oil Conservation Commission is a "constituent agency" under the Act and is charged with administration and enforcement of the Act and regulations promulgated in accordance with the Act. NMSA 1978, Section 74-6-3(K). The Oil Conservation Division of the Energy, Minerals, and Natural Resources Department has concurrent authority with the Oil Conservation Commission. NMSA 1978, Section 70-2-6(B).
- 2. Navajo is a limited liability company doing business in New Mexico. Navajo is an active entity with a principal address of 501 East Main Street, Artesia, New Mexico 88210.
- 3. Navajo owns and operates a petroleum refinery located at 501 East Main Street, Artesia, New Mexico ("Facility").
- 4. The WQCC has adopted regulations, pursuant to the Act, requiring permits for the discharge of fluids directly or indirectly into groundwater. Section 20.6.2.3106 NMAC. For

groundwater discharges at oil and gas operations, including refineries, the WQCC has delegated administration and enforcement of those regulations to OCD.

- 5. Pursuant to the Act and the WQCC Regulations, on August 22, 2012, OCD issued Discharge Permit GW-028 to Navajo for the discharge of reverse osmosis ("RO") reject fluid to the surface at two farms located at the Facility. During the course of the current permit term, there were several permit modifications including approvals of:
 - a. Adjustment of the submittal date for the annual discharge permit report and the annual groundwater monitoring report from October 21st of each year to March 15th of each year.
 - b. Installation of an Iron Co-precipitation ("ICP") Unit and a 100 gallon per minute ("gpm") Phillips 66 Selenium Reduction Technology ("SeRT®") Unit to reduce the concentration of selenium associated with stripped sour waters.
 - c. Revising the deadline to cease land application of the RO reject fluid stream to October 21, 2016.
 - d. Increasing the maximum discharge limit for the RO reject fluid stream to 15,000 barrels per day ("bpd") from 10,000 bpd due to the increased fresh water needs of the Refinery, resulting in the generation of increased RO reject fluids.
 - e. Installation of a temporary RO unit to meet increased demands.
 - f. Replacement of the temporary RO unit with a third permanent primary RO unit.
- 6. On June 23, 2016, Navajo submitted to OCD a permit renewal and modification application for Discharge Permit GW-028. That application is currently pending before OCD.
- 7. Consistent with the permit requirement to cease land application, Navajo is currently evaluating two alternative disposal options for the RO reject fluid stream. The first alternative disposal option would involve underground injection in a wastewater disposal well.

 Navajo is currently evaluating a number of technical issues regarding site location and the

technical feasibility of underground injection. The second alternative disposal option would involve the construction of evaporation ponds at the refinery site.

- 8. As a result of its ongoing efforts to promote water conservation and identify the best disposal options for the RO reject fluid stream, Navajo requires additional time beyond the current October 21, 2016 deadline to cease land application of the RO reject fluid stream included in Discharge Permit GW-028.
- 9. Navajo intends to make a decision between the two alternative disposal options for the RO reject fluid stream by October 21, 2016. At that time, Navajo intends to revise the permit renewal and modification application for Discharge Permit GW-028 to incorporate the selected disposal option.

II. <u>CONCLUSIONS</u>

- 1. OCD has jurisdiction over the parties and subject matter in this proceeding.
- 2. Navajo is a person as defined by NMSA 1978, Section 74-6-2.I.
- 3. Based on the facts presented above, the commitments made herein by Navajo, the company's history of compliance with OCD permits, the importance of the RO units to the ongoing operation of the Facility, and other relevant considerations, OCD has determined that Navajo need not be ordered to cease land application of the RO reject fluid stream during the period of this Order.

III. ORDER

- 1. <u>Compliance Schedule.</u>
 - a. Navajo shall take the actions and meet the schedule set forth below:
 - No later than October 21, 2016, Navajo will inform OCD in writing
 whether it has selected underground injection in a wastewater disposal

- well or construction of evaporation ponds at the refinery site as an alternative disposal method for the RO reject fluid stream.
- ii. After an alternative disposal method for the RO reject fluid stream has been selected, Navajo will promptly revise the permit renewal application for Discharge Permit GW-028 to incorporate a description of the alternative disposal method for the RO reject fluid stream, including a schedule for the installation and commencement of operation of the alternative disposal method.
- iii. Navajo is authorized to continue land application of the RO reject fluid stream in accordance with the current terms of Discharge Permit GW-028 until such time as OCD approves a permit renewal application for Discharge Permit GW-028 that incorporates an alternative disposal method for the RO reject fluid stream. The parties intend that a permit renewal, which incorporates an alternative disposal method, will provide for the continuation of the current land application of the RO reject fluid until the alternative disposal method is operationally capable of accepting the waste stream.
- b. Except where otherwise modified or extended pursuant to Section IV,
 Paragraph 1, Navajo's obligation to comply with this Order shall be deferred only to the extent
 and only for the duration that the failure in compliance is caused by "force majeure." For
 purposes of this Order, "force majeure" is defined as an event or set of circumstances which are
 beyond Navajo's control and could not have been prevented by Navajo's reasonable action or
 due diligence, including any delay in required approvals, issuance of any necessary permits or

similar items. "Force majeure" shall not apply to any failure in compliance due to increased costs or Navajo's financial inability to carry out this Order. Navajo shall promptly notify OCD of any force majeure event that has resulted in or will result in the inability of Navajo to comply with any obligation under this Order and shall provide OCD with a schedule for completing the

c. All reports, notifications and other submittals required under this Order shall be sent to OCD at the following address:

Oil Conservation Division
New Mexico Energy, Minerals & Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505
Re: WQA-OCD-CO-2016-001

email: jim.griswold@state.nm.us carlj.chavez@state.nm.us

All such submittals shall be made electronically. Written amendment to this Order is not required for a change in the e-mail addresses specified above, and any such change in addresses may be made by e-mail.

2. Civil Penalties

obligations.

- a. Navajo shall pay stipulated penalties in the amount of \$1,000 per day if Navajo fails to timely submit any report or notification as required in Section III, Paragraph 1, unless the deadline is extended under Section IV, Paragraph 1.
- b. Stipulated penalties shall be due thirty (30) days after the OCD makes a written demand for payment of stipulated penalties. Payments shall be by corporate check, certified check, or other guaranteed negotiable instrument made payable to the "State of New Mexico General Fund", and shall be sent to the following address:

Director, Oil Conservation Division New Mexico Energy, Minerals & Natural Resources Department 1220 South St. Francis Drive

IV. OTHER TERMS AND CONDITIONS

- 1. Termination, Modification and Extension
- a. Navajo and OCD have the right to modify or terminate this Order by written instrument signed by both parties.
- b. This Order will terminate when OCD takes final action to approve a renewal application for Discharge Permit GW-028.
- c. OCD may grant an extension of any deadline to perform any activity required pursuant to this Order. Navajo shall submit all requests for an extension of a deadline in writing to OCD. The request shall propose a new deadline for the activity and shall include the basis for the request. OCD shall respond in writing by approving, approving in part or denying the request as soon as possible, but no later than fifteen (15) days after receipt. If OCD approves in part or denies the request, the response shall specify the reasons for OCD's actions.
 - 2. By signing this Order, Navajo expressly:
- a. acknowledges the authority of OCD to render the above Findings and Determinations, Conclusions, and Order;
 - b. agrees to comply with the Order;
- c. waives any right, pursuant to the Act or otherwise, to a hearing either prior or subsequent to the entry of this Order or to an appeal from this Order; and
- d. agrees that if it fails to comply with this Order, the Order may be enforced by suit or otherwise to the same extent and with the same effect as a final Order entered after notice and hearing in accordance with all terms of the Act.

- 3. Nothing in this Order relieves Navajo of its liability should its operations fail to adequately investigate and remediate contamination that poses a threat to ground water, surface water, human health, or the environment. In addition, nothing in this Order relieves Navajo of its responsibility for compliance with any federal, state, or local laws and/or regulations, including all other obligations under the Permit.
- 4. This Order may be executed in any number of counterparts (whether by facsimile, PDF, or original), each of which will be deemed to be an original and all of which together will constitute the same instrument.
- 5. This Order shall become effective on the date it is approved and signed by the Chair of the Oil Conservation Commission and the Director of the Oil Conservation Division.

Done at Santa Fe, New Mexico this the day of September, 2016.

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION COMMISSION OIL CONSERVATION DIVISION

Name: David Catanach

Title: Chair, Oil Conservation Commission Director, Oil Conservation Division

ACCEPTANCE

HollyFrontier Navajo Refining Company, LLC hereby accepts the foregoing Amendment, and agrees to all of the terms and provisions as set forth in the Amendment,

HollyFi	ontier Navajo Refining Company, LLC
By:	ROBERT K. O'BRIEN
Name:	ROBERT K. O'BRIEN
Title:	Vice President and Refinery Manager
Date:	9/23/16

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Tuesday, September 20, 2016 12:29 PM

To: Dade, Lewis (Randy)

Cc: Griswold, Jim, EMNRD; Marks, Allison, EMNRD; Brancard, Bill, EMNRD

Subject: ACO WQA-OCD-CO-2015-002 RO Reject Water Discharge Monthly Report for August 2016

Randy:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and concurs with the Permittee's report.

OCD recommends the Permittee add a "Total" row at the bottom of the flow rate measurements and calculated daily discharge value, since the data appears to be in spreadsheet form with the total calculated figures for the month depicted below each column for the month.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505

Ph. (505) 476-3490

E-mail: <u>CarlJ.Chavez@state.nm.us</u>

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Chavez, Carl J, EMNRD

From: noreply@hollyfrontier.com

Sent: Tuesday, September 20, 2016 12:17 PM **To:** Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Subject: Message from KM_C754e **Attachments:** SKM_C754e16092011150.pdf

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September 20, 2016

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

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

RE: Discharge Permit GW-028

Monthly Report – August 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's August 2016 monthly report, for the period of August 1-31, 2016, under the Permit.

Specifically, this report covers the August 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the third quarter, samples were collected for the RO reject streams from the permanent units on July 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the report submitted on August 10, 2016, for the July 2016 reporting period.

On June 23, 2016, Navajo submitted an application to renew and modify Discharge Permit GW-028 in accordance with Condition 1.F of the Permit. Navajo received notification from OCD that the application was deemed administratively complete on July 28, 2016, and notification that the application was determined to be technically incomplete on September 9, 2016.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Daily Discharge Volume			
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
P44100000000000000000000000000000000000	SOUTH	NORTH	MIDDLE		
8/1/2016	122.08	0.10	139.14	261.32	8959.54
8/2/2016	122.08	0.10	139.06	261.24	8956.80
8/3/2016	121.98	0.11	139.05	261.14	8953.37
8/4/2016	124.36	0.11	139.15	263.62	9038.40
8/5/2016	123.72	0.11	140.09	263.92	9048.69
8/6/2016	140.39	0.11	139.88	280.38	9613.03
8/7/2016	150.98	0.11	139.11	290.20	9949.71
8/8/2016	130.61	0.11	138.82	269.54	9241.37
8/9/2016	130.45	0.11	138.94	269.50	9240.00
8/10/2016	128.82	0.10	137.92	266.84	9148.80
8/11/2016	71.70	52.27	137.43	261.40	8962.29
8/12/2016	95.15	39.07	136.71	270.93	9289.03
8/13/2016	128.13	24.16	136.65	288.94	9906.51
8/14/2016	121.82	89.92	135.43	347.17	11902.97
8/15/2016	136.59	85.89	134.28	356.76	12231.77
8/16/2016	122.32	101.64	102.87	326.83	11205.60
8/17/2016	100.33	147.54	27.54	275.41	9442.63
8/18/2016	64.75	145.21	27.59	237.55	8144.57
8/19/2016	182.13	146.55	21.46	350.14	12004.80
8/20/2016	145.31	138.45	21.30	305.06	10459.20
8/21/2016	129.21	133.80	12.74	275.75	9454.29
8/22/2016	129.15	134.36	10.59	274.10	9397.71
8/23/2016	131.21	134.33	7.27	272.81	9353.49
8/24/2016	133.92	134.75	0.03	268.70	9212.57
8/25/2016	136.09	136.71	0.02	272.82	9353.83
8/26/2016	69.02	137.10	64.66	270.78	9283.89
8/27/2016	0.02	139.63	131.10	270.75	9282.86
8/28/2016	20.20	123.66	130.20	274.06	9396.34
8/29/2016	122.71	36.23	129.44	288.38	9887.31
8/30/2016	132.68	0.12	131.07	263.87	9046.97
8/31/2016	132.14	0.08	130.57	262.79	9009.94

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Thursday, August 11, 2016 2:42 PM

To: Denton, Scott (Scott.Denton@HollyFrontier.com); Griswold, Jim, EMNRD; Brancard, Bill,

EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Combs,

Robert; Dade, Lewis (Randy)

Subject: RE: 2016-08-10 GW-028 Monthly Report_July 2016 Rpt Period.pdf

Scott:

The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report, and finds the report to be in order.

For clarification of HollyFrontier's report summary, OCD received the application for discharge permit renewal dated June 20th for discharge permit renewal on June 21st. OCD issued its first public notice of the Administrative Completeness on July 28th and posted the letter, application and brief description of the application on its Website with notification to stakeholders.

OCD believes HollyFrontier is currently working to satisfy the 20.6.2.3108 NMAC public notice requirements and will provide affidavits of proof of public notice, etc. to OCD at the completion of its 30-day public notice process in accordance with the cited regulation above.

OCD is currently conducting a technical review of the application and concurrently working on its official public notice and final determination to post in newspapers of widespread and local distribution. OCD expects to post its determination on or before October 21st.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM Environmental Engineer

Oil Conservation Division- Environmental Bureau

1220 South St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3490

Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u>
Website: <u>www.emnrd.state.nm.us/ocd</u>

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how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Aguilar, Susie [mailto:Suzanne.Aguilar@HollyFrontier.com]

Sent: Wednesday, August 10, 2016 9:37 AM

To: Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>; Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>

Cc: McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott

<Scott.Denton@HollyFrontier.com>; Combs, Robert <Robert.Combs@HollyFrontier.com>; Dade, Lewis (Randy)

<Lewis.Dade@HollyFrontier.com>

Subject: 2016-08-10 GW-028 Monthly Report July 2016 Rpt Period.pdf

Submitted on behalf of Scott Denton. Hard copy mailed to addressee only.

Susie Aguilar
Environmental Administrative Assistant, Lead
Holly Frontier Navajo Refining LLC
501 E. Main Street / P.O. Box 159
Artesia, NM 88210 / 88211-0159
Office: (575) 746-5488
Fax; (575) 746-5451

Email: Suzanne. Aquilar@HollyFrontier.com

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August 10, 2016

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

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

RE: Discharge Permit GW-028
Monthly Report – July 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's July 2016 monthly report, for the period of July 1-31, 2016, under the Permit.

Specifically, this report covers the July 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on July 5, 2016 in accordance with Condition 4.B.l for the third calendar quarter.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the third quarter, samples were collected for the RO reject streams from the permanent units on July 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

OCD August 10, 2016 Page 2 of 2

On June 23, 2016, Navajo submitted an application to renew and modify Discharge Permit GW-028 in accordance with Condition 1.F of the Permit. Navajo received notification from OCD that the application was deemed administratively complete on July 28, 2016.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flowrates and Volumes

Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flowrates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanent RO Units							
		Metered Data		Combined RO Reject Discharge (Calculated)					
-	GPM	GPM	GPM	GPM	BBL/DAY				
	SOUTH	NORTH	MIDDLE						
7/1/2016	139.11	3.20	137.05	279.36	9578.06				
7/2/2016	74.54	84.42	137.11	296.06	10150.63				
7/3/2016	0.12	112.16	137.07	249.36	8549.49				
7/4/2016	0.03	112.24	136.64	248.91	8534.06				
7/5/2016	0.02	113.20	136.91	250.14	8576.23				
7/6/2016	0.03	113.64	136.75	250.42	8585.83				
7/7/2016	0.02	115.04	137.03	252.09	8643.09				
7/8/2016	0.02	114.14	136.79	250.95	8604.00				
7/9/2016	0.04	113.02	136.90	249.96	8570.06				
7/10/2016	0.02	116.61	136.86	253.49	8691.09				
7/11/2016	0.03	116.73	136.62	253.37	8686.97				
7/12/2016	0.03	116.79	137.07	253.89	8704.80				
7/13/2016	0.03	116.79	137.60	254.42	8722.97				
7/14/2016	0.03	115.43	136.04	251.49	8622.51				
7/15/2016	0.02	118.82	135.43	254.27	8717.83				
7/16/2016	0.02	119.17	135.90	255.09	8745.94				
7/17/2016	0.02	126.87	135.71	262.60	9003.43				
7/18/2016	0.02	127.20	135.24	262.46	8998.63				
7/19/2016	76.56	46.68	135.97	259.21	8887.20				
7/20/2016	94.75	0.10	136.32	231.17	7925.83				
7/21/2016	108.38	0.10	136.10	244.58	8385.60				
7/22/2016	113.45	0.10	136.03	249.58	8557.03				
7/23/2016	112.23	0.10	135.64	247.97	8501.83				
7/24/2016	113.19	0.10	136.26	249.56	8556.34				
7/25/2016	115.69	0.10	137.19	252.98	8673.60				
7/26/2016	116.97	0.10	138.01	255.07	8745.26				
7/27/2016	117.52	0.09	138.21	255.82	8770.97				
7/28/2016	120.21	0.10	138.79	259.10	8883.43				
7/29/2016	121.37	0.10	139.37	260.85	8943.43				
7/30/2016	121.78	0.10	139.51	261.39	8961.94				
7/31/2016	122.01	0.10	139.22	261.33	8959.89				

Attachment 2 Analytical Lab Report



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

August 04, 2016

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

FAX

RE: Monthly RO Reject OrderNo.: 1607298

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/7/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andy

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 8/4/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 7/5/2016 9:30:00 AM

Lab ID: 1607298-001 Matrix: AQUEOUS Received Date: 7/7/2016 10:15:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS					1000 ST 1000 S	Analyst	JLF
Arsenic	ND	0.0050		mg/L	5	7/18/2016 7:46:42 PM	B35777
Lead	ND	0.00050		mg/L	1	7/15/2016 3:55:53 PM	C35755
Selenium	0.0084	0.0050		mg/L	5	7/18/2016 7:46:42 PM	B35777
Uranium	0.0069	0.00050		mg/L	1	7/15/2016 3:55:53 PM	C35755
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-226	1.1	0.776		pCi/L	1	8/3/2016	R36230
Radium-226 ±	0.646	0.776		pCi/L	1	8/3/2016	R36230
Radium-228	1.21	0.822		pCi/L	1	8/3/2016	R36230
Radium-228 ±	0.502	0.822		pCi/L	1	8/3/2016	R36230
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	3.3	0.10		mg/L	1	7/8/2016 1:40:32 AM	R35519
Chloride	390	10		mg/L	20	7/8/2016 1:52:57 AM	R35519
Sulfate	1700	50		mg/L	100	7/9/2016 12:09:50 AM	A35552
Nitrate+Nitrite as N	1.9	1.0		mg/L	5	7/8/2016 2:17:46 AM	R35519
SM2540C MOD: TOTAL DISSOLVED SC	DLIDS					Analyst	: KS
Total Dissolved Solids	4120	20.0	*	mg/L	1	7/8/2016 4:07:00 PM	26273
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	: SUB
Cyanide	ND	0.0100		mg/L	1	7/19/2016	R36230
SM4500-H+B: PH						Analyst	: JRR
рН	7.98	1.68	Н	pH units	1	7/8/2016 3:31:19 PM	R35550
EPA METHOD 200.7: DISSOLVED MET	ALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	7/12/2016 11:49:34 AM	C3557
Barium	0.069	0.0020		mg/L	1	7/12/2016 11:49:34 AM	C3557
Boron	0.10	0.040		mg/L	1	7/12/2016 11:49:34 AM	C3557
Cadmium	ND	0.0020		mg/L	1	7/12/2016 11:49:34 AM	C3557
Chromium	ND	0.0060		mg/L	1	7/12/2016 11:49:34 AM	1 C3557
Cobalt	ND	0.0060		mg/L	1	7/12/2016 11:49:34 AM	1 C3557
Copper	ND	0.0060		mg/L	1	7/12/2016 11:49:34 AM	1 C3557
Iron	ND	0.020		mg/L	1	7/12/2016 11:49:34 AM	1 C3557
Manganese	ND	0.0020		mg/L	1	7/12/2016 11:49:34 AM	1 C3557
Molybdenum	0.0095	0.0080		mg/L	1	7/12/2016 11:49:34 AN	1 C3557
Nickel	ND	0.010		mg/L	1	7/12/2016 11:49:34 AN	1 C3557
Silver	ND	0.0050		mg/L	1	7/12/2016 11:49:34 AN	1 C3557
Zinc	0.048	0.010		mg/L	1	7/12/2016 11:49:34 AN	1 C3557
EPA METHOD 245.1: MERCURY						Analys	t: pmf
Mercury	ND	0.00020		mg/L	1	7/14/2016 1:04:47 PM	26380
Refer to the QC Summary report a	nd sample lo	gin checklis	t for f	lagged QC d	ata and p	preservation information	n.

- * 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1607298

Date Reported: 8/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 7/5/2016 9:30:00 AM

Lab ID: 1607298-001

Matrix: AQUEOUS

Received Date: 7/7/2016 10:15:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB		***************************************			Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	7/14/2016 4:13:40 PM	26391
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	7/12/2016 11:17:01 AM	
Aroclor 1221	ND	1.0	μg/L	1	7/12/2016 11:17:01 AM	
Aroclor 1232	ND	1.0	µg/L	1	7/12/2016 11:17:01 AM	
Aroclor 1242	ND	1.0	μg/L	1	7/12/2016 11:17:01 AM	
Aroclor 1248	ND	1.0	μg/L	1	7/12/2016 11:17:01 AM	
Aroclor 1254	ND	1.0	μg/L	1	7/12/2016 11:17:01 AM	26300
Aroclor 1260	ND	1.0	μg/L	1	7/12/2016 11:17:01 AM	26300
Surr: Decachlorobiphenyl	104	26.1-140	%Rec	1	7/12/2016 11:17:01 AM	26300
Surr: Tetrachloro-m-xylene	103	15-123	%Rec	1	7/12/2016 11:17:01 AM	26300
EPA METHOD 8015M/D: DIESEL RANGE					Analyst	: TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	7/11/2016 4:26:11 PM	26318
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	7/11/2016 4:26:11 PM	26318
Surr: DNOP	117	77.1-144	%Rec	1	7/11/2016 4:26:11 PM	26318
EPA METHOD 8015D: GASOLINE RANG	Ξ				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	7/7/2016 3:19:48 PM	A35501
Surr: BFB	92.1	66.4-120	%Rec	1	7/7/2016 3:19:48 PM	A35501
EPA METHOD 8310: PAHS					Analyst	: SCC
Naphthalene	ND	2.0	μg/L	1	7/14/2016 3:06:07 PM	26301
1-Methylnaphthalene	ND	2.0	μg/L	1	7/14/2016 3:06:07 PM	26301
2-Methylnaphthalene	ND	2.0	μg/L	1	7/14/2016 3:06:07 PM	26301
Benzo(a)pyrene	ND	0.070	μg/L	1	7/14/2016 3:06:07 PM	26301
Surr: Benzo(e)pyrene	108	20-153	%Rec	1	7/14/2016 3:06:07 PM	26301
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
Benzene	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Toluene	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Ethylbenzene	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Carbon Tetrachloride	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Chloroform	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
1,1-Dichloroethane	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
1,1-Dichloroethene	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Methylene Chloride	ND	3.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544

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

- * 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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Date Reported: 8/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Monthly RO Reject Project:

Collection Date: 7/5/2016 9:30:00 AM

Lab ID: 1607298-001

Matrix: AQUEOUS

Received Date: 7/7/2016 10:15:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Trichloroethene (TCE)	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Vinyl chloride	ND	1.0	μg/L	1	7/8/2016 8:56:29 PM	B35544
Xylenes, Total	ND	1.5	μg/L	1	7/8/2016 8:56:29 PM	B35544
Surr: 1,2-Dichloroethane-d4	105	70-130	%Rec	1	7/8/2016 8:56:29 PM	B35544
Surr: 4-Bromofluorobenzene	101	70-130	%Rec	1	7/8/2016 8:56:29 PM	B35544
Surr: Dibromofluoromethane	106	70-130	%Rec	1	7/8/2016 8:56:29 PM	B35544
Surr: Toluene-d8	95.8	70-130	%Rec	1	7/8/2016 8:56:29 PM	B35544
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	8/1/2016	26705

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- E Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1607298**

Hall Environmental Analysis Laboratory, Inc. Date Reported: 8/4/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly RO Reject Collection Date:

Lab ID: 1607298-002 Matrix: TRIP BLANK Received Date: 7/7/2016 10:15:00 AM

Analyses	Result	PQL Qı	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	7/14/2016 4:29:16 PM	26391
EPA METHOD 8015D: GASOLINE RAN	IGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	7/7/2016 4:33:38 PM	A35501
Surr: BFB	91.0	66.4-120	%Rec	1	7/7/2016 4:33:38 PM	A35501
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Toluene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Ethylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Naphthalene	ND	2.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1-Methylnaphthalene	ND	4.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
2-Methylnaphthalene	ND	4.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Acetone	ND	10	μg/L	1	7/8/2016 9:25:02 PM	B35544
Bromobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Bromodichloromethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Bromoform	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Bromomethane	ND	3.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
2-Butanone	ND	10	μg/L	1	7/8/2016 9:25:02 PM	B35544
Carbon disulfide	ND	10	μg/L	1	7/8/2016 9:25:02 PM	B35544
Carbon Tetrachloride	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Chlorobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Chloroethane	ND	2.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Chloroform	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Chloromethane	ND	3.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
2-Chlorotoluene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
4-Chlorotoluene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
cis-1,2-DCE	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Dibromochloromethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Dibromomethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2-Dichlorobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,3-Dichlorobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,4-Dichlorobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544

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

- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Lab Order 1607298

Date Reported: 8/4/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly RO Reject **Collection Date:**

1607298-002 Lab ID: Matrix: TRIP BLANK Received Date: 7/7/2016 10:15:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Dichlorodifluoromethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1-Dichloroethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1-Dichloroethene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2-Dichloropropane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,3-Dichloropropane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
2,2-Dichloropropane	ND	2.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1-Dichloropropene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Hexachlorobutadiene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
2-Hexanone	ND	10	μg/L	1	7/8/2016 9:25:02 PM	B35544
Isopropylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
4-Isopropyltoluene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
4-Methyl-2-pentanone	ND	10	μg/L	1	7/8/2016 9:25:02 PM	B35544
Methylene Chloride	ND	3.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
n-Butylbenzene	ND	3.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
n-Propylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
sec-Butylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Styrene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
tert-Butylbenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
trans-1,2-DCE	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1,1-Trichloroethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Trichloroethene (TCE)	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Trichlorofluoromethane	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
1,2,3-Trichloropropane	ND	2.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Vinyl chloride	ND	1.0	μg/L	1	7/8/2016 9:25:02 PM	B35544
Xylenes, Total	ND	1.5	μg/L	1	7/8/2016 9:25:02 PM	B35544
Surr: 1,2-Dichloroethane-d4	105	70-130	%Rec	1	7/8/2016 9:25:02 PM	B35544
Surr: 4-Bromofluorobenzene	98.1	70-130	%Rec	1	7/8/2016 9:25:02 PM	B35544
Surr: Dibromofluoromethane	105	70-130	%Rec	1	7/8/2016 9:25:02 PM	B35544
Surr: Toluene-d8	96.1	70-130	%Rec	1	7/8/2016 9:25:02 PM	B35544

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

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 5 of 23
- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#:

Page 6 of 23

1607298

04-Aug-16

Client: Navajo Refining Company Monthly RO Reject

Project:

Sample ID MB-C	Samp	Туре: МЕ	BLK	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: C35577			F	RunNo: 3	5577				
Prep Date:	Analysis Date: 7/12/2016			5	SeqNo: 1	101649	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								
7inc	ND	0.010								

Sample ID LCS-C	Samp	Type: LC	S	Tes	PA Method	200.7: Dissol	ved Meta	ls		
Client ID: LCSW	Bato	ch ID: C3	5577	RunNo: 35577						
Prep Date:	Analysis	Date: 7/	12/2016	5	SeqNo: 1	101650	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	107	85	115			
Barium	0.48	0.0020	0.5000	0	96.1	85	115			
Boron	0.50	0.040	0.5000	0	99.4	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.6	85	115			
Chromium	0.49	0.0060	0.5000	0	97.1	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.0	85	115			
Copper	0.49	0.0060	0.5000	0	97.7	85	115			
Iron	0.47	0.020	0.5000	0	94.7	85	115			
Manganese	0.47	0.0020	0.5000	0	94.2	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	92.6	85	115			
Silver	0.098	0.0050	0.1000	0	98.3	85	115			
Zinc	0.48	0.010	0.5000	0	96.2	85	115			

Sample ID LLLCS-C	SampTy	ype: LC	SLL	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch	ID: C3	5577	R	tunNo: 3	5577				
Prep Date:	Analysis Da	ate: 7/	12/2016	SeqNo: 1101651			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	116	50	150			
Barium	ND	0.0020	0.002000	. 0	94.0	50	150			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RLReporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1607298

04-Aug-16

Client: Navajo Refining Company Project: Monthly RO Reject

BatchQC

Client ID:

Sample ID LLLCS-C SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals Batch ID: C35577

Prep Date: Analysis Date: 7/12/2016 SeqNo: 1101651 Units: mg/L

Qual

RunNo: 35577

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit
Boron	0.041	0.040	0.04000	0	102	50	150		
Cadmium	ND	0.0020	0.002000	0	95.0	50	150		
Chromium	0.0062	0.0060	0.006000	0	104	50	150		
Cobalt	ND	0.0060	0.006000	0	95.2	50	150		
Copper	0.0079	0.0060	0.006000	0	131	50	150		
Iron	ND	0.020	0.02000	0	99.7	50	150		
Manganese	ND	0.0020	0.002000	0	94.5	50	150		
Molybdenum	0.011	0.0080	0.008000	0	142	50	150		
Nickel	ND	0.010	0.005000	0	95.0	50	150		
Silver	0.0053	0.0050	0.005000	0	106	50	150		
Zinc	ND	0.010	0.005000	0	96.8	50	150		

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

Reporting Detection Limit

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1607298 04-Aug-16

Client: Project:	•	Refining Compar RO Reject	У							
Sample ID Client ID: Prep Date: Analyte Lead Uranium		SampType: I Batch ID: 0 Analysis Date: Result PQI 0.012 0.0005 0.012 0.0005	7/15/2016 SPK value 0 0.01250	F	RunNo: 35 SeqNo: 11	755	Units: mg/L HighLimit 115 115	%RPD	RPDLimit	Qual
Sample ID Client ID: Prep Date: Analyte Lead Uranium		SampType: I Batch ID: 0 Analysis Date: Result PQI ND 0.0005 ND 0.0005	C35755 7/15/2016 - SPK value	F	RunNo: 35 SeqNo: 11	755	Units: mg/L HighLimit 150 150	als %RPD	RPDLimit	Qual
Sample ID Client ID: Prep Date: Analyte Lead Uranium	PBW	SampType: Batch ID: Analysis Date: Result PQ ND 0.0005	C35755 7/15/2016 SPK_value	F	RunNo: 35 SeqNo: 11	755	Oissolved Med Units: mg/L HighLimit	kals %RPD	RPDLimit	Qual
Sample ID Client ID: Prep Date: Analyte Arsenic Selenium	LCSW	SampType: Batch ID: Analysis Date: Result PQ: 0.024 0.001	B35777 7/18/2016SPK_value 0	F	stCode: EP RunNo: 35 SeqNo: 11 %REC 95.8 96.7	5777	Units: mg/L HighLimit 115 115		RPDLimit	Qual
Sample ID Client ID: Prep Date: Analyte Arsenic Selenium	BatchQC	SampType: Batch ID: Analysis Date: Result PQ ND 0.000 0.0010 0.000	B35777 7/18/2016 SPK value 0 0.001000	SPK Ref Val	stCode: EF RunNo: 35 SeqNo: 11 %REC 95.3 102	5777	Units: mg/L HighLimit 150 150		RPDLimit	Qual
Sample ID Client ID: Prep Date	PBW	SampType: Batch ID: Analysis Date:	B35777	ſ	stCode: EF RunNo: 35 SeqNo: 1 1	5777	Dissolved Me Units: mg/L			

Qualifiers:

Analyte

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Holding times for preparation or analysis exceeded

Result

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

%REC LowLimit

E Value above quantitation range

Analyte detected below quantitation limits

Page 8 of 23

%RPD

RPDLimit

Qual

HighLimit

P Sample pH Not In Range

SPK value SPK Ref Val

RLReporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID:

PBW

Batch ID: B35777

RunNo: 35777

SPK value SPK Ref Val %REC LowLimit

Prep Date:

Analysis Date: 7/18/2016

SeqNo: 1107273

Units: mg/L HighLimit

%RPD **RPDLimit**

Qual

Result PQL ND 0.0010

Arsenic

Analyte Selenium

ND 0.0010

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298

04-Aug-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-26380 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 26380 RunNo: 35712

Prep Date: 7/13/2016 Analysis Date: 7/14/2016 SeqNo: 1104894 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-26380 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 26380 RunNo: 35712

Prep Date: 7/13/2016 Analysis Date: 7/14/2016 SeqNo: 1104895 Units: mg/L

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

Mercury 0.0053 0.00020 0.005000 0 105 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

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P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1607298

04-Aug-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions PBW Client ID: Batch ID: R35519 RunNo: 35519 Analysis Date: 7/7/2016 Prep Date: SeqNo: 1099779 Units: mg/L Result **PQL** SPK value SPK Ref Val %REC LowLimit Analyte HighLimit %RPD **RPDLimit** Qual ND 0.10 Fluoride Chloride ND 0.50 ND 0.20 Nitrate+Nitrite as N

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: Batch ID: R35519 LCSW RunNo: 35519 Prep Date: Analysis Date: 7/7/2016 SeqNo: 1099780 Units: mg/L SPK value SPK Ref Val Analyte Result **PQL** %REC LowLimit HighLimit %RPD **RPDLimit** Qual Fluoride 0.50 0.10 0.5000 100 90 110 Chloride 4.7 0.50 90 5.000 0 93.8 110 Nitrate+Nitrite as N 3.4 0.20 3.500 0 97.1 90 110

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: Batch ID: A35552 RunNo: 35552 Prep Date: Analysis Date: 7/8/2016 SeqNo: 1100904 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC %RPD **RPDLimit** LowLimit HighLimit Qual ND 0.50 Sulfate

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: LCSW Batch ID: A35552 RunNo: 35552 Prep Date: Analysis Date: 7/8/2016 SeqNo: 1100905 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** LowLimit Qual Sulfate 9.7 0.50 10.00 0 96.9 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB-26391

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID:

PBW

Batch ID: 26391

RunNo: 35717

Prep Date: 7/14/2016

Analysis Date: 7/14/2016

SeqNo: 1105070

Units: µg/L HighLimit

RPDLimit

Qual

Analyte 1,2-Dibromoethane Result **PQL** ND

0.010

TestCode: EPA Method 8011/504.1: EDB

SPK value SPK Ref Val %REC LowLimit

%RPD

Sample ID LCS-26391 LCSW

SampType: LCS

Batch ID: 26391

RunNo: 35717

Client ID: Prep Date: 7/14/2016

Analysis Date: 7/14/2016

PQL

SeqNo: 1105071

Units: µg/L HighLimit

RPDLimit %RPD

Qual

SPK value SPK Ref Val %REC

70

1,2-Dibromoethane

Analyte

0.094

Result

0.010 0.1000 0

93.8

LowLimit

130

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

Analyte detected below quantitation limits

Page 12 of 23

P Sample pH Not In Range

RL

Reporting Detection Limit W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1607298

04-Aug-16

Client:

Navajo Refining Company

Project:	•	RO Reject	inpuny								
Sample ID	1607298-001BMS	SampT	ype: MS		Tes	tCode: EF	PA Method	8015M/D: Die	sel Range)	
Client ID:	R.O. Reject	Batch	ID: 26	318	R	RunNo: 3	5548				
Prep Date:	7/11/2016	Analysis D	ate: 7/	11/2016	S	SeqNo: 1	101307	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range C	Organics (DRO)	4.6	1.0	5.000	0	91.7	59.4	160			
Surr: DNOP		0.53		0.5000		106	77.1	144		**************************************	
Sample ID	1607298-001BMSI	D SampT	ype: MS	SD	Tes	tCode: El	PA Method	8015M/D: Die	sel Rang	е	
Client ID:	R.O. Reject	Batch	ID: 26	318	F	RunNo: 3	5548				
Prep Date:	7/11/2016	Analysis D	ate: 7/	11/2016	S	SeqNo: 1	101308	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	4.5	1.0	5.000	0	89.1	59.4	160	2.85	20	**************************************
Surr: DNOP		0.49	-	0.5000		97.7	77.1	144	0	0	-
Sample ID	LCS-26318	SampT	ype: LC	S	Tes	tCode: El	PA Method	8015M/D: Die	sel Rang	е	***************************************
Client ID:	LCSW	Batch	ID: 26	318	F	RunNo: 3	5548				
Prep Date:	7/11/2016	Analysis D	ate: 7/	11/2016	\$	SeqNo: 1	101310	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	4.0	1.0	5.000	0	79.7	71.3	139			
Surr: DNOP		0.44	- Wich Human	0.5000		88.9	77.1	144			
Sample ID	MB-26318	SampT	ype: Mi	BLK	Tes	tCode: El	PA Method	8015M/D: Die	esel Rang	е	TO THE STATE OF TH
Client ID:	PBW	Batch	ID: 26	318	F	RunNo: 3	5548				
Prep Date:	7/11/2016	Analysis D	ate: 7/	/11/2016	\$	SeqNo: 1	101311	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
-	Organics (DRO)	ND	1.0								
-	ge Organics (MRO)	ND	5.0								
Surr: DNOP		0.99		1.000		98.7	77.1	144			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID 5ML RB	SampT	ype: ME	BLK	Test	Code: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBW	Batch	1D: A3	5501	R	tunNo: 3	5501				
Prep Date:	Analysis D	ate: 7/	7/2016	S	eqNo: 1	098949	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		88.5	66.4	120			

Sample ID 2.50G GRO LCS	Sampi	ype: LC	S	lest	Code: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: LCSW	Batch	n ID: A3	5501	R	unNo: 3	5501				
Prep Date:	Analysis D	oate: 7/	7/2016	S	eqNo: 1	098950	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	106	80	120			
Surr: BFB	17		20.00		87.3	66.4	120			

Sample ID	1607298-001AMS	SampT	ype: MS	3	Test	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID:	R.O. Reject	Batch	1D: A3	5501	R	RunNo: 3	5501				
Prep Date:		Analysis D	ate: 7/	7/2016	S	SeqNo: 1	098954	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range	e Organics (GRO)	0.55	0.050	0.5000	0	110	70	130			***************************************
Surr: BFB		19		20.00		96.5	66.4	120			

Sample ID 1607298-001AM	SD Sampi	ype: MS	SD	les	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: R.O. Reject	Batch	n ID: A3	5501	F	RunNo: 3	5501				
Prep Date:	Analysis D	ate: 7/	7/2016	S	SeqNo: 1	098955	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	70	130	2.24	20	
Surr: BFB	19		20.00		94.9	66.4	120	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

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P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1607298**

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB-26300	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch	ID: 26	300	F	tunNo: 3	5574				
Prep Date: 7/8/2016	Analysis D	ate: 7/	12/2016	S	SeqNo: 1	101522	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		82.8	26.1	140			
Surr: Tetrachloro-m-xylene	1.7		2.500		68.4	15	123			

Sample ID LCS-26300	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 26	300	F	RunNo: 3	5574				
Prep Date: 7/8/2016	Analysis D	ate: 7/	12/2016	S	SeqNo: 1	101523	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.6	15	147			
Aroclor 1260	5.2	1.0	5.000	0	104	15	200			
Surr: Decachlorobiphenyl	3.1		2.500		124	26.1	140			
Surr: Tetrachloro-m-xylene	2.7		2.500		109	15	123			

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298 *04-Aug-16*

Client:

Navajo Refining Company

Project:

Monthly RO Reject

SampType: MBLK Sample ID rb TestCode: EPA Method 8260B: VOLATILES Client ID: PBW Batch ID: **B35544** RunNo: 35544 Prep Date: Analysis Date: 7/8/2016 SeqNo: 1100562 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 ND Ethylbenzene 1.0 ND Methyl tert-butyl ether (MTBE) 1.0 ND 1,2,4-Trimethylbenzene 1.0 1,3,5-Trimethylbenzene ND 1.0 1,2-Dichloroethane (EDC) ND 1.0 1,2-Dibromoethane (EDB) ND 1.0 ND 2.0 Naphthalene ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 Acetone ND 10 ND 1.0 Bromobenzene Bromodichloromethane ND 1.0 ND Bromoform 1.0 Bromomethane ND 3.0 ND 2-Butanone 10 ND Carbon disulfide 10 Carbon Tetrachloride ND 1.0 Chlorobenzene ND 1.0 ND 2.0 Chloroethane ND 1.0 Chloroform ND Chloromethane 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 ND 2.0 1,2-Dibromo-3-chloropropane Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1.0 ND 1,2-Dichlorobenzene 1,3-Dichlorobenzene ND 1.0 ND 1.0 1.4-Dichlorobenzene Dichlorodifluoromethane ND 1.0 1.1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 1,2-Dichloropropane ND 1.0 ND 1,3-Dichloropropane 1.0 ND 2.0 2,2-Dichloropropane

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1607298**

04-Aug-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb	SampT	ype: ME	BLK	Test	tCode: El	A Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: B3	5544	R	lunNo: 3	5544				
Prep Date:	Analysis D	ate: 7/	8/2016	S	SeqNo: 1	100562	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	9.8		10.00		98.1	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	9.5		10.00		94.9	70	130			

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: B3	5544	F	RunNo: 3	5544				
Prep Date:	Analysis D	ate: 7 /	8/2016	S	SeqNo: 1	100565	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	20	1.0	20.00	0	99.1	70	130		-	
Chlorobenzene	19	1.0	20.00	0	93.6	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

Page 17 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID 100ng Ics Client ID: LCSW	•	ype: LC			tCode: El	ATILES				
Prep Date:	Analysis D	ate: 7/	8/2016	S	SeqNo: 1	100565	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)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	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

Page 18 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1607298**

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB-26301	SampT	ype: ME	21 1/	Toc	tCodo: El	DA Mathad	8310: PAHs			**************************************
•	•						0310. PANS			
Client ID: PBW	Batcl	n ID: 26	301	F	RunNo: 3	5690				
Prep Date: 7/8/2016	Analysis D)ate: 7/	14/2016	5	SeqNo: 1	104212	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	20	153			
Sample ID LCS-26301	Samp	Type: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 26	301	F	RunNo: 3	5690				
Prep Date: 7/8/2016	Analysis [Date: 7/	14/2016	S	SeqNo: 1	104213	Units: µg/L			

Sample ID LCS-26301	Sampi	ype: LC	S	Test	(Code: El	A Method	8310: PAHS			
Client ID: LCSW	Batch	ID: 26	301	R	RunNo: 3	5690				
Prep Date: 7/8/2016	Analysis D	ate: 7/	14/2016	S	SeqNo: 1	104213	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	88.2	55.6	124			
1-Methylnaphthalene	67	2.0	80.20	0	84.0	55.3	124			
2-Methylnaphthalene	64	2.0	80.00	0	80.4	55.4	124			
Benzo(a)pyrene	0.42	0.070	0.5020	0	83.7	51.3	137			
Surr: Benzo(e)pyrene	14		20.00		71.6	20	153			

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

Page 19 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298 04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB-26705

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID:

PBW

Batch ID: 26705

PQL

2.5

RunNo: 36172

Analyte

Client ID:

Prep Date: 8/1/2016 Analysis Date: 8/1/2016

SeqNo: 1120184

Units: µg/L HighLimit

%RPD **RPDLimit**

Qual

Phenolics, Total Recoverable

ND

Result

Batch ID: 26705

Analysis Date: 8/1/2016

TestCode: Total Phenolics by SW-846 9067

Sample ID LCS-26705

LCSW

SampType: LCS

RunNo: 36172

%REC

LowLimit

SeqNo: 1120185

Units: µg/L HighLimit

%RPD

RPDLimit Qual

Analyte Phenolics, Total Recoverable

Prep Date: 8/1/2016

Result

20.00

SPK value SPK Ref Val

96.7

19

PQL 2.5

0

SPK value SPK Ref Val %REC LowLimit

64.4

135

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н 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 В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

Page 20 of 23

P Sample pH Not In Range

RLReporting Detection Limit Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1607298

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB-R36230

SampType: MBLK

TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW

Batch ID: R36230

RunNo: 36230

Analysis Date: 7/19/2016

Units: mg/L

Prep Date:

PQL

SeqNo: 1122314

HighLimit

%RPD **RPDLimit**

Qual

Analyte Cyanide

ND 0.0100

Sample ID LCS-R36230

LCSW

SampType: LCS

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA 335.4: Total Cyanide Subbed

Batch ID: R36230 RunNo: 36230

LowLimit

Units: mg/L

Prep Date: Analyte

Client ID:

Analysis Date: 7/19/2016

PQL

SeqNo: 1122315 %REC

HighLimit

RPDLimit Qual

Cyanide

Result 0.527

Result

0.5000

SPK value SPK Ref Val

105

0

%RPD

90 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank В

E Value above quantitation range

Analyte detected below quantitation limits

Page 21 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1607298

04-Aug-16

Client:

Navajo Refining Company

Project:

Monthly RO Reject

Sample ID MB-R36230	Samp	уре: МЕ	BLK	Tes	tCode: El	PA 903.1: R	a 226 and EP	A 904.0: F	Ra 228-Subbe	d
Client ID: PBW	Batc	n ID: R3	6230	F	RunNo: 3	6230				
Prep Date:	Analysis [oate: 8/	3/2016	S	SeqNo: 1	122317	Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.0741	0.971								
Radium-226 ±	0.482	0.971								
Radium-228	-0.0123	0.985								
Radium-228 ±	0.433	0.985								

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

Page 22 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1607298

04-Aug-16

Client:

Navajo Refining Company

Result

ND

Project:

Monthly RO Reject

Sample ID MB-26273

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

Prep Date:

Analyte

PBW

7/7/2016

Batch ID: 26273

RunNo: 35537

Analysis Date: 7/8/2016

PQL

20.0

SeqNo: 1100261

Units: mg/L

HighLimit

%RPD **RPDLimit**

Qual

Total Dissolved Solids

SampType: LCS

TestCode: SM2540C MOD: Total Dissolved Solids

Sample ID LCS-26273 Client ID: LCSW

Batch ID: 26273

RunNo: 35537

SeqNo: 1100262

Units: mg/L

Analyte

Prep Date: 7/7/2016

Analysis Date: 7/8/2016 **PQL**

SPK value SPK Ref Val

%REC LowLimit

HighLimit

RPDLimit Qual

Total Dissolved Solids

1000

Result

20.0

1000

0

SPK value SPK Ref Val %REC LowLimit

100

80

120

%RPD

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Ε Value above quantitation range

Analyte detected below quantitation limits

Page 23 of 23

P Sample pH Not In Range

RL Reporting Detection Limit



4901 Hawkins NE. Albuquerque, NM 87109 TEL: \$05-345-3975 FAX: 505-345-4107

Website: www.hallenvironmental.com

Sample Log-In Check List

NAVAJO REFINING CO Client Name: Work Order Number: 1607298 RoptNo: 1 Received by/date: Logged By: Lindsay Mangin 7/7/2016 10:15:00 AM Completed By: Lindsay Mangin 7/7/2016 12:06:14 PM 717116 Reviewed By: Chain of Custody 1. Custody seals intact on sample bottles? Yes 🗸 No 🗌 Not Present 2. Is Chain of Custody complete? Yes V No Not Present How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? No 🗌 Yes V NA . Were all samples received at a temperature of >0° C to 6.0°C Yes V No 🗌 NA 🗌 Sample(s) in proper container(s)? Yes V No Yes 🗸 No 🗌 7. Sufficient sample volume for indicated test(s)? 8. Are samples (except VOA and ONG) properly preserved? Yes V No 🗌 9. Was preservative added to bottles? Yes No V NA 🗌 10.VOA vials have zero headspace? Yes V No 🗔 No VOA Vials Yes 🗆 No 🗸 11. Were any sample containers received broken? # of preserved bottles checked 12. Does paperwork match bottle labels? Yes 🗸 No 🗌 for pH: (Note discrepancies on chain of custody) (2) br (12) unless noted) Adjusted' 13. Are matrices correctly identified on Chain of Custody? No 🗌 Yes V Yes 🗸 No 🗌 14. Is it clear what analyses were requested? 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 V Person Notified Date By Whom: Via: eMail Phone Fax In Person Regarding Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp ℃ Condition Seal Intact Seal No Seal Date Signed By 1 1.0 Good

ANALYSES LABORATORY X-Standard Ruth R	5	=	2-10	Chain-of-Custody Record	בוה ביים ביים ביים ביים ביים ביים ביים ביי	<u>ה</u>				Ì	1	- ENVIRONMENTAL	Ë	Ō	Ξ	Z	4	
Monthly R.O. Regist	Client: Na	avajo F	Refinery		X Standard					4	4	YSI	S	AB	20	TA	0	>
Project # P.O. # 1977/99 Tel. 506-345-371 Project # P.O. # 1977/99 Tel. 506-341 Tel. 506-345-371 Tel. 506-345					Project Name	ò				M	w.hal	enviro	nment	al.con	c			
Time Marrix Sample Request ID Project # Project Projec	iling Ad	dress:	P.O. Bo	ox 159 Artesia,	Monthly R.O.	Reject		. 4	901 Hs	wkins		Albuq	nerque	N.	8710	တ္		
Time Matrix Sample Reducest ID Type and # Into Type Sampler Robert Common Ro	188211	-0159			Project #: P.(J. # 167796		-	Tel. 50	5-345-	3975	Fa	505-	3454	107			
Time Matrix Sample Request Decent Combs Record Container Project Manager. Container	one #: 5	375-74	18-3311							4	4	nalysi	Redi	rest				
Time Matrix Sample Request ID Type and # Type	ail or Fa	ax#: 5	75-746-5	451	Project Mana	ger:						(8		www.nesseus.co				
Time Marthx Sample Request ID Type and # Type Ty	/QC Pac	kage:														····		***************************************
Time Matrix Sample Request D Container Preservative	Standar	ō		☐ Level 4 (Full Validation)	Robert Comb	Sı		-	-	***********	OP	-8+		in de procession de la constant de				************
Time Matrix Sample Request ID Type and # Type Ty	Other				Sampler:	Brady Hubbar	ā	Televenous management		əbi	10 '	966		*********		pild		11/
Time Matrix Sample Request ID Type and # Type	EDD (T	ype)			001100	X	H No.		ANTONIO DE LA COMPANSIONE DE L	nderkon en en en en		,-e _E				PS F		130
Figure Matrix Sample Request ID Type and # Type					Sample Tem	Selatine	2001		-	C-OTALVENT-		national relations		***********				<u> </u>
9:30 Iquid R.O. Reject 2-500ml P 1-10pres 1-10 R.O. Reject 3-40ml VOA HCL CC R.O. Reject 1-500ml P HNO3 CC R.O. Reject 1-10 HNO3 CC R.O. Reject R.O. Reject R.O. Reject 1-10 HNO3 CC R.O. Reject		me	Matrix	Sample Request ID	Container Type and #	Preservative Type		***************************************	W2989300000	The second secon					******************************		На	*****************
9:30 liquid R.O. Reject 1-500ml P HNO3	21.6	9:30	liquid	R.O. Reject		1-unpres 1- H2SO4	(D)-						×				×	
9:30 liquid R.O. Reject 1-500ml P HNO3 — (D) 9:30 liquid R.O. Reject 1-500ml P HNO3 — (D) 9:30 liquid R.O. Reject 2-1L P HNO3 — (D) 9:30 liquid R.O. Reject 2-1L Glass unpres — (D) 9:30 liquid R.O. Reject 1-1L Glass unpres — (D) 9:30 liquid R.O. Reject 1-1L Glass unpres — (D) 9:30 liquid R.O. Reject 1-250mlGlass unpres — (D) 9:30 liquid R.O. Reject 1-240ml VOA HCl — (D) 9:30 liquid R.O. Reject 1-240ml	29	9:30	liquid	R.O. Reject	***************************************	HCL	100	×										
9:30 liquid R.O. Reject 1-125ml P HNO3 — CD 9:30 liquid R.O. Reject 2-1L P HNO3 — CD 9:30 liquid R.O. Reject 2-1L Glass unpres — CD 9:30 liquid R.O. Reject 2-1L Glass unpres — CD 9:30 liquid R.O. Reject 1-1L Glass unpres — CD 9:30 liquid R.O. Reject 1-1L Glass H2SO4 — CD 9:30 liquid R.O. Reject 1-1L Glass H2SO4 — CD xxx liquid Trip Blank 2-40ml VOA HCL — Date Time It is So	29	9:30	liquid	R.O. Reject		HNO3	100-			×								
9:30 liquid R.O. Reject 1-500ml P NaOH OCI 9:30 liquid R.O. Reject 2-1L P HNO3 OCI 9:30 liquid R.O. Reject 2-1L Glass unpres OCI 9:30 liquid R.O. Reject 1-1L Glass unpres OCI 9:30 liquid R.O. Reject 1-250mlGlass unpres OCI 9:30 liquid R.O. Reject 1-250mlGlass unpres OCI 9:30 liquid R.O. Reject 1-250mlGlass unpres OCI 8:30 liquid R.O. Reject 1-250mlGlass unpres OCI 9:30 liquid R.O. Reject 1-250mlGlass unpres OCI 10:30 liquid R.O. Reject 1-1L Glass HCI OCI 10:30 liquid R.O. Reject 1-1L Glass HCI OCI 10:30 liquid R.O. Reject	-16	9:30	liquid	R.O. Reject		HNO3	100-		×						_			
9:30 liquid R.O. Reject 2-1L P HNO3 — (7) I 9:30 liquid R.O. Reject 2-1L Glass unpres — (7) I 9:30 liquid R.O. Reject 1-1L Glass unpres — (7) I 9:30 liquid R.O. Reject 1-250mIGlass unpres — (7) I 9:30 liquid R.O. Reject 1-250mIGlass unpres — (7) I xxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxxx liquid R.O. Reject 1-250mIGlass unpres — (7) I xxxx liquid R.O. Reject 1-16 J	16	9:30	liquid	R.O. Reject	Р	NaOH	-00-			×								\dashv
9:30 liquid R.O. Reject 2 - 1L Glass unpres ————————————————————————————————————	10	9:30	liquid		Q.	HN03	8					$\stackrel{\times}{-}$			\dashv			\dashv
9:30 liquid R.O. Reject 1 - 1L Glass unpres - 1 C G Glass unpres - 1 C G Glass unpres - 1 C G G G G G G G G G G G G G G G G G G	ع	9:30	liquid	R.O. Reject	3-40ml VOA	Na2S203	100-											×
9:30 liquid R.O. Reject 1 - 1L Glass unpres TE/ 9:30 liquid R.O. Reject 1-250mlGlas; unpres TC/ xxx liquid R.O. Reject 1 - 1L Glass H2SO4 TC/ xxx liquid Trip Blank 2-40ml VOA HCL Date Time Time: Relinquished by: R.C. Reject Received by: Received by: T-7-16 \ 0.05 T-7-16 \ 0.05 Time: Relinquished by: Received by: Received by: T-7-16 \ 0.05 Time	276	9:30	liquid	R.O. Reject	- 1L Glass	nubres	100					×						\dashv
9:30 liquid R.O. Reject 1-250mlGlass unpres -10/1 9:30 liquid R.O. Reject 1-1L Glass H2SO4 -10/1 xxx liquid Trip Blank 2-40ml VOA HCL -00/2 Time: Relinquished by: B.C. H. July Manh -00/2 1c 3x B.L. July Manh Received by 7-7-16 [OS] Time: Relinquished by: Received by: Date Time	71-	9:30	liquid	R.O. Reject	1 - 1L Glass	unpres	120	×						+				\dashv
9:30 liquid R.O. Reject 1-250mlGlas unpres	SIC	9:30	liquid	R.O. Reject	-	HCI	700/				×				-			\dashv
1-1L Glass H2SO4 — CC xxx liquid Trip Blank 2-40ml VOA HCL — CO2 Time: Relinquished by: R. L. J. H. Shariff Construction of the standard	7-16	9:30	liquid	R.O. Reject	A PERSONAL PROPERTY AND PERSONAL PROPERTY AN	unpres	101				×			_				
Time: Relinquished by: Bridge House Seeived by Many Many 7-7-16 (015) Time: Relinquished by: Received by: Received by:	2-16	9:30	liquid	R.O. Reject		H2SO4	-(لال							×				
Time: Relinquished by: Bridy 14. Art. 13. Received by Art. 13. Received by Art. 13. Art. 14. Art. 15. Art.			liquid	Trip Blank		HCL	-2005-					\dashv		\dashv	_			-
Time: Relinquished by: Received by: Date Time		9	Relinquishe	ed by: Bridy It shows	Received by:/	man	7		5; 5, Al, Ba, E 1,1-Trichlo	Cd, Cr. proethane	Co, Cu,	Fe, Pb, N Tetrachic	In, Hg, M roethane	o, Ni, Se ; 1,1,2,2	e, Ag, U, ?-Tetract	Zn hioroeth	iylene; 1	-2,1,
			Relinquish	ed by:	Received by:			Dibromoet Dichloromi SVOCs: b	thane; 1,2 ethane; E ethane; E enzo(a)py	Dichloro Dichloro Thylbenze	ethane; l ethane; l ne; Tolu enol, 1-n	enzene; enzene; ene; Tota ethylnapt	Carbon T Xylenes; Ithalene,	etrachko Vinyl C 2-methy	nide; Ch hioride ihaphth	lloroforn alene, n	n; n; aphthal	eue



July 15, 2016

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

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

RE: Discharge Permit GW-028

Monthly Report - June 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's June 2016 monthly report, for the period of June 1-30, 2016, under the Permit.

Specifically, in accordance with Condition 4.B.7, this report covers the June 2016 reporting period and includes the daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4. Analytical data collected in accordance with Condition 4.B.1 for the second quarter of 2016 was provided in previous monthly reports.

Analytical results of a discharge sample collected on April 5, 2016, in accordance with Condition 4.B.1 for the second calendar quarter were included in the April report. Questions regarding the analytical results for the April 5 sample prompted re-sampling on May 19, 2016. A revised analytical report for the April 5 sample and an analytical report for follow up samples collected on May 19, 2016, were provided in the May monthly report submitted on June 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Note that a third permanent unit was installed to replace the temporary RO unit as authorized by OCD on April 1, 2016. The third permanent unit began operation in May 2016. Operation of the temporary RO unit ceased on June 1.

Separately, on June 23, 2016, Navajo submitted an application to renew and modify Discharge Permit GW-028. This application was submitted in accordance with Condition 1.F of the Permit.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Pe	rmanent RO U	Inits		Тетро	rary Unit	Daily Discharge Volume
		Metered Data	·		d RO Reject (Calculated)	(Calculate	ect Discharge ed from Log ata)	
	GPM	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH	MIDDLE					
6/1/2016	141.11	0.23	135.98	277.31	9,507.77	27	924	10,431.77
6/2/2016	139.41	0.74	136.77	276.92	9,494.40	0	0	9,494.40
6/3/2016	137.39	1.92	137.35	276.65	9,485.14	0	0	9,485.14
6/4/2016	141.17	0.58	136.36	278.11	9,535.20	0	0	9,535.20
6/5/2016	139.90	1.72	136.80	278.43	9,546.17	0	0	9,546.17
6/6/2016	140.35	2.30	136.73	279.38	9,578.74	0	0	9,578.74
6/7/2016	153.48	0.54	136.19	290.22	9,950.40	0	0	9,950.40
6/8/2016	153.74	0.10	135.62	289.46	9,924.34	0	0	9,924.34
6/9/2016	154.15	0.14	135.68	289.97	9,941.83	0	0	9,941.83
6/10/2016	154.55	0.17	135.63	290.35	9,954.86	0	0	9,954.86
6/11/2016	153.35	0.09	135.74	289.19	9,915.09	0	0	9,915.09
6/12/2016	154.64	0.40	136.03	291.07	9,979.54	0	0	9,979.54
6/13/2016	155.23	0.25	135.81	291.29	9,987.09	0	0	9,987.09
6/14/2016	155.22	0.30	135.19	290.72	9,967.54	0	0	9,967.54
6/15/2016	154.59	0.20	135.68	290.47	9,958.97	0	0	9,958.97
6/16/2016	144.65	2.15	136.14	282.94	9,700.80	0	0	9,700.80
6/17/2016	138.49	4.34	136.63	279.46	9,581.49	0	0	9,581.49
6/18/2016	141.24	6.44	136.16	283.84	9,731.66	0	0	9,731.66
6/19/2016	141.61	3.74	135.89	281.24	9,642.51	0	0	9,642.51
6/20/2016	138.93	2.01	135.71	276.66	9,485.49	0	0	9,485.49
6/21/2016	137.59	4.00	136.68	278.27	9,540.69	0	0	9,540.69
6/22/2016	135.87	6.67	138.00	280.54	9,618.51	0	0	9,618.51
6/23/2016	135.10	7.42	137.83	280.35	9,612.00	0	0	9,612.00
6/24/2016	139.11	3.20	137.05	279.36	9,578.06	0	0	9,578.06
6/25/2016	74.54	84.42	137.11	296.06	10,150.63	0	0	10,150.63
6/26/2016	141.61	3.74	135.89	281.24	9,642.51	0	0	9,642.51
6/27/2016	138.93	2.01	135.71	276.66	9,485.49	0	0	9,485.49
6/28/2016	137.59	4.00	136.68	278.27	9,540.69	0	0	9,540.69
6/29/2016	135.87	6.67	138.00	280.54	9,618.51	0	0	9,618.51
6/30/2016	135.10	7.42	137.83	280.35	9,612.00	0	0	9,612.00

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Wednesday, June 22, 2016 12:01 PM **To:** 'Combs, Robert'; Griswold, Jim, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Marks,

Allison, EMNRD; Brancard, Bill, EMNRD

Subject: RE: May RO Reject Monthly Report

Robert, et al.:

The New Mexico Oil Conservation Division (OCD) is in receipt of the above subject monthly report.

OCD has reviewed the resample results from April, and the subsequent sampling data with letter from Andy Freeman (Hall Environmental) with explanation for organics detection, and are satisfied with HollyFrontier's response.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM Environmental Engineer

Oil Conservation Division- Environmental Bureau

1220 South St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3490

Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u>
Website: <u>www.emnrd.state.nm.us/ocd</u>

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see

how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]

Sent: Wednesday, June 15, 2016 3:55 PM

To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>

Cc: McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott

<Scott.Denton@HollyFrontier.com>; Marks, Allison, EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD

dill.brancard@state.nm.us>

Subject: May RO Reject Monthly Report

Jim & Carl,

Attached is the monthly report for the month of May concerning the RO Reject, as required by the GW-028 condition 4.B.7. Also provided is the response to your email from May 18, 2016 regarding detection of DRO in the RO Reject analytical reports submitted in the April 2016 report. This report will be mailed today.

Please let me know if you have any questions.

Thanks, Robert

Robert Combs

Environmental Specialist The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159

office: 575-746-5382 cell: 575-308-2718 fax: 575-746-5451

Robert.Combs@hollyfrontier.com

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Chavez, Carl J, EMNRD

From: Combs, Robert < Robert.Combs@HollyFrontier.com>

Sent: Wednesday, June 15, 2016 3:55 PM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Marks,

Allison, EMNRD; Brancard, Bill, EMNRD

Subject: May RO Reject Monthly Report

Attachments: 2016-06-15 GW-028 Monthly Report May 2016 Rpt Period.pdf

Jim & Carl,

Attached is the monthly report for the month of May concerning the RO Reject, as required by the GW-028 condition 4.B.7. Also provided is the response to your email from May 18, 2016 regarding detection of DRO in the RO Reject analytical reports submitted in the April 2016 report. This report will be mailed today.

Please let me know if you have any questions.

Thanks, Robert

Robert Combs

Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
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office: 575-746-5382 cell: 575-308-2718 fax: 575-746-5451

Robert.Combs@hollyfrontier.com

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June 15, 2016

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

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

RE: Discharge Permit GW-028

Monthly Report - May 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's May 2016 monthly report, for the period of May 1-31, 2016, under the Permit.

Specifically, this report covers the May 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on May 19, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that a third permanent unit was installed to replace the temporary RO unit as authorized by OCD on April 1, 2016. The third permanent unit began operation in May 2016. The temporary RO unit operated through May 2016 during transition to the new permanent unit operations. Operation of the temporary unit ceased on June 1.)

Samples were collected for the RO reject streams from the permanent units and temporary unit on May 19, 2016, as requested by OCD in an electronic mail dated May 18, 2016. In the April 2016 analytical report for samples collected on April 5, 2016, low concentrations of DRO were reported

for both the permanent and temporary RO reject samples. OCD required immediate resampling and analysis of RO Reject water utilizing EPA Method 8015 (GRO/MRO/ORO) and EPA Method 8260 (volatiles).

The Refinery contacted the lab and they reanalyzed the sample collected on April 5, 2016 and provided a revised report and explanation of the problem. The laboratory's research of the situation concluded that the analyst made an error in the placement of Navajo's samples on the autosampler and two different samples were analyzed in place of Navajo's RO reject samples. The lab reanalyzed the April 5, 2016 samples, and DRO was not detected. Copies of the revised analytical reports and the correspondence from OCD and the laboratory regarding this error are provided in Attachment 2.

The samples collected on May 19, 2016, were analyzed for EPA methods 8015D, 8260, 8011/504.1, and 200.7/200.8 (dissolved metals); please see attached lab reports. The corresponding analytical results are provided in Attachment 3. Neither DRO nor other organic constituents were detected in the samples.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Revised Analytical Lab Report and OCD and Laboratory Correspondence

(May 2016)

Attachment 3: Analytical Lab Report (May 2016)

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Peri	manent RO U	nits		Tempor	ary Unit	Daily Discharge Volume
		Metered Data		Combined Discharge (RO Reject Calculated)	Total RO Reje (Calculated fr		
	GPM	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH	MIDDLE					
5/1/2016	77.25	83.24	No Data	160.49	5,503	134	4580	10,083
5/2/2016	84.59	91.23	No Data	175.82	6,028	139	4769	10,797
5/3/2016	83.69	58.25	No Data	141.93	4,866	140	4811	9,677
5/4/2016	79.80	66.86	No Data	146.66	5,028	143	4906	9,934
5/5/2016	79.78	66.90	No Data	146.69	5,029	143	4893	9,922
5/6/2016	79.50	62.75	No Data	142.26	4,877	126	4319	9,196
5/7/2016	0.01	58.19	No Data	58.20	1,995	123	4202	6,197
5/8/2016	0.01	55.92	No Data	55.92	1,917	143	4905	6,822
5/9/2016	0.01	98.00	No Data	98.01	3,360	146	5022	8,382
5/10/2016	92.27	80.45	No Data	172.72	5,922	151	5175	11,097
5/11/2016	100.14	82.17	No Data	182.32	6,251	151	5179	11,430
5/12/2016	99.31	54.91	No Data	154.22	5,288	150	5154	10,442
5/13/2016	100.12	0.08	140.34	240.54	8,247	136	4650	12,897
5/14/2016	100.53	0.08	141.45	242.06	8,299	140	4798	13,097
5/15/2016	109.01	0.06	142.63	251.70	8,630	115	3943	12,573
5/16/2016	107.11	0.06	138.23	245.40	8,414	75	2581	10,995
5/17/2016	0.01	124.05	140.01	264.08	9,054	98	3367	12,421
5/18/2016	0.00	116.74	140.43	257.17	8,817	142	4855	13,672
5/19/2016	0.00	128.71	143.01	271.72	9,316	149	5125	14,441
5/20/2016	0.00	115.88	137.97	253.85	8,703	150	5136	13,839
5/21/2016	0.01	122.29	141.17	263.48	9,034	151	5181	14,215
5/22/2016	0.02	117.79	141.05	258.85	8,875	149	5113	13,988
5/23/2016	0.02	117.55	140.89	258.45	8,861	125	4293	13,154
5/24/2016	89.57	33.87	140.79	264.23	9,059	123	4228	13,287
5/25/2016	124.18	0.09	141.23	265.50	9,103	92	3154	12,257
5/26/2016	43.69	91.42	140.37	275.48	9,445	153	5231	14,676
5/27/2016	63.72	77.70	138.02	279.44	9,581	109	3731	13,312
5/28/2016	137.83	2.34	137.36	277.54	9,516	84	2892	12,408
5/29/2016	134.71	0.07	136.38	271.17	9,297	76	2622	11,919
5/30/2016	135.68	0.06	137.13	272.87	9,356	87	2993	12,349
5/31/2016	136.72	0.11	136.29	273.11	9,364	110	3770	13,134

Attachment 2 Revised Analytical Lab Report (April 2016) and OCD and Laboratory Correspondence



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

OrderNo.: 1604182

June 13, 2016

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly Temporary R.O. Reject

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 10, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

anded

4901 Hawkins NE

Albuquerque, NM 87109



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

Case Narrative

WO#: **1604182**Date: **6/13/2016**

CLIENT: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Analytical Notes Regarding EPA Method 8015 DRO/MRO:

The results for EPA Method 8015 DRO/MRO are being reported as past the holding time due to a laboratory error.

Date Reported: 6/13/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Project:

Lab ID:

Client Sample ID: Temporary R.O. Reject

 Quarterly Temporary R.O. Reject
 Collection Date: 4/5/2016 7:45:00 AM

 1604182-001
 Matrix: AQUEOUS

 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	4/8/2016 2:24:54 PM	24682
EPA METHOD 8082: PCB'S							Analyst: SCC	
Aroclor 1016	ND	0.28	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1221	ND	0.70	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1232	ND	0.76	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1242	ND	0.20	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1248	ND	0.57	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1254	ND	0.97	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1260	ND	0.24	1.0		μg/L	1	4/19/2016 2:04:17 AM	24708
Surr: Decachlorobiphenyl	106	0	26.1-140		%Rec	1	4/19/2016 2:04:17 AM	24708
Surr: Tetrachloro-m-xylene	74.4	0	15-123		%Rec	1	4/19/2016 2:04:17 AM	24708
EPA METHOD 8015M/D: DIESEL RAI	NGE						Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0	Н	mg/L	1	5/27/2016 3:28:07 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0	5.0	Н	mg/L	1	5/27/2016 3:28:07 PM	24652
Surr: DNOP	92.1	0	70-141	Н	%Rec	1	5/27/2016 3:28:07 PM	24652
EPA METHOD 8015D: GASOLINE RA	ANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	4/8/2016 10:42:12 AM	R33412
Surr: BFB	84.7	0	49.5-130		%Rec	1	4/8/2016 10:42:12 AM	R33412
EPA METHOD 8310: PAHS							Analyst: SCC	
Naphthalene	ND	1.1	2.0		μg/L	1	4/19/2016 11:01:30 AM	24709
1-Methylnaphthalene	ND	1.1	2.0		μg/L	1	4/19/2016 11:01:30 AM	24709
2-Methylnaphthalene	ND	1.1	2.0		μg/L	1	4/19/2016 11:01:30 AM	
Benzo(a)pyrene	ND	0.018	0.070		μg/L	1	4/19/2016 11:01:30 AM	24709
Surr: Benzo(e)pyrene	101	0	33.4-129		%Rec	1	4/19/2016 11:01:30 AM	24709
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	1.9	0.023	0.10		mg/L	1	4/18/2016 10:02:35 PM	R33628
Chloride	55	0.55	10		mg/L	20	4/7/2016 5:15:57 AM	R33368
Nitrogen, Nitrite (As N)	ND	0.042	0.10		mg/L	1	4/7/2016 5:03:33 AM	R33368
Nitrogen, Nitrate (As N)	1.0	0.042	0.10		mg/L	1	4/7/2016 5:03:33 AM	R33368
Sulfate	880	3.2	25		mg/L	50	4/18/2016 10:15:00 PM	R33628
EPA METHOD 200.7: DISSOLVED MI	ETALS						Analyst: ELS	
Aluminum	ND	0.0038	0.020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Barium	0.040	0.0013	0.0020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Boron	0.052	0.0011	0.040		mg/L	1	4/18/2016 5:39:41 PM	A33606
Cadmium	ND	0.00075	0.0020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Chromium	ND	0.0018	0.0060		mg/L	1	4/18/2016 5:39:41 PM	A33606
					-			

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 2 of 21

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company
Client Sample ID: Temporary R.O. Reject
Project: Quarterly Temporary R.O. Reject
Collection Date: 4/5/2016 7:45:00 AM
Lab ID: 1604182-001
Matrix: AQUEOUS
Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED ME	TALS						Analyst: ELS	
Cobalt	0.0010	0.00074	0.0060	J	mg/L	1	4/18/2016 5:39:41 PM	A33606
Copper	ND	0.0040	0.0060		mg/L	1	4/18/2016 5:39:41 PM	A33606
Iron	0.051	0.0091	0.020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Manganese	0.0015	0.00032	0.0020	J	mg/L	1	4/18/2016 5:39:41 PM	A33606
Molybdenum	ND	0.0019	0.0080		mg/L	1	4/18/2016 5:39:41 PM	A33606
Nickel	ND	0.0024	0.010		mg/L	1	4/18/2016 5:39:41 PM	A33606
Silver	ND	0.0028	0.0050		mg/L	1	4/18/2016 5:39:41 PM	A33606
Zinc	0.032	0.0028	0.010		mg/L	1	4/18/2016 5:39:41 PM	A33606
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0014	0.00069	0.0050	J	mg/L	5	4/19/2016 6:16:53 PM	A33644
Lead	0.000082	0.000072	0.00050	J	mg/L	1	4/19/2016 2:29:28 PM	A33635
Selenium	0.0047	0.0011	0.0050	J	mg/L	5	4/20/2016 6:26:09 PM	A33677
Uranium	0.0029	0.000051	0.00050		mg/L	1	4/19/2016 2:29:28 PM	A33635
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	4/15/2016 11:59:33 AM	24817
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Toluene	ND	0.089	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Ethylbenzene	ND	0.11	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
1,2-Dichloroethane (EDC)	0.33	0.053	1.0	J	μg/L	1	4/14/2016 6:01:59 PM	R33550
1,2-Dibromoethane (EDB)	ND	0.11	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Carbon Tetrachloride	ND	0.11	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Chloroform	ND	0.089	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
1,1-Dichloroethane	ND	0.11	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
1,1-Dichloroethene	ND	0.076	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Methylene Chloride	ND	0.063	3.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
1,1,2,2-Tetrachloroethane	ND	0.11	2.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Tetrachloroethene (PCE)	ND	0.15	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
1,1,1-Trichloroethane	ND	0.063	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
1,1,2-Trichloroethane	ND	0.077	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Trichloroethene (TCE)	ND	0.18	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Vinyl chloride	ND	0.063	1.0		μg/L	1	4/14/2016 6:01:59 PM	R33550
Xylenes, Total	ND	0.32	1.5		μg/L	1	4/14/2016 6:01:59 PM	R33550
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550
Surr: 4-Bromofluorobenzene	108	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550
Surr: Dibromofluoromethane	117	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550
Surr: Toluene-d8	103	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 3 of 21

Analytical ReportLab Order **1604182**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Quarterly Temporary R.O. Reject

Collection Date: 4/5/2016 7:45:00 AM

Lab ID: 1604182-001 **Matrix:** AQUEOUS **Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		μg/L	1	4/21/2016	24923
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB	
Cyanide	ND	0.0100	0.0100		mg/L	1	4/8/2016	R34094
EPA 903.1: RA 226 AND EPA 904.0: RA 2	228-SUBBE	ס					Analyst: SUB	
Radium-226	5.67	0.512	0.512		pCi/L	1	4/26/2016 7:54:00 PM	R34094
Radium-226 ±	2.13	0.512	0.512		pCi/L	1	4/26/2016 7:54:00 PM	R34094
Radium-228	0.76	0.949	0.949		pCi/L	1	4/26/2016 7:54:00 PM	R34094
Radium-228 ±	0.5	0.949	0.949		pCi/L	1	4/26/2016 7:54:00 PM	R34094
SM4500-H+B: PH							Analyst: MRA	
рН	8.26	0.100	1.68	Н	pH units	1	4/9/2016 2:18:47 AM	R33424
SM2540C MOD: TOTAL DISSOLVED SOI	LIDS						Analyst: KS	
Total Dissolved Solids	1870	10.5	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656

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

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

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

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A33606 RunNo: 33606 Prep Date: Analysis Date: 4/18/2016 SeqNo: 1034060 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND Iron 0.020 Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 Zinc ND 0.010

Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	ls	
Bato	ch ID: A3	3606	R	RunNo: 3	3606				
Analysis	Date: 4/	18/2016	S	SeqNo: 1	034061	Units: mg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
0.46	0.020	0.5000	0	92.5	85	115		·	
0.49	0.0020	0.5000	0	97.6	85	115			
0.50	0.040	0.5000	0	99.1	85	115			
0.50	0.0020	0.5000	0	99.3	85	115			
0.48	0.0060	0.5000	0	96.7	85	115			
0.47	0.0060	0.5000	0	93.2	85	115			
0.48	0.0060	0.5000	0	95.7	85	115			
0.47	0.020	0.5000	0	93.8	85	115			
0.47	0.0020	0.5000	0	94.1	85	115			
0.51	0.0080	0.5000	0	103	85	115			
0.46	0.010	0.5000	0	91.9	85	115			
0.097	0.0050	0.1000	0	96.9	85	115			
0.48	0.010	0.5000	0	95.4	85	115			
	Result 0.46 0.49 0.50 0.50 0.48 0.47 0.48 0.47 0.47 0.47 0.51 0.46 0.097	Batch ID: A3 Analysis Date: 4/ Result PQL 0.46 0.020 0.49 0.0020 0.50 0.040 0.50 0.0020 0.48 0.0060 0.47 0.0060 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0020 0.47 0.0050	0.46 0.020 0.5000 0.49 0.0020 0.5000 0.50 0.040 0.5000 0.50 0.0020 0.5000 0.48 0.0060 0.5000 0.47 0.0060 0.5000 0.47 0.020 0.5000 0.47 0.020 0.5000 0.51 0.0080 0.5000 0.46 0.010 0.5000 0.097 0.0050 0.1000	Batch ID: A33606 R Analysis Date: 4/18/2016 S Result PQL SPK value SPK Ref Val 0.46 0.020 0.5000 0 0.49 0.0020 0.5000 0 0.50 0.040 0.5000 0 0.50 0.0020 0.5000 0 0.48 0.0060 0.5000 0 0.47 0.0060 0.5000 0 0.47 0.020 0.5000 0 0.47 0.0020 0.5000 0 0.51 0.0080 0.5000 0 0.46 0.010 0.5000 0 0.097 0.0050 0.1000 0	Batch ID: A33606 RunNo: 33 Analysis Date: 4/18/2016 SeqNo: 16 Result PQL SPK value SPK Ref Val %REC 0.46 0.020 0.5000 0 92.5 0.49 0.0020 0.5000 0 97.6 0.50 0.040 0.5000 0 99.1 0.50 0.0020 0.5000 0 99.3 0.48 0.0060 0.5000 0 96.7 0.47 0.0060 0.5000 0 93.2 0.48 0.0060 0.5000 0 95.7 0.47 0.020 0.5000 0 93.8 0.47 0.0020 0.5000 0 94.1 0.51 0.0080 0.5000 0 94.1 0.51 0.0080 0.5000 0 91.9 0.46 0.010 0.5000 0 91.9 0.097 0.0050 0.1000	Batch ID: A33606 RunNo: 33606 Analysis Date: 4/18/2016 SeqNo: 1034061 Result PQL SPK value SPK Ref Val %REC LowLimit 0.46 0.020 0.5000 0 92.5 85 0.49 0.0020 0.5000 0 97.6 85 0.50 0.040 0.5000 0 99.1 85 0.50 0.0020 0.5000 0 99.3 85 0.48 0.0060 0.5000 0 96.7 85 0.47 0.0060 0.5000 0 95.7 85 0.47 0.020 0.5000 0 93.8 85 0.47 0.0020 0.5000 0 94.1 85 0.51 0.0080 0.5000 0 94.1 85 0.46 0.010 0.5000 0 91.9 85 0.097 0.0050 0 91.9 85	Batch ID: A33606 RunNo: 33606 Analysis Date: 4/18/2016 SeqNo: 1034061 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 0.46 0.020 0.5000 0 92.5 85 115 0.49 0.0020 0.5000 0 97.6 85 115 0.50 0.040 0.5000 0 99.1 85 115 0.50 0.0020 0.5000 0 99.3 85 115 0.48 0.0060 0.5000 0 96.7 85 115 0.47 0.0060 0.5000 0 93.2 85 115 0.47 0.020 0.5000 0 95.7 85 115 0.47 0.020 0.5000 0 93.8 85 115 0.47 0.0020 0.5000 0 94.1 85 115 0.51 0.0080	Batch ID: A33606 RunNo: 33606 Analysis Date: 4/18/2016 SeqNo: 1034061 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 0.46 0.020 0.5000 0 92.5 85 115 0.49 0.0020 0.5000 0 97.6 85 115 0.50 0.040 0.5000 0 99.1 85 115 0.50 0.0020 0.5000 0 99.3 85 115 0.48 0.0060 0.5000 0 96.7 85 115 0.47 0.0060 0.5000 0 93.2 85 115 0.48 0.0060 0.5000 0 95.7 85 115 0.47 0.020 0.5000 0 93.8 85 115 0.47 0.020 0.5000 0 94.1 85 115 0.47 0.0020 0.5000 0 94.1 85 115 0.51 0.0080 </td <td>Batch ID: A33606 RunNo: 33606 Analysis Date: 4/18/2016 SeqNo: 1034061 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 0.46 0.020 0.5000 0 92.5 85 115 0.49 0.0020 0.5000 0 97.6 85 115 0.50 0.040 0.5000 0 99.1 85 115 0.50 0.0020 0.5000 0 99.3 85 115 0.48 0.0060 0.5000 0 93.2 85 115 0.47 0.020 0.5000 0 95.7 85 115 0.47 0.020 0.5000 0 93.8 85 115 0.47 0.0020 0.5000 0 94.1 85 115 0.47 0.0020 0.5000 0 94.1 85 115 0.51 0.0080 0.5000 0</td>	Batch ID: A33606 RunNo: 33606 Analysis Date: 4/18/2016 SeqNo: 1034061 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 0.46 0.020 0.5000 0 92.5 85 115 0.49 0.0020 0.5000 0 97.6 85 115 0.50 0.040 0.5000 0 99.1 85 115 0.50 0.0020 0.5000 0 99.3 85 115 0.48 0.0060 0.5000 0 93.2 85 115 0.47 0.020 0.5000 0 95.7 85 115 0.47 0.020 0.5000 0 93.8 85 115 0.47 0.0020 0.5000 0 94.1 85 115 0.47 0.0020 0.5000 0 94.1 85 115 0.51 0.0080 0.5000 0

Sample ID LLLCS-A	SampTyp	pe: LC \$	SLL	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch I	ID: A33	8606	R	unNo: 3	3606				
Prep Date:	Analysis Dat	ite: 4/1	8/2016	S	eqNo: 1	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.010	0.020	0.01000	0	100	50	150			J
Barium	0.0019 0	0.0020	0.002000	0	94.5	50	150			J

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID LLLCS-A	Samp	Type: LC	SLL	Test						
Client ID: BatchQC	Bato	h ID: A3	3606	R	RunNo: 33606					
Prep Date:	Analysis	Date: 4/	18/2016	S	SeqNo: 1	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.038	0.040	0.04000	0	94.9	50	150			J
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	0.0056	0.0060	0.006000	0	92.7	50	150			J
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	0.020	0.020	0.02000	0	98.6	50	150			J
Manganese	0.0018	0.0020	0.002000	0	90.5	50	150			J
Molybdenum	0.0079	0.0080	0.008000	0	99.0	50	150			J
Nickel	0.0043	0.010	0.005000	0	86.2	50	150			J
Silver	0.0046	0.0050	0.005000	0	92.6	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID LCS SampType: LCS TestCode: EPA 200.8: Dissolved Metals Client ID: LCSW Batch ID: A33635 RunNo: 33635 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1035657 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.013 0.00050 Lead 0.01250 0 100 85 115 Uranium 0.012 0.00050 0.01250 0 97.5 85 115

Sample ID LLLCS SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals Client ID: BatchQC Batch ID: A33635 RunNo: 33635 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1035658 Units: mg/L Analyte Result POL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Lead 0.00054 0.00050 0.0005000 0 107 50 150 0.00049 0.00050 0.0005000 O 97.6 50 150 J Uranium

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals Client ID: PBW Batch ID: A33635 RunNo: 33635 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1035659 Units: mg/L SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Qual Analyte Result PQL HighLimit

Lead 0.00050 ND 0.00050 Uranium

Sample ID LCS SampType: LCS TestCode: EPA 200.8: Dissolved Metals RunNo: 33644 Client ID: LCSW Batch ID: A33644 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1036133 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Arsenic 0.023 0.0010 93.5 85 115 0.02500

Sample ID LCSLL SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals Client ID: **BatchQC** Batch ID: A33644 RunNo: 33644 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1036134 Units: mg/L %RPD **RPDLimit** PQI SPK value SPK Ref Val %REC HighLimit Analyte Result LowLimit Qual 0.0010 0.0010 0.001000 Arsenic 102 50 150

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals Client ID: PBW Batch ID: A33644 RunNo: 33644 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1036136 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

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P

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Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

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

Sample ID LCS SampType: LCS TestCode: EPA 200.8: Dissolved Metals

Client ID: LCSW Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037321 Units: mg/L

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

Selenium 0.024 0.0010 0.02500 0 97.2 85 115

Sample ID LLLCS SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals

Client ID: BatchQC Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037322 Units: mg/L

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

Selenium 0.0011 0.0010 0.001000 0 106 50 150

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037323 Units: mg/L

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

Selenium 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID MB-24817 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032804 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-24817 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032805 Units: mg/L

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

Mercury 0.0052 0.00020 0.005000 0 105 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Project:	Navajo Refining Com Quarterly Temporary								
Sample ID MB	SampTyp	e: MBLK	Tes	tCode: EF	PA Method	300.0: Anions	5		
Client ID: PBW	Batch ID): R33368	R	RunNo: 3	3368				
Prep Date:	Analysis Date	e: 4/6/2016	S	SeqNo: 10	025773	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride Nitrogen, Nitrite (As N) Nitrogen, Nitrate (As N)	ND	0.50 0.10 0.10							
Sample ID LCS	SampType	e: LCS	Tes	tCode: EF	PA Method	300.0: Anions	S		
Client ID: LCSV	Batch ID): R33368	R	RunNo: 3	3368				
Prep Date:	Analysis Date	e: 4/6/2016	S	025774	Units: mg/L				
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50 5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)		0.10 1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10 2.500	0	102	90	110			
Sample ID MB	SampTyp	e: MBLK	Tes	tCode: EF	PA Method	300.0: Anions	3		
Client ID: PBW	Batch ID): R33628	R	RunNo: 3	3628				
Prep Date:	Analysis Date	e: 4/18/2016	S	SeqNo: 10	035257	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10							
Sulfate	ND	0.50							
Sample ID LCS	SampTyp	e: LCS	Tes	tCode: EF	PA Method	300.0: Anions	5		
Client ID: LCSV	Batch ID): R33628	R	RunNo: 3	3628				
Prep Date:	Analysis Date	e: 4/18/2016	S	SeqNo: 10	035258	Units: mg/L			

SPK value SPK Ref Val

0.5000

10.00

Qualifiers:

Analyte

Fluoride

Sulfate

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

Result

0.54

9.8

0.10

0.50

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

%REC

109

98.3

0

0

LowLimit

90

90

HighLimit

110

110

%RPD

RPDLimit

Qual

J

Analyte detected below quantitation limits

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P Sample pH Not In Range

Reporting Detection Limit RL

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID MB-24682 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027492 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-24682 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027494 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 0 116 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Project: Quarterly	/ Temporary R.O. Reject							
Sample ID MB-24652	SampType: MBLK	TestCode: EPA Method	8015M/D: Diesel Range					
Client ID: PBW	Batch ID: 24652	RunNo: 33385						
Prep Date: 4/6/2016	Analysis Date: 4/8/2016	SeqNo: 1026445	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 70	141					
Sample ID LCS-24652	SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range							
Client ID: LCSW	Batch ID: 24652	RunNo: 33385						
Prep Date: 4/6/2016	Analysis Date: 4/8/2016	SeqNo: 1026634	Units: mg/L					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual					
Diesel Range Organics (DRO)	5.6 1.0 5.000	0 112 71.3	139					
Surr: DNOP	0.53 0.5000	107 70	141					
Sample ID LCS-25494	SampType: LCS	TestCode: EPA Method	8015M/D: Diesel Range					
Client ID: LCSW	Batch ID: 25494	RunNo: 34489						
Prep Date: 5/25/2016	Analysis Date: 5/26/2016	SeqNo: 1064130	Units: %Rec					
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual					
Surr: DNOP	0.50 0.5000	101 70	141					

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

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

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027408 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 17 20.00 86.6 49.5 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027409 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
 92.9
 80
 120

 Surr: BFB
 19
 20.00
 96.6
 49.5
 130

Sample ID 1604182-001BMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: Temporary R.O. Rej Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027412 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
 70
 130

 Surr: BFB
 20
 20.00
 98.2
 49.5
 130

Sample ID 1604182-001BMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: Temporary R.O. Rej Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027413 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 94.6 70 130 0.884 20 Surr: BFB 20 20.00 99.5 49.5 130 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

Page 13 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

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

Sample ID MB-24708	SampTyp	SampType: MBLK			TestCode: EPA Method 8082: PCB's							
Client ID: PBW	Batch I	08	F	RunNo: 3	3583							
Prep Date: 4/11/2016	Analysis Dat	te: 4/ 1	8/2016	5	SeqNo: 1	034347	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	2.5		2.500		99.2	26.1	140					
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123					
Sample ID LCS-24708	SampTyp	pe: LC :	S	Tes	tCode: E	PA Method	8082: PCB's			_		
Client ID: 1 COM	Datah I	D. 047		-		0500						

Sample ID LCS-24708	SampType: LCS Batch ID: 24708			Tes	tCode: El	PA Method				
Client ID: LCSW				F	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	8	SeqNo: 1	034348	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID LCSD-24708	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	ID: 24	708	F	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	S	SeqNo: 1	034349	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1604182**

13-Jun-16

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

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: R3	3550	F	RunNo: 3	3550				
Prep Date:	Analysis D	ate: 4/	14/2016	8	SeqNo: 1	032303	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	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	n ID: R3	3550	R	tunNo: 3	3550				
Prep Date:	Analysis D	ate: 4/	14/2016	S	SeqNo: 10	032305	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.33	1.0								J
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	0.79	3.0								J
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

Sample ID rb

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-24709	Samp1	уре: МЕ	BLK	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: PBW	Batcl	n ID: 24	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis D	Date: 4/	19/2016	S	SeqNo: 1	034469	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID LCS-24709	Samp1	ype: LC	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batcl	n ID: 24	709	R	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis D	oate: 4/	19/2016	S	SeqNo: 10	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

13-Jun-16

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

Sample ID LCS-24709	Samp	Type: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 24	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis [Date: 4/	19/2016	S	SeqNo: 1	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID LCSD-24709	Samp	Type: LC	SD	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSS02	Batc	h ID: 24 7	709	R	tunNo: 3	3614				
Prep Date: 4/11/2016	Analysis [Date: 4/	19/2016	S	SeqNo: 1	034484	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-24923 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 24923 RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037376 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-24923 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 24923 Client ID: LCSW RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037377 Units: µg/L

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

Phenolics, Total Recoverable 18 2.5 20.00 0 89.0 64.4 135

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Ε Value above quantitation range

J Analyte detected below quantitation limits

Reporting Detection Limit

P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-R34094 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R34094 RunNo: 34094

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1050918 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

0.0100 Cyanide ND

Sample ID LCS-R34094 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R34094 RunNo: 34094

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1050919 Units: mg/L

RPDLimit Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Result Qual

Cyanide 0.512 0.5000 0 102 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Ε Value above quantitation range

J Analyte detected below quantitation limits

Reporting Detection Limit

P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-R34094 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R34094 RunNo: 34094 SeqNo: 1050921 Prep Date: Analysis Date: 4/26/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 0.965 0.799 Radium-226 ± 0.644 0.799 Radium-228 0.0941 0.772 Radium-228 ± 0.341 0.772

Qualifiers:

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

Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-24656 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025974 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-24656 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025975 Units: mg/L

PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result Qual

Total Dissolved Solids 1040 20.0 1000 0 104 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Ε Value above quantitation range

J Analyte detected below quantitation limits

Page 21 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1 Client Name: Received by/date/ 4/6/2016 9:40:00 AM Logged By: **Ashley Gallegos** 4/6/2016 12:16:42 PM Completed By: Ashley Gaffegos Reviewed By: Chain of Custod No 🗆 Not Present 🗹 Yes 🗌 1. Custody seals intact on sample bottles? No 🗌 Not Present Yes 🗸 2. Is Chain of Custody complete? 3 How was the sample delivered? Courier Log In NA 🗌 No 🗌 4. Was an attempt made to cool the samples? Yes 🗸 NA 🗆 No 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No 🗌 Yes 🗸 6. Sample(s) in proper container(s)? 7. Sufficient sample volume for indicated test(s)? Yes 🗸 8. Are samples (except VOA and ONG) properly preserved? Yes 🔽 NA 📖 9. Was preservative added to bottles? Yes 🗸 No 🗌 No VOA Vials 🗌 10. VOA vials have zero headspace? Yes \square No 🗸 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 for pH: Yes 🗸 12. Does paperwork match bottle labels? >12 Unless noted) (Note discrepancies on chain of custody) Adjusted? 425 Yes 🗸 No ∐ 13. Are matrices correctly identified on Chain of Custody? Yes 🗸 No 14. Is it clear what analyses were requested? 43 Yes 🗸 Checked by: No 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No 🗀 NA 🗹 16. Was client notified of all discrepancies with this order? Person Notified: Date eMail Phone Fax In Person By Whom: Via: Regarding: Client Instructions: 17. Additional remarks: For metals analysis: added IML HNO3 to -ool 6 FOT acceptable 18. Cooler Information Cooler No Temp °C | Condition | Seal Intact | Seal No | Seal Date Signed By 417@1150 1.3 Good Yes

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



Quarterly

4	HOLLYFRONTIER	C i
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Navajo kerinting company, LLC 501 E. Main Artesia, NM 88210 (Tel) 575.748.3311 (Fax) 575.746.5451	Temporary RO Reject Sample Details	HOLLYFRONTIER The HollyFrontier Companies
	San ple Type	Physical Property
Project Name Biannual RO Reject	Grab ☑	DiloS
Samplers Name Brady Hubbard	Time Weighted Composite	∑ Stiduid ⊆
ampiers Affiliation Navajo Refining Co. LLC	Flow Weighted Composite □	☐ Sludge ☐
int Date and Time 4/5/2016 @ 7:30 a.m.		
d Date and Time 4/5/2016 @ 8:00 a.m.	Parts / Sample Intervals One	Type of Sampler Directly to sample jars
uffalls, Sample Location: U North Field R.O. Reject Discarge	Discarge	enge

												_
	*Analysis and/or Wetnod Requested	pH, Cl, F, S04, NO2/NO3, TDS	8015 GRO	6020 total metals, 7470 Hg	6020 Dissolved Metals	Cyanide	Radium 226/228	3260 see attached list	8270 see attached list	8082 PCBs	8015 DRO	Radium 226/228
	oa lotter											
	azszeski inalisozi											
Preservative	Od Naglet N					×						
	SGE CONT	×		×	×		×					
-	leate Present	×	×					×	×	×	×	×
	Gontainers (N	2	က	-	-	2	8	2	_	2	2	2
	Material	Plastic	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA
	ezis	500ml	40ml	500ml	125ml	500ml	_	40ml	7	Ĺ	40ml	40ml
	Container		25	3	4	9	9	24.	8	34 × 6	10	11

Storage Method	Remogerated	Shipping Media	See See
Eleja Data (Weather Observations: Etc) 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear	ွ		



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

June 13, 2016

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 12, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

anded

4901 Hawkins NE

Albuquerque, NM 87109



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com **Case Narrative**

WO#: **1604184**Date: **6/13/2016**

CLIENT: Navajo Refining Company
Project: Quarterly R.O. Reject

Analytical Notes Regarding EPA Method 8015 DRO/MRO:

The results for EPA Method 8015 DRO/MRO are being reported as past the holding time due to a laboratory error.

Date Reported: 6/13/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly R.O. Reject
 Collection Date: 4/5/2016 8:15:00 AM

 Lab ID:
 1604184-001
 Matrix: AQUEOUS
 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S							Analyst: SCC	
Aroclor 1016	ND	0.28	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	0.70	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	0.76	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	0.20	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	0.57	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	0.97	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	0.24	1.0		μg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	0	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	0	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RAI	NGE						Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0	Н	mg/L	1	5/27/2016 3:55:42 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0	5.0	Н	mg/L	1	5/27/2016 3:55:42 PM	24652
Surr: DNOP	94.1	0	70-141	Н	%Rec	1	5/27/2016 3:55:42 PM	24652
EPA METHOD 8015D: GASOLINE RA	ANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS							Analyst: SCC	
Naphthalene	ND	1.1	2.0		μg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	1.1	2.0		μg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	1.1	2.0		μg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.018	0.070		μg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	0	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	4.7	0.45	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	2.7	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	0.83	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.042	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	6.4	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
EPA METHOD 200.7: DISSOLVED MI	ETALS						Analyst: ELS	
Aluminum	ND	0.0038	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0013	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.0011	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.00075	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0018	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 2 of 22

Date Reported: 6/13/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly R.O. Reject
 Collection Date: 4/5/2016 8:15:00 AM

 Lab ID:
 1604184-001
 Matrix: AQUEOUS
 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED MET	ΓALS						Analyst: ELS	
Cobalt	0.0022	0.00074	0.0060	J	mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0040	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.0091	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	0.0014	0.00032	0.0020	J	mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	0.0068	0.0019	0.0080	J	mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.0024	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0028	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.0028	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0027	0.00069	0.0050	J	mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.00036	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	0.011	0.0042	0.020	J	mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.00026	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	0.089	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	0.11	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	0.32	0.053	1.0	J	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	0.11	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	0.11	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	0.089	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	0.11	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	0.076	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Methylene Chloride	ND	0.063	3.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	0.11	2.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	0.15	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	0.063	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	0.077	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	0.18	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	0.063	1.0		μg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	0.32	1.5		μg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 3 of 22

Analytical ReportLab Order **1604184**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly R.O. Reject
 Collection Date: 4/5/2016 8:15:00 AM

 Lab ID:
 1604184-001
 Matrix: AQUEOUS
 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		μg/L	1	4/21/2016	24923
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB	
Cyanide	ND	0.0100	0.0100		mg/L	1	4/13/2016	R34156
EPA 903.1: RA 226 AND EPA 904.0: RA 2	28-SUBBE	כ					Analyst: SUB	
Radium-226	1.02	0.578	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803	0.803		pCi/L	1	4/29/2016	R34156
SM4500-H+B: PH							Analyst: MRA	
рН	8.17	0.100	1.68	Н	pH units	1	4/9/2016 2:23:07 AM	R33424
SM2540C MOD: TOTAL DISSOLVED SOI	LIDS						Analyst: KS	
Total Dissolved Solids	5190	10.5	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656

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

Qualifiers:

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

Page 4 of 22

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Quarterly R.O. Reject Collection Date:

Lab ID: 1604184-002 **Matrix:** TRIP BLANK **Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANG	SE .						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	0	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	0.089	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	0.11	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	0.33	0.053	1.0	J	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	0.11	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	0.11	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	0.089	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	0.11	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	0.076	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	0.063	3.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	0.11	2.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	0.15	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	0.063	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	0.077	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	0.18	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	0.063	1.0		μg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	0.32	1.5		μg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

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

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

SampType: I CC

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A33606 RunNo: 33606 Prep Date: Analysis Date: 4/18/2016 SeqNo: 1034060 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND Iron 0.020 Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 0.010 Zinc ND

Sample ID LCS-A	Samp	SampType: LCS		Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: LCSW	Bato	ch ID: A3	3606	F	RunNo: 3	3606				
Prep Date:	Analysis	Date: 4/	18/2016	8	SeqNo: 1	034061	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID LLLCS-A	SampType: LCSLL			Test	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: A33606			RunNo: 33606						
Prep Date:	Analysis Dat	ite: 4/1	8/2016	S	eqNo: 1	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.010	0.020	0.01000	0	100	50	150			J
Barium	0.0019 0	0.0020	0.002000	0	94.5	50	150			J

Qualifiers:

Sample ID I CC A

- * 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

TostCodo: EDA Mathad 200 7: Discolved Matala

- E Value above quantitation range
- J Analyte detected below quantitation limits
- Page 6 of 22

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID LLLCS-A	Samp	Type: LC	SLL	Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: A33606			R	RunNo: 3					
Prep Date:	Analysis	Date: 4/	18/2016	S	SeqNo: 1	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.038	0.040	0.04000	0	94.9	50	150			J
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	0.0056	0.0060	0.006000	0	92.7	50	150			J
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	0.020	0.020	0.02000	0	98.6	50	150			J
Manganese	0.0018	0.0020	0.002000	0	90.5	50	150			J
Molybdenum	0.0079	0.0080	0.008000	0	99.0	50	150			J
Nickel	0.0043	0.010	0.005000	0	86.2	50	150			J
Silver	0.0046	0.0050	0.005000	0	92.6	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Qualifiers:

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

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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1604184

13-Jun-16

Project:	Qua	rterly R.O. Reject								
Sample ID	LCS	SampType: LC :	s	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Batch ID: A33	3644	R	RunNo: 3	3644				
Prep Date:		Analysis Date: 4/1	19/2016	S	SeqNo: 10	036133	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.023 0.0010	0.02500	0	93.5	85	115			
Lead		0.011 0.00050	0.01250	0	91.9	85	115			
Uranium		0.011 0.00050	0.01250	0	91.8	85	115			
Sample ID	LCSLL	SampType: LC:	SLL	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	BatchQC	Batch ID: A33	Batch ID: A33644			RunNo: 33644				
Prep Date:		Analysis Date: 4/1	19/2016	S	SeqNo: 10	036134	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	102	50	150			
Lead		0.00052 0.00050	0.0005000	0	105	50	150			
Uranium		0.00050 0.00050	0.0005000	0	99.1	50	150			J
Sample ID	МВ	SampType: MB	LK	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	PBW	Batch ID: A33	3644	R	RunNo: 3	3644				
Prep Date:		Analysis Date: 4/1	19/2016	S	SeqNo: 10	036136	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								
Uranium		ND 0.00050								
Sample ID	LCS	SampType: LC:	S	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Batch ID: A33	Batch ID: A33677			RunNo: 33677				
Prep Date:		Analysis Date: 4/2	20/2016	S	SeqNo: 10	037321	Units: mg/L			

Qualifiers:

Analyte

Client ID:

Prep Date:

Analyte

Selenium

Sample ID LLLCS

BatchQC

Selenium

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded

PQL

0.0010

SampType: LCSLL

Analysis Date: 4/20/2016

Batch ID: A33677

PQL

0.0010

Result

0.024

Result

0.0011

SPK value SPK Ref Val

0.02500

0.001000

- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range

%REC

RunNo: 33677

106

SPK value SPK Ref Val %REC LowLimit

0

SeqNo: 1037322

LowLimit

TestCode: EPA 200.8: Dissolved Metals

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

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HighLimit

Units: mg/L

HighLimit

150

115

%RPD

%RPD

RPDLimit

RPDLimit

Qual

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037323 Units: mg/L

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

Selenium 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-24817 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032804 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

ND 0.00020 Mercury

Sample ID LCS-24817 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032805 Units: mg/L

SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result PQL Qual

Mercury 0.0052 0.00020 0.005000 0 105 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client:	Navajo Refining Company		
Project:	Quarterly R.O. Reject		
Sample ID MB	SampType: MBLK	TestCode: EPA Method 3	800.0: Anions
Client ID: PBW	Batch ID: R33368	RunNo: 33368	
Prep Date:	Analysis Date: 4/6/2016	SeqNo: 1025773	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual
Nitrogen, Nitrite (As N) Nitrogen, Nitrate (As N			
Sample ID LCS	SampType: LCS	TestCode: EPA Method 3	00.0: Anions
Client ID: LCSV	N Batch ID: R33368	RunNo: 33368	
Prep Date:	Analysis Date: 4/6/2016	SeqNo: 1025774	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual
Nitrogen, Nitrite (As N)	0.98 0.10 1.000	0 98.5 90	110
Nitrogen, Nitrate (As N	l) 2.5 0.10 2.500	0 102 90	110
Sample ID MB	SampType: MBLK	TestCode: EPA Method 3	00.0: Anions
Client ID: PBW	Batch ID: R33628	RunNo: 33628	
Prep Date:	Analysis Date: 4/18/2016	SeqNo: 1035257	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		
Sulfate	ND 0.50		
Sample ID LCS	SampType: LCS	TestCode: EPA Method 3	00.0: Anions
Client ID: LCSV	N Batch ID: R33628	RunNo: 33628	
Prep Date:	Analysis Date: 4/18/2016	SeqNo: 1035258	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual
Fluoride	0.54 0.10 0.5000	0 109 90	110

0

96.7

98.3

90

90

110

110

Qualifiers:

Chloride

Sulfate

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

4.8

9.8

0.50

0.50

5.000

10.00

- 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

Reporting Detection Limit

- J Analyte detected below quantitation limits
- D C 1 HN 1 D
- P Sample pH Not In Range

RL

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-24682 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027492 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-24682 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027494 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 0 116 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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Client:

Project:

Diesel Range Organics (DRO)

Surr: DNOP

Hall Environmental Analysis Laboratory, Inc.

5.6

0.53

1.0

5.000

0.5000

Navajo Refining Company

Quarterly R.O. Reject

WO#: 1604184

13-Jun-16

Sample ID MB-24652	SampT	ype: ME	BLK	Tes	Code: El	PA Method	8015M/D: Die	sel Range	9	
Client ID: PBW	Batch	n ID: 24	652	R	RunNo: 3	3385				
Prep Date: 4/6/2016	Analysis D	ate: 4/	8/2016	S	SeqNo: 1	026445	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	70	141			
Sample ID LCS-24652	SampT	ype: LC	s	Tes	Code: E	PA Method	8015M/D: Die	sel Range	9	
Client ID: LCSW	Batch	n ID: 24	652	R	RunNo: 3	3385				
Prep Date: 4/6/2016	Analysis D	ate: 4/	8/2016	S	SeqNo: 1	026634	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sample ID LCS-25494	SampType	: LCS	Test	Code: El	9				
Client ID: LCSW	Batch ID	25494	R	unNo: 3	4489				
Prep Date: 5/25/2016	Analysis Date	5/26/2016	S	eqNo: 1	064130	Units: %Red	;		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.50	0.5000		101	70	141			

0

112

107

71.3

70

139

141

Qualifiers:

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

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Reporting Detection Limit RL

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027408 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 20.00 86.6 49.5 17 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R33412 RunNo: 33412

19

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027409 Units: mg/L

20.00

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.46 0.050 0.5000 92.9 80 120

96.6

49.5

130

Qualifiers:

Surr: BFB

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

5.2

5.2

WO#: **1604184**

S

S

13-Jun-16

Client:	Navajo Refining Company
Project:	Quarterly R.O. Reject

Sample ID MB-24708	SampType: M	BLK	Tes	tCode: EF	PA Method	8082: PCB's			
Client ID: PBW	Batch ID: 24	4708	R	RunNo: 33	3583				
Prep Date: 4/11/2016	Analysis Date: 4	/18/2016	S	SeqNo: 10	034347	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	2.5	2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3	2.500		93.2	15	123			
Sample ID LCS-24708	SampType: L	cs	Tes	tCode: EF	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 2	4708	R	RunNo: 33	3583				
Prep Date: 4/11/2016	Analysis Date: 4	/18/2016	S	SeqNo: 10	034348	Units: µg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5 1.0	5.000	0	130	15	131			
Aroclor 1260	9.4 1.0	5.000	0	189	15	162			S

Sample ID LCSD-24708	SampT	SampType: LCSD		Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	n ID: 24	708	F	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis D	oate: 4/	18/2016	5	SeqNo: 1	034349	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0	

208

208

26.1

15

140

123

2.500

2.500

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1D: R3	3550	F	RunNo: 3	3550				
Prep Date:	Analysis D	ate: 4/	14/2016	8	SeqNo: 1	032303	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	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batcl	n ID: R3	3550	F	RunNo: 3	3550				
Prep Date:	Analysis D	oate: 4/	14/2016	9	SeqNo: 1	032305	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.33	1.0								J
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	0.79	3.0								J
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

Sample ID rb

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-24709	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batcl	n ID: 24	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis D	Date: 4/	19/2016	5	SeqNo: 1	034469	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID LCS-24709	Samp1	ype: LC	S	TestCode: EPA Method 8310: PAHs						
Client ID: LCSW	Batcl	n ID: 24	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis D	oate: 4/	19/2016	S	SeqNo: 1	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID LCS-24709	•	SampType: LCS Batch ID: 24709					8310: PAHs			
Client ID: LCSW					tunNo: 3					
Prep Date: 4/11/2016	Analysis D	oate: 4/	19/2016	8	seqNo: 1	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID LCSD-24709	Samp	SampType: LCSD TestCode: EPA Method 8310: PAHs								
Client ID: LCSS02	Batc	h ID: 24 7	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis [Date: 4/	19/2016	S	SeqNo: 1	034484	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	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
- W Sample container temperature is out of limit as specified

Page 18 of 22

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-24923 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 24923 RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037376 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-24923 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 24923 Client ID: LCSW RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037377 Units: µg/L

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

Phenolics, Total Recoverable 18 2.5 20.00 0 89.0 64.4 135

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 19 of 22

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

13-Jun-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-R34156 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R34156 RunNo: 34156

Prep Date: Analysis Date: 4/13/2016 SeqNo: 1053134 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R34156 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R34156 RunNo: 34156

Prep Date: Analysis Date: 4/13/2016 SeqNo: 1053135 Units: mg/L

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

Cyanide 0.507 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

W Sample container temperature is out of limit as specified

Page 20 of 22

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-R34156 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R34156 RunNo: 34156 SeqNo: 1053137 Prep Date: Analysis Date: 4/29/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 -2.01 0.933 Radium-226 ± 0.459 0.933 Radium-228 0.321 0.795 Radium-228 ± 0.376 0.795

Qualifiers:

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

Analyte detected in the associated Method Blank

Page 21 of 22

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-24656 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025974 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-24656 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025975 Units: mg/L

PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result Qual

Total Dissolved Solids 1040 20.0 1000 0 104 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 22 of 22

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name:	NAVAJO REFINING CO	Work Order Number:	1604184		RcptNo: 1	
Received by/da	ate:	04/06/14	2_			-
Logged By:	Ashley Gallegos	/ / / 4/6/2016 9:40:00 AM		A		
Completed By:	Ashley £ allegos	4/6/2016 12:24:03 PM		A		
Reviewed By:	AN Q	04/06/16		V		
Chain of Cu	stody	01/07/				
	eals intact on sample bottles?		Yes 🗌	No 🗌	Not Present 🗸	
	Custody complete?		Yes 🗹	No 🗌	Not Present	
3. How was th	ne sample delivered?		Courier			
Log In						
	tempt made to cool the sample	s?	Yes 🗹	No 🗆	na 🗆	
5. Were all sa	amples received at a temperatu	re of >0° C to 6.0°C	Yes 🗹	No 🗌	na 🗆	
6. Sample(s)	in proper container(s)?		Yes 🗹	No 🗌		
7. Sufficient s	sample volume for indicated tes	st(s)?	Yes 🗸	No 🗌		
	es (except VOA and ONG) prop		Yes 🗸	No 🗆		
9. Was prese	rvative added to bottles?		Yes \square	No 🗹	NA 🗆	
10.VOA vials	have zero headspace?		Yes 🗹	No 🗆	No VOA Vials	
	sample containers received bro	oken?	Yes	No 🗹		- -
•	·				# of preserved bottles checked	Ĭ.
	rwork match bottle labels? repancies on chain of custody)		Yes 🗸	No LI	for pH: (£2)or	(12)unless noted)
•	es correctly identified on Chain	of Custody?	Yes 🗸	No 🗆	Adjusted?	NO
	vhat analyses were requested?		Yes 🗹	No 🗆		
15. Were all he	olding times able to be met? fy customer for authorization.)		Yes 🗹	No 🗆	Checked by:	<u>aus</u>
(II IIO, IIOtii	y customer for authorization.					
Special Han	dling (if applicable)					
16. Was client	notified of all discrepancies wi	th this order?	Yes 🗌	No 🗆	NA 🗹	_
By V Rega	on Notified: Vhom: arding: nt Instructions:	Date Via:	eMail	Phone Fax	☐ In Person	
17. Additional	remarks:				-	
18. <u>Cooler In</u> Cooler	No Temp °C Condition	Seal Intact Seal No Yes	Seal Date	Signed By		

Air Bubbles (Y or N) > × 804:1:EDB **ANALYSIS LABORATORY** HALL ENVIRONMENTAL Hd × Total Dissolved Solids × 4901 Hawkins NE - Albuquerque, NM 87109 Aitrate/Nitrite × Fax 505-345-4107 Fluoride **F** × www.hallenvironmental.com × Analysis Request Phenols Surfate Chloride \times × Radioactivity (Ra-226+Ra-228) × 8082: PCBs × × GRO, DRO, ORO :9108 Tel. 505-345-3975 Mercury :0747 × 335.4: Total Cyanide × × 9010B: MGCC Metals × 8270C: WQCC list SVOCs 8260B:WQCC List VOCs × 2 **Brady Hubbard** Preservative □ Rush Na2S203 Project #: P.O. # 167796 Type Sample Temperature: 1-250mlGlastunpres 1-unpres H2SO4 2 - 1L Glass Junpres 1 - 1L Glass unpres Quarterly R.O. Reject HN03 NaOH HN03 HN03 X Yes 3-40ml VOA |HCI 3-40ml VOA HCL Turn-Around Time Project Manager: Robert Combs 3-40ml VOA Project Name: Type and # X Standard 2 - 500ml P Container 1-500ml P 1-125ml P 1-500ml P 2-1LP Sampler: On Ice ☐ Level 4 (Full Vaidation) Sample Request ID Chain-of-Custody Record R.O. Reject iling Address: P.O. Box 159 Artesia lail or Fax#: 575-746-5451 Matrix ent: Navajo Refinery one #: 575-748-3311 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid liguid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 A 88211-0159 /QC Package: Time EDD (Type) Standard 4/5/16 Other 1/2/16 4/5/16 4/5/16 4/5/16 /5/16 /5/16 /5/16 /5/16 /5/16 /2/16 Jate

At this Asserbility. Any sub-contracted data will be clearly notated on the analytical report.

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnàphthalene, naphthalene

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-

Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform;

Time

me

Date

1 - 1L Glass |H2SO4

R.O. Reject

8:15 | liquid

4/5/16

4/5/16

ate:

8:15 liquid

Trip Blank

2-40ml VOA

Réceived by:

Relinquished by Figable 20 Sterry

Perabeth Labra

7:00

Relinquished by:

Time:

ate:

Received by

Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride



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

Quarterly RO Reject Sample Details Attachment

#HOLLYFRONTI	The HollyFrontier Companies
 	

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9	Grab	osite	osite	
- Pie))	Comp	Comp	
0.00		hted	hted	
93 V. 36		Wei	/ Weig	
		Time	Flow	

Parts / Sample Intervals One

cal Property		7	
Physic	Solid	Liquid	Sludge

Type of Sampler Directly to sample jars

☐ North Field R.O. Reject Discarge	Land to the second seco
□ North Field R.O	The second secon
Outfall / Sample Location	

Samplers Affiliation Navajo Refining Co. LLC Start Date and Time 4/5/2016 @ 8:05 a.m. End Date and Time 4/5/2016 @ 8:30 a.m.

Project Name Biannual RO Reject Samplers Name Brady Hubbard South Field R.O. Reject Discarge

	2	September 1	$\overline{}$	т	Т	_	_	Т	Т	Т	П			Т	٦
		Y Y	pH, CI, F, SU4, NOZ/NO3, LDS	8015 GRU	6020 total metals, 7470 Hg	6020 Dissolved Metals	Cyanide	Dadium 226/228	Cadium 220/220	8260 see attached list	8270 see attached list	8082 PCBs	8015 DRO	Color Color	Nadiulii 220/220
		Other								.					
		NaHSO4							ļ		<u> </u>				
	atīves 🛌	I- Ma25203												1	
	in Phesent	RSO4 NEOF					>	<							
		NOSE HAS	×	-	×	×			×				-		
				×						×					×
		# nt Neat. ontainers (None)	×			_					×	{ _{>} -	<	×	_
		* # off	2	3	\- -		- 0	7	ო	2	-	- -	7	2	2
		Material	Plastic	VOA	Plastic	Disatio	Once I	Plastic	Plastic	VOA	Sac	Scho	Glass	VOA	VOA
		Size	ລັ	40ml	Ĺ	1		500ml	1	4			1L	40ml	40ml
		ontainer		6					9	1		0 40		< 10	¥

Storage Method (ce <	Officer	Shipping Media	Other 🗆
Field Data Weather Observations Etc). 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear Date and Time:	Field Temp. 23.6C Field pH 7.05		

Combs, Robert

From: Chavez, Carl J, EMNRD < CarlJ.Chavez@state.nm.us>

Sent: Wednesday, May 18, 2016 12:35 PM **To:** Combs, Robert; Griswold, Jim, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Marks, Allison,

EMNRD; Brancard, Bill, EMNRD

Subject: RE: April RO Reject Monthly Report

Follow Up Flag: Follow up Flag Status: Flagged

Robert:

Good afternoon.

The New Mexico Oil Conservation Division observes environmental water quality detections of Diesel Range Organics-DRO and notices the Detection Limits used for GRO and MRO appear to be too high.

The detection of DROs in the RO Effluent appears to be new and may be associated with recent HollyFrontier Wastewater treatment activities at the facility? **OCD hereby requires** immediate resampling and environmental analysis of RO Reject Water from the Permanent RO and Temporary RO Units for Method 8015 (GRO/DRO/MRO) and Method 8260 <u>Full</u> <u>Scan</u> to identify the specific DROs detected in the above subject report with environmental analyses.

Please submit the analytical data with full QA/QC to OCD within the next 30-days with a summary explanation of any explanations for the recent detections in the RO effluent discharged to the farm fields. Please contact me if you have questions.

Thank you.

Carl J. Chavez, CHMM Environmental Engineer Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Phone: (505) 476-3490 Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u>
Website: www.emnrd.state.nm.us/ocd

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see

how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]

Sent: Thursday, May 12, 2016 4:11 PM

To: Chavez, Carl J, EMNRD <Carl J. Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>

Cc: McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott

<<u>Scott.Denton@HollyFrontier.com</u>>; Marks, Allison, EMNRD <<u>AllisonR.Marks@state.nm.us</u>>; Brancard, Bill, EMNRD

dill.brancard@state.nm.us>

Subject: April RO Reject Monthly Report

Jim & Carl,

Attached is the monthly report for the month of April concerning the RO Reject, as required by the GW-028 condition 4.B.7. This report will be mailed today.

Please let me know if you have any questions.

Thanks, Robert

Robert Combs

Environmental Specialist The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 office: 575-746-5382

cell: 575-308-2718 fax: 575-746-5451

Robert.Combs@hollyfrontier.com

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Combs, Robert

From: Andy Freeman <andy@hallenvironmental.com>

Sent: Thursday, May 26, 2016 9:53 AM

To: Combs, Robert

Subject: Updated DRO values for RO Reject and Temporary RO Reject collected 4/5/2016

Hi Robert.

I would like to inform you about an error that happened at Hall Environmental in regards to the DRO results for the RO Reject and the Temporary RO Reject samples collected on 4/5/2016.

At your request, on the week of 5/16, we reviewed the DRO results for both the Temporary RO Reject and the RO Reject samples collected on 4/5/2016. The laboratory data was correct as reported according to the chromatograms that we had on file, however the results were not consistent with past results. We located the samples and reextracted and reanalyzed the water samples, past the holding time. The new results for both the Temporary RO Reject and the RO Reject samples were different than the original results reported. The new results for both samples were nondetect. We reviewed the original 8015 DRO batch run and we believe that our analyst made an error in the placement of your samples on the autosampler and two different samples were analyzed in place of your samples. We reviewed the results and the chromatograms for the 8260 samples and the 8310 samples and the new nondetect results are in line with the new nondetect results for these two DRO samples. We will be reissuing both the Temporary RO Reject report and the RO Reject reports, collected on 4/5, to reflect the nondetect results. These updated results will be flagged as being out of holding time and out of temperature. We received new RO Reject and Temporary RO Reject samples on 5/20 and both of the DRO results were nondetect for these samples.

Hall Environmental would like to apologize for this error. It is rare for this type of error to occur and we take great pride in our work. We have reviewed this error with the analyst and the entire semivolatiles section and ways to prevent this from happening in the future.

Please let me know if you have any questions.

Thank you,

Andy Freeman
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
505-345-3975
505-345-4107 fax
www.hallenvironmental.com
andy@hallenvironmental.com

Hall Environmental is going paperless! Beginning February 1st, 2014, paper copies of final reports and invoices will no longer be mailed. All final reports and invoices will be sent directly to the e-mail(s) specified on the chain(s) and will also be posted to our web portal.

To sign up for access to our web portal, go to our website, www.hallenvironmental.com, and click on the "ClientLogin" tab. From this screen, click on the "Sign up" tab and follow the instructions to set up a username and password. Feel free to contact us at any time at 505-345-3975 if you require paper copies or have any other questions.

We welcome your feedback. Please visit the survey site below to complete a brief survey on your experience with Hall Environmental.

https://www.surveymonkey.com/r/NGVXRBV

Attachment 3 Analytical Lab Report (May 2016)



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

May 27, 2016

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.: 1605957

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/20/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 5/19/2016 9:30:00 AMLab ID:1605957-001Matrix: AQUEOUSReceived Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	5/23/2016 7:19:12 PM	25433
EPA METHOD 8082: PCB'S							Analyst: SCC	
Aroclor 1016	ND	0.28	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1221	ND	0.70	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1232	ND	0.76	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1242	ND	0.20	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1248	ND	0.57	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1254	ND	0.97	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1260	ND	0.24	1.0		μg/L	1	5/26/2016 1:01:11 PM	25436
Surr: Decachlorobiphenyl	50.8	0	26.1-140		%Rec	1	5/26/2016 1:01:11 PM	25436
Surr: Tetrachloro-m-xylene	53.2	0	15-123		%Rec	1	5/26/2016 1:01:11 PM	25436
EPA METHOD 8015D: DIESEL RANG	SE						Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.20	0.20		mg/L	1	5/23/2016 10:32:02 AM	25440
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	5/23/2016 10:32:02 AM	25440
Surr: DNOP	116	0	63.2-161		%Rec	1	5/23/2016 10:32:02 AM	25440
EPA METHOD 8015D: GASOLINE RA	ANGE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 11:54:29 AM	A34422
Surr: BFB	89.9	0	66.4-120		%Rec	1	5/23/2016 11:54:29 AM	A34422
EPA METHOD 8310: PAHS							Analyst: SCC	
Naphthalene	ND	1.1	2.0		μg/L	1	5/24/2016 3:56:19 PM	25416
1-Methylnaphthalene	ND	1.1	2.0		μg/L	1	5/24/2016 3:56:19 PM	25416
2-Methylnaphthalene	ND	1.1	2.0		μg/L	1	5/24/2016 3:56:19 PM	25416
Benzo(a)pyrene	ND	0.018	0.070		μg/L	1	5/24/2016 3:56:19 PM	25416
Surr: Benzo(e)pyrene	70.2	0	20-153		%Rec	1	5/24/2016 3:56:19 PM	25416
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	2.5	0.023	0.10		mg/L	1	5/24/2016 8:25:09 PM	R34457
Chloride	36	1.4	25		mg/L	50	5/24/2016 8:37:33 PM	R34457
Sulfate	990	3.2	25		mg/L	50	5/24/2016 8:37:33 PM	R34457
Nitrate+Nitrite as N	1.3	0.42	1.0		mg/L	5	5/24/2016 8:49:59 PM	R34457
EPA METHOD 200.7: DISSOLVED M	ETALS						Analyst: ELS	
Aluminum	ND	0.0038	0.020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Barium	0.040	0.0013	0.0020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Boron	0.060	0.0011	0.040		mg/L	1	5/23/2016 11:58:08 AM	A34409
Cadmium	ND	0.00075	0.0020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Chromium	ND	0.0018	0.0060		mg/L	1	5/23/2016 11:58:08 AM	A34409
Cobalt	0.0029	0.00074	0.0060	J	mg/L	1	5/23/2016 11:58:08 AM	A34409

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 1 of 18

Analyst: SCC

Received Date: 5/20/2016 9:50:00 AM

Hall Environmental Analysis Laboratory, Inc.

Lab ID:

1605957-001

Date Reported: 5/27/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 5/19/2016 9:30:00 AM

Matrix: AQUEOUS

Result **PQL** Qual Units DF **Date Analyzed Batch ID Analyses MDL EPA METHOD 200.7: DISSOLVED METALS** Analyst: ELS ND 0.0040 0.0060 mg/L 1 5/23/2016 11:58:08 AM A34409 Copper Iron ND 0.0091 0.020 mg/L 1 5/23/2016 11:58:08 AM A34409 0.00056 0.00032 Manganese 0.0020 J mg/L 1 5/23/2016 11:58:08 AM A34409 0.0019 Molybdenum 0.011 0.0080 mg/L 1 5/23/2016 11:58:08 AM A34409 Nickel ND 0.0024 mg/L 1 5/23/2016 11:58:08 AM A34409 0.010 Silver ND 0.0028 0.0050 mg/L 1 5/23/2016 11:58:08 AM A34409 Zinc 0.0056 0.0028 0.010 J mg/L 1 5/23/2016 11:58:08 AM A34409 **EPA 200.8: DISSOLVED METALS** Analyst: JLF Arsenic 0.0013 0.00014 0.0010 mg/L 1 5/20/2016 3:46:20 PM B34393 ND 0.00017 0.00050 mg/L 1 5/20/2016 3:46:20 PM Lead B34393 Selenium 0.0064 0.00021 0.0010 mg/L 1 5/20/2016 3:46:20 PM B34393 0.0030 Uranium 0.000051 0.00050 mg/L 1 5/20/2016 3:46:20 PM B34393 **EPA METHOD 245.1: MERCURY** Analyst: pmf ND 0.000053 0.00020 1 5/24/2016 10:55:01 AM mg/L 25455 **EPA METHOD 8260B: VOLATILES** Analyst: BCN 5/21/2016 7:30:00 AM Benzene ND 0.096 1.0 μg/L 1 C34390 ND 0.12 5/21/2016 7:30:00 AM Toluene 1.0 μg/L 1 C34390 Ethylbenzene ND 0.11 1.0 5/21/2016 7:30:00 AM C34390 μg/L 1 1,2-Dichloroethane (EDC) ND 0.12 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 1,2-Dibromoethane (EDB) ND 0.11 5/21/2016 7:30:00 AM C34390 1.0 μg/L 1 Carbon Tetrachloride ND 0.11 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 0.089 Chloroform ND 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 1,1-Dichloroethane ND 0.11 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 1,1-Dichloroethene ND 0.11 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 ND 3.0 Methylene Chloride 0.19 1 5/21/2016 7:30:00 AM C34390 μg/L 1,1,2,2-Tetrachloroethane ND 0.13 2.0 μg/L 1 5/21/2016 7:30:00 AM C34390 Tetrachloroethene (PCE) ND 0.15 1.0 5/21/2016 7:30:00 AM C34390 μg/L 1 1,1,1-Trichloroethane ND 0.091 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 ND 1,1,2-Trichloroethane 0.13 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 Trichloroethene (TCE) ND 0.18 1.0 μg/L 1 5/21/2016 7:30:00 AM C34390 ND 0.20 1 5/21/2016 7:30:00 AM C34390 Vinyl chloride 1.0 μg/L Xylenes, Total ND 0.37 1.5 μg/L 1 5/21/2016 7:30:00 AM C34390 Surr: 1,2-Dichloroethane-d4 83.7 0 70-130 %Rec 1 5/21/2016 7:30:00 AM C34390 Surr: 4-Bromofluorobenzene 101 0 70-130 %Rec 5/21/2016 7:30:00 AM C34390 1 Surr: Dibromofluoromethane 82.8 0 70-130 %Rec 1 5/21/2016 7:30:00 AM C34390 Surr: Toluene-d8 95.5 0 5/21/2016 7:30:00 AM C34390 70-130 %Rec 1

TOTAL PHENOLICS BY SW-846 9067

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank	
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	Page 2 of 18
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	1 4 5 2 01 10
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical ReportLab Order **1605957**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 5/19/2016 9:30:00 AM

Lab ID: 1605957-001 **Matrix:** AQUEOUS **Received Date:** 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		μg/L	1	5/27/2016	25543
SM4500-H+B: PH							Analyst: JRR	
pH	7.75	0.100	1.68	Н	pH units	1	5/23/2016 3:18:46 PM	R34435
SM2540C MOD: TOTAL DISSOLVED SOL	IDS						Analyst: KS	
Total Dissolved Solids	1890	10.5	20.0	*	mg/L	1	5/25/2016 3:53:00 PM	25475

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

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1605957-002 **Matrix:** TRIP BLANK **Received Date:** 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	5/23/2016 7:50:20 PM	25433
EPA METHOD 8015D: GASOLINE RANG	GE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 1:08:34 PM	A34422
Surr: BFB	91.1	0	66.4-120		%Rec	1	5/23/2016 1:08:34 PM	A34422
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Toluene	ND	0.12	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Chloroform	ND	0.089	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		μg/L	1	5/21/2016 7:54:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		μg/L	1	5/21/2016 7:54:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	83.4	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390
Surr: Dibromofluoromethane	83.2	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390
Surr: Toluene-d8	93.1	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390

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

Qualifiers:

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

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Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

160524029

Address:

4901 HAWKINS NE SUITE D

Project Name:

1605957

Sampling Time 9:30 AM

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Analytical Results Report

Sample Number

160524029-001

Sampling Date 5/19/2016

Date/Time Received 5/24/2016 12:45 PM

Client Sample ID

1605957-001J / TEMPORARY R.O. REJECT

Sample Location

Matrix Water

Comments

ParameterResultUnitsPQLAnalysis DateAnalystMethodQualifierCyanideNDmg/L0.015/27/2016MEREPA 335.4

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.

The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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

Friday, May 27, 2016 Page 1 of 1

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Batch #:

160524029

Address:

4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109 **Project Name:**

1605957

Attn:

ANDY FREEMAN

Analytical Results Report

Quality Control Data

Lab Control Sample		<u>-</u>								
Parameter	LCS Result	Units	LCS	Spike	%Rec	AR	%Rec	Prep	Date	Analysis Date
Cyanide	0.534	mg/L	0.	5	106.8	90	-110	5/27/	2016	5/27/2016
Matrix Spike		-								
Sample Number Parameter		Sample	_MS	11-2		MS	8/ D	AR	D D .	
160519034-025 Cyanide	,	Result ND	Result	Unit		Spike	%Rec	%Rec	Prep Date	
1000 19004-020 Cyanide		ND	0.510	mg/	L	0.5	102.0	90-110	5/27/2016	5/27/2016
Matrix Spike Duplicate									_	-
Davamatas	MSD		MSD	a. =	_		AR	_		
Parameter	Result	Units	Spike		gec .	%RPD	%RPC		p Date	Analysis Date
Cyanide	0.532	mg/L	0.5	10	6.4	4.2	0-20	5/2	7/2016	5/27/2016
Method Blank										
Parameter		Re	sult	Ü	nits		PQL	Pı	ep Date	Analysis Date
Cyanide		N	ID	m	ıg/L		0.01	5/2	7/2016	5/27/2016

 AR

Acceptable Range

ND

Not Detected

PQL RPD Practical Quantitation Limit Relative Percentage Difference

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A34409 RunNo: 34409 Prep Date: Analysis Date: 5/23/2016 SeqNo: 1060909 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-A	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	ls	
Client ID: LCSW	Bato	ch ID: A3	4409	R	RunNo: 3	4409				
Prep Date:	Analysis	Date: 5/	23/2016	S	SeqNo: 1	060910	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	106	85	115			
Barium	0.50	0.0020	0.5000	0	101	85	115			
Boron	0.52	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.50	0.0060	0.5000	0	100	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Molybdenum	0.53	0.0080	0.5000	0	105	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	101	85	115			

Sample ID LLLCS-A	SampType: Lo	CSLL	Tes	ls					
Client ID: BatchQC	Batch ID: A	34409	R	RunNo: 3	4409				
Prep Date:	Analysis Date: 5	/23/2016	S	SeqNo: 1	060911	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.0097 0.020	0.01000	0	96.7	50	150			J
Barium	0.0018 0.0020	0.002000	0	89.0	50	150			J

Qualifiers:

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

Page 5 of 18

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID LLLCS-A	Samp	SampType: LCSLL TestCode: EPA Me						ved Metal	ls	
Client ID: BatchQC	Bato	h ID: A3	4409	R	RunNo: 3	4409				
Prep Date:	Analysis Date: 5/23/2016			S	SeqNo: 1	060911	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.040	0.040	0.04000	0	100	50	150			
Cadmium	0.0017	0.0020	0.002000	0	87.0	50	150			J
Chromium	0.0058	0.0060	0.006000	0	96.3	50	150			J
Cobalt	0.0064	0.0060	0.006000	0	106	50	150			
Copper	0.0071	0.0060	0.006000	0	119	50	150			
Iron	0.023	0.020	0.02000	0	116	50	150			
Manganese	0.0021	0.0020	0.002000	0	103	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	0.0055	0.010	0.005000	0	110	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J
Zinc	0.0048	0.010	0.005000	0	95.4	50	150			J

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID LCS	Samp	SampType: LCS			tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID: LCSW	Bato	ch ID: B3	4393	F	RunNo: 3	4393				
Prep Date:	Analysis	Date: 5/	20/2016	8	SeqNo: 1	060562	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	98.5	85	115			
Lead	0.012	0.00050	0.01250	0	97.6	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			
Uranium	0.012	0.00050	0.01250	0	99.4	85	115			

Sample ID LLLCS	SampType: L0	CSLL	Tes	tCode: El	PA 200.8:	Dissolved Met	als		
Client ID: BatchQC	Batch ID: B3	34393	F	RunNo: 3	4393				
Prep Date:	Analysis Date: 5	/20/2016	8	SeqNo: 1	060563	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00099 0.0010	0.001000	0	98.8	50	150			J
Lead	0.00049 0.00050	0.0005000	0	97.8	50	150			J
Selenium	0.0010 0.0010	0.001000	0	99.6	50	150			J
Uranium	0.00049 0.00050	0.0005000	0	97.0	50	150			J

Sample ID MB	Samp	Гуре: МЕ	BLK	Tes	PA 200.8: I	Dissolved Me	tals			
Client ID: PBW	Bato	h ID: B3	4393	F	RunNo: 3	4393				
Prep Date:	Analysis [Date: 5/	20/2016	5	SeqNo: 1	060564	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

 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

W Sample container temperature is out of limit as specified

Page 7 of 18

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID MB-25455 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 25455 RunNo: 34451

Prep Date: 5/23/2016 Analysis Date: 5/24/2016 SeqNo: 1062360 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-25455 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 25455 RunNo: 34451

Prep Date: 5/23/2016 Analysis Date: 5/24/2016 SeqNo: 1062361 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 101 80 120

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 8 of 18

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions **PBW** Client ID: Batch ID: R34457 RunNo: 34457 Prep Date: Analysis Date: 5/24/2016 SeqNo: 1062706 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 Sulfate ND 0.50 ND Nitrate+Nitrite as N 0.20

Sample ID LCS	SampT	ype: LC	s	Tes	tCode: E	PA Method	300.0: Anion	s		
Client ID: LCSW	Batch	1D: R3	4457	F	RunNo: 3	4457				
Prep Date:	Analysis D	ate: 5/	24/2016	5	SeqNo: 1	062707	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.0	90	110			
Sulfate	9.8	0.50	10.00	0	97.7	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.5	90	110			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID MB-25433 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 25433 RunNo: 34423

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061420 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-25433 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 25433 RunNo: 34423

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061422 Units: µg/L

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Qual

1,2-Dibromoethane 0.12 0.010 0.1000 0 122 70 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: **1605957**

27-May-16

Project: Monthly Temporary R.O. Reject Sample ID LCS-25440 SampType: LCS TestCode: EPA Method 8015D: Diesel Range Client ID: LCSW Batch ID: 25440 RunNo: 34408 Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1060963 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 0.20 O 65.4 2.5 2.500 101 162 Surr: DNOP 97.5 0.24 0.2500 63.2 161 Sample ID MB-25440 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: PBW Batch ID: 25440 RunNo: 34408 Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1060964 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

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

 Diesel Range Organics (DRO)
 ND
 0.20

 Motor Oil Range Organics (MRO)
 ND
 2.5

 Surr: DNOP
 0.56
 0.5000
 111
 63.2
 161

 Sample ID 1605957-001AMS
 SampType: MS
 TestCode: EPA Method 8015D: Diesel Range

Temporary R.O. Rej Batch ID: 25440 RunNo: 34408 Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061172 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 2.8 0.20 2.500 110 73.3 174 Surr: DNOP 0.29 0.2500 115 63.2 161

TestCode: EPA Method 8015D: Diesel Range Sample ID 1605957-001AMSD SampType: MSD Client ID: Temporary R.O. Rej Batch ID: 25440 RunNo: 34408 Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061173 Units: mg/L SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte Result PQI HighLimit Qual Diesel Range Organics (DRO) 2.8 0.20 2.500 0 112 73.3 174 1.16 20 Surr: DNOP 0.27 0.2500 108 63.2 161 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

Page 11 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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: A34422 RunNo: 34422

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061336 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 19 20.00 94.8 66.4 120

Sample ID 2.5UG GRO LCSB SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: A34422 RunNo: 34422

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061337 Units: mg/L

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

 Gasoline Range Organics (GRO)
 0.50
 0.050
 0.5000
 0
 99.4
 80
 120

 Surr: BFB
 22
 20.00
 108
 66.4
 120

Sample ID 1605957-001BMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: Temporary R.O. Rej Batch ID: A34422 RunNo: 34422

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061342 Units: mg/L

SPK value SPK Ref Val %RPD **RPDLimit** Analyte Result PQL %REC LowLimit HighLimit Qual 0.50 0.050 0.5000 99.9 70 130

 Gasoline Range Organics (GRO)
 0.50
 0.050
 0.5000
 0
 99.9
 70
 130

 Surr: BFB
 20
 20.00
 102
 66.4
 120

Sample ID 1605957-001BMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: Temporary R.O. Rej Batch ID: A34422 RunNo: 34422

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061343 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.53 0.050 0.5000 105 70 130 5.26 20 Λ Surr: BFB 21 20.00 107 66.4 120 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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1

1605957 27-May-16

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

Sample ID MB-25436 SampType: MBLK TestCode: EPA Method 8082: PCB's Client ID: PBW Batch ID: 25436 RunNo: 34486 Prep Date: 5/23/2016 Analysis Date: 5/26/2016 SeqNo: 1063584 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 ND Aroclor 1232 1.0 Aroclor 1242 ND 1.0 Aroclor 1248 ND 1.0 Aroclor 1254 ND 1.0 Aroclor 1260 ND 1.0 26.1 2.500 81.2 140 Surr: Decachlorobiphenyl 2.0 Surr: Tetrachloro-m-xylene 3.0 2.500 119 15 123

Sample ID LCS-25436	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	Batch ID: 25436			RunNo: 3	4486				
Prep Date: 5/23/2016	Analysis D	ate: 5/	26/2016	8	SeqNo: 1	063585	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.8	1.0	5.000	0	75.4	15	131			
Aroclor 1260	3.8	1.0	5.000	0	75.9	15	162			
Surr: Decachlorobiphenyl	1.9		2.500		75.6	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		92.8	15	123			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1605957**

27-May-16

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

Sample ID 100ng LCS	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1D: C3	4390	F	RunNo: 3	4390				
Prep Date:	Analysis D	ate: 5/	20/2016	8	SeqNo: 1	060663	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.4	70	130			
Toluene	19	1.0	20.00	0	97.5	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	83.3	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		82.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	8.5		10.00		85.4	70	130			
Surr: Toluene-d8	9.6		10.00		95.8	70	130			

TestCode: EPA Method 8260B: VOLATILES

· '										
Client ID: PBW	Batch	ID: C3	4390	R	tunNo: 3	4390				
Prep Date:	Analysis D	ate: 5/	20/2016	S	SeqNo: 1	060664	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	8.5		10.00		84.6	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Qualifiers:

Sample ID rb2

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID MB-25416	SampT	SampType: MBLK			tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batcl	h ID: 25 4	416	F	RunNo: 3	4425				
Prep Date: 5/20/2016	Analysis D	Date: 5/	24/2016	5	SeqNo: 1	061459	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	14		20.00		69.0	20	153			

Samp	ype: LC	S	Tes	tCode: El					
Batc	n ID: 25 4	416	F	RunNo: 3	4425				
Analysis [Date: 5/	24/2016	S	SeqNo: 1	061630	Units: µg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
66	2.0	80.00	0	82.8	55.6	124			
65	2.0	80.20	0	80.8	55.3	124			
64	2.0	80.00	0	80.6	55.4	124			
66	2.5	80.20	0	82.9	60.2	119			
64	2.0	80.00	0	80.4	56	126			
6.2	0.80	8.020	0	77.8	51.6	129			
3.3	0.60	4.020	0	81.1	58.8	129			
3.3	0.60	4.020	0	82.3	59.9	121			
5.4	0.30	8.020	0	67.0	48	145			
6.6	0.30	8.020	0	81.7	56.2	130			
0.67	0.070	0.8020	0	83.5	50.4	142			
3.2	0.20	4.020	0	80.6	54.7	134			
0.82	0.10	1.002	0	81.8	61.8	120			
0.42	0.070	0.5000	0	84.0	55.9	134			
	Batcl Analysis D Result 66 65 64 66 64 6.2 3.3 3.3 5.4 6.6 0.67 3.2 0.82	Batch ID: 25/ Analysis Date: 5/ Result PQL 66 2.0 65 2.0 64 2.0 66 2.5 64 2.0 6.2 0.80 3.3 0.60 3.3 0.60 5.4 0.30 6.6 0.30 0.67 0.070 3.2 0.20 0.82 0.10	66 2.0 80.00 65 2.0 80.20 64 2.0 80.00 66 2.5 80.20 64 2.0 80.00 6.2 0.80 8.020 3.3 0.60 4.020 3.3 0.60 4.020 5.4 0.30 8.020 6.6 0.30 8.020 0.67 0.070 0.8020 3.2 0.20 4.020 0.82 0.10 1.002	Batch ID: 25416 F Analysis Date: 5/24/2016 SPK value SPK Ref Val Result PQL SPK value SPK Ref Val 66 2.0 80.00 0 64 2.0 80.00 0 64 2.5 80.20 0 64 2.0 80.00 0 6.2 0.80 8.020 0 3.3 0.60 4.020 0 3.3 0.60 4.020 0 5.4 0.30 8.020 0 6.6 0.30 8.020 0 0.67 0.070 0.8020 0 3.2 0.20 4.020 0 0.82 0.10 1.002 0	Batch ID: 25416 RunNo: 3 Analysis Date: 5/24/2016 SeqNo: 1 Result PQL SPK value SPK Ref Val %REC 66 2.0 80.00 0 82.8 65 2.0 80.20 0 80.8 64 2.0 80.00 0 82.9 64 2.0 80.00 0 82.9 64 2.0 80.00 0 80.4 6.2 0.80 8.020 0 77.8 3.3 0.60 4.020 0 81.1 3.3 0.60 4.020 0 82.3 5.4 0.30 8.020 0 67.0 6.6 0.30 8.020 0 81.7 0.67 0.070 0.8020 0 83.5 3.2 0.20 4.020 0 80.6 0.82 0.10 1.002 0 81.8	Batch ID: 25416 RunNo: 34425 Analysis Date: 5/24/2016 SeqNo: 1061630 Result PQL SPK value SPK Ref Val %REC LowLimit 66 2.0 80.00 0 82.8 55.6 65 2.0 80.20 0 80.8 55.3 64 2.0 80.00 0 82.9 60.2 64 2.0 80.00 0 82.9 60.2 64 2.0 80.00 0 82.9 60.2 64 2.0 80.00 0 82.9 60.2 64 2.0 80.00 0 81.4 56 6.2 0.80 8.020 0 77.8 51.6 3.3 0.60 4.020 0 81.1 58.8 3.3 0.60 4.020 0 82.3 59.9 5.4 0.30 8.020 0 67.0 48 6.6	Batch ID: 25416 RunNo: 34425 Analysis Date: 5/24/2016 SeqNo: 1061630 Units: μg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 66 2.0 80.00 0 82.8 55.6 124 65 2.0 80.20 0 80.8 55.3 124 64 2.0 80.00 0 82.9 60.2 119 64 2.0 80.00 0 82.9 60.2 119 64 2.0 80.00 0 80.4 56 126 6.2 0.80 8.020 0 77.8 51.6 129 3.3 0.60 4.020 0 81.1 58.8 129 3.3 0.60 4.020 0 82.3 59.9 121 5.4 0.30 8.020 0 67.0 48 145 6.6 0.30 8.020 0 81.7 <td>Batch ID: 25416 RunNo: 34425 Analysis Date: 5/24/2016 SeqNo: 1061630 Units: μg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 66 2.0 80.00 0 82.8 55.6 124 65 2.0 80.20 0 80.8 55.3 124 64 2.0 80.00 0 82.9 60.2 119 64 2.0 80.00 0 82.9 60.2 119 64 2.0 80.00 0 80.4 56 126 6.2 0.80 8.020 0 77.8 51.6 129 3.3 0.60 4.020 0 81.1 58.8 129 3.3 0.60 4.020 0 82.3 59.9 121 5.4 0.30 8.020 0 67.0 48 145 6.6 0.30 8.020</td> <td>Batch ID: 25416 RunNo: 34425 Analysis Date: 5/24/2016 SeqNo: 1061630 Units: µg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 66 2.0 80.00 0 82.8 55.6 124 65 2.0 80.20 0 80.8 55.3 124 64 2.0 80.00 0 80.6 55.4 124 66 2.5 80.20 0 82.9 60.2 119 64 2.0 80.00 0 80.4 56 126 6.2 0.80 8.020 0 77.8 51.6 129 3.3 0.60 4.020 0 81.1 58.8 129 3.3 0.60 4.020 0 82.3 59.9 121 5.4 0.30 8.020 0 81.7 56.2 <t< td=""></t<></td>	Batch ID: 25416 RunNo: 34425 Analysis Date: 5/24/2016 SeqNo: 1061630 Units: μg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 66 2.0 80.00 0 82.8 55.6 124 65 2.0 80.20 0 80.8 55.3 124 64 2.0 80.00 0 82.9 60.2 119 64 2.0 80.00 0 82.9 60.2 119 64 2.0 80.00 0 80.4 56 126 6.2 0.80 8.020 0 77.8 51.6 129 3.3 0.60 4.020 0 81.1 58.8 129 3.3 0.60 4.020 0 82.3 59.9 121 5.4 0.30 8.020 0 67.0 48 145 6.6 0.30 8.020	Batch ID: 25416 RunNo: 34425 Analysis Date: 5/24/2016 SeqNo: 1061630 Units: µg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 66 2.0 80.00 0 82.8 55.6 124 65 2.0 80.20 0 80.8 55.3 124 64 2.0 80.00 0 80.6 55.4 124 66 2.5 80.20 0 82.9 60.2 119 64 2.0 80.00 0 80.4 56 126 6.2 0.80 8.020 0 77.8 51.6 129 3.3 0.60 4.020 0 81.1 58.8 129 3.3 0.60 4.020 0 82.3 59.9 121 5.4 0.30 8.020 0 81.7 56.2 <t< td=""></t<>

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605957**

27-May-16

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

Sample ID LCS-25416	SampType: LCS TestCode: EPA Me						8310: PAHs			
Client ID: LCSW	Batch	n ID: 25 4	416	F	RunNo: 3	4425				
Prep Date: 5/20/2016	Analysis D	Date: 5/	24/2016	S	SeqNo: 1	061630	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.43	0.070	0.5020	0	85.7	51.3	137			
Dibenz(a,h)anthracene	0.84	0.12	1.002	0	83.8	57.8	134			
Benzo(g,h,i)perylene	0.85	0.12	1.000	0	85.0	57.2	134			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	58.2	137			
Surr: Benzo(e)pyrene	15		20.00	76.9 20			153			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID MB-25543 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 25543 RunNo: 34512

Prep Date: 5/27/2016 Analysis Date: 5/27/2016 SeqNo: 1064497 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-25543 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 25543 Client ID: LCSW RunNo: 34512

Prep Date: 5/27/2016 Analysis Date: 5/27/2016 SeqNo: 1064498 Units: µg/L

RPDLimit Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Analyte Qual

Phenolics, Total Recoverable 23 2.5 20.00 0 116 64.4 135

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В 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 container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID MB-25475 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 25475 RunNo: 34475

Prep Date: 5/24/2016 Analysis Date: 5/25/2016 SeqNo: 1063156 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-25475 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Batch ID: 25475 Client ID: LCSW RunNo: 34475

Prep Date: 5/24/2016 Analysis Date: 5/25/2016 SeqNo: 1063157 Units: mg/L

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Qual

Total Dissolved Solids 1010 20.0 1000 0 101 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 18 of 18

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1605957 RcptNo: 1 Received by/date: Logged By: 5/20/2016 9:50:00 AM Lindsay Mangin Completed By: Lindsay Mangin 5/20/2016 10:07:53 AM Reviewed By: Chain of Custody 1. Custody seals intact on sample bottles? Not Present ✓ 2. Is Chain of Custody complete? No 🗌 Yes V Not Present 3. How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? Yes V No 🗆 NA 🗌 Were all samples received at a temperature of >0° C to 6.0°C No 🗌 NA | 6. Sample(s) in proper container(s)? Yes V No . Sufficient sample volume for indicated test(s)? No 8. Are samples (except VOA and ONG) properly preserved? Yes V No 9. Was preservative added to bottles? Yes No V NA 10. VOA vials have zero headspace? Yes V No No VOA Vials 11. Were any sample containers received broken? Yes -No V # of preserved bottles checked 12. Does paperwork match bottle labels? Yes V No L for pH: (Note discrepancies on chain of custody) (<2 or >12 unless noted) 13. Are matrices correctly identified on Chain of Custody? No . Adjusted? 14. Is it clear what analyses were requested? ~ 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 V Person Notified: Date By Whom: 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 1.8 Good Yes

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



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

May 27, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly R.O. Reject OrderNo.: 1605958

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/20/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 5/19/2016 10:15:00 AM

 Lab ID:
 1605958-001
 Matrix: AQUEOUS
 Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	5/23/2016 8:05:54 PM	25433
EPA METHOD 8082: PCB'S							Analyst: SCC	
Aroclor 1016	ND	0.28	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1221	ND	0.70	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1232	ND	0.76	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1242	ND	0.20	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1248	ND	0.57	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1254	ND	0.97	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1260	ND	0.24	1.0		μg/L	1	5/26/2016 2:13:41 PM	25436
Surr: Decachlorobiphenyl	67.2	0	26.1-140		%Rec	1	5/26/2016 2:13:41 PM	25436
Surr: Tetrachloro-m-xylene	73.6	0	15-123		%Rec	1	5/26/2016 2:13:41 PM	25436
EPA METHOD 8015D: DIESEL RANGE	į						Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.20	0.20		mg/L	1	5/23/2016 10:53:32 AM	25440
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	5/23/2016 10:53:32 AM	25440
Surr: DNOP	119	0	63.2-161		%Rec	1	5/23/2016 10:53:32 AM	25440
EPA METHOD 8015D: GASOLINE RAN	IGE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 1:33:07 PM	A34422
Surr: BFB	89.1	0	66.4-120		%Rec	1	5/23/2016 1:33:07 PM	A34422
EPA METHOD 8310: PAHS							Analyst: SCC	
Naphthalene	ND	1.1	2.0		μg/L	1	5/24/2016 4:25:34 PM	25416
1-Methylnaphthalene	ND	1.1	2.0		μg/L	1	5/24/2016 4:25:34 PM	25416
2-Methylnaphthalene	ND	1.1	2.0		μg/L	1	5/24/2016 4:25:34 PM	25416
Benzo(a)pyrene	ND	0.018	0.070		μg/L	1	5/24/2016 4:25:34 PM	25416
Surr: Benzo(e)pyrene	73.0	0	20-153		%Rec	1	5/24/2016 4:25:34 PM	25416
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	1.9	0.023	0.10		mg/L	1	5/21/2016 4:05:35 AM	A34410
Chloride	190	0.55	10		mg/L	20	5/21/2016 4:42:49 AM	A34410
Nitrogen, Nitrate (As N)	1.2	0.042	0.10		mg/L	1	5/21/2016 4:05:35 AM	A34410
Sulfate	1000	3.2	25		mg/L	50	5/24/2016 10:29:18 PM	R34453
EPA METHOD 200.7: DISSOLVED MET	TALS						Analyst: ELS	
Aluminum	ND	0.0038	0.020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Barium	0.067	0.0013	0.0020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Boron	0.096	0.0011	0.040		mg/L	1	5/23/2016 11:59:58 AM	A34409
Cadmium	ND	0.00075	0.0020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Chromium	ND	0.0018	0.0060		mg/L	1	5/23/2016 11:59:58 AM	A34409
Cobalt	0.0031	0.00074	0.0060	J	mg/L	1	5/23/2016 11:59:58 AM	A34409

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 1 of 19

Analyst: SCC

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 5/19/2016 10:15:00 AM

 Lab ID:
 1605958-001
 Matrix: AQUEOUS
 Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED MET	ALS						Analyst: ELS	
Copper	ND	0.0040	0.0060		mg/L	1	5/23/2016 11:59:58 AM	A34409
Iron	0.033	0.0091	0.020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Manganese	0.0017	0.00032	0.0020	J	mg/L	1	5/23/2016 11:59:58 AM	A34409
Molybdenum	0.0060	0.0019	0.0080	J	mg/L	1	5/23/2016 11:59:58 AM	A34409
Nickel	ND	0.0024	0.010		mg/L	1	5/23/2016 11:59:58 AM	A34409
Silver	ND	0.0028	0.0050		mg/L	1	5/23/2016 11:59:58 AM	A34409
Zinc	0.023	0.0028	0.010		mg/L	1	5/23/2016 11:59:58 AM	A34409
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0016	0.00069	0.0050	J	mg/L	5	5/20/2016 4:01:39 PM	B34393
Lead	ND	0.00017	0.00050		mg/L	1	5/20/2016 3:58:35 PM	B34393
Selenium	0.0088	0.00021	0.0010		mg/L	1	5/20/2016 3:58:35 PM	B34393
Uranium	0.0054	0.000051	0.00050		mg/L	1	5/20/2016 3:58:35 PM	B34393
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	5/24/2016 10:57:02 AM	25455
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Toluene	ND	0.12	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Chloroform	ND	0.089	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		μg/L	1	5/21/2016 8:17:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		μg/L	1	5/21/2016 8:17:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	84.7	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390
Surr: Dibromofluoromethane	83.6	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390
Surr: Toluene-d8	94.7	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390

TOTAL PHENOLICS BY SW-846 9067

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank	
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	Page 2 of 19
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	1 450 2 01 17
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analytical ReportLab Order **1605958**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 5/19/2016 10:15:00 AM

 Lab ID:
 1605958-001
 Matrix: AQUEOUS
 Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		μg/L	1	5/27/2016	25543
SM4500-H+B: PH							Analyst: JRR	
рН	7.85	0.100	1.68	Н	pH units	1	5/23/2016 3:23:24 PM	R34435
SM2540C MOD: TOTAL DISSOLVED SOL	LIDS						Analyst: KS	
Total Dissolved Solids	2280	10.5	20.0	*	mg/L	1	5/25/2016 3:53:00 PM	25475

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

Qualifiers:

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

Page 3 of 19

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly R.O. Reject Collection Date:

Lab ID: 1605958-002 **Matrix:** TRIP BLANK **Received Date:** 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB							Analyst: JME	
1,2-Dibromoethane	ND	0.0033	0.010		μg/L	1	5/23/2016 8:52:29 PM	25433
EPA METHOD 8015D: GASOLINE RANG	GE						Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 1:57:51 PM	A34422
Surr: BFB	91.4	0	66.4-120		%Rec	1	5/23/2016 1:57:51 PM	A34422
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Toluene	ND	0.12	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Chloroform	ND	0.089	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		μg/L	1	5/21/2016 8:41:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		μg/L	1	5/21/2016 8:41:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	85.5	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390
Surr: 4-Bromofluorobenzene	99.4	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390
Surr: Dibromofluoromethane	84.3	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390
Surr: Toluene-d8	94.0	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390

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

Qualifiers:

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

Page 4 of 19

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: Address: HALL ENVIRONMENTAL ANALYSIS LAB

4901 HAWKINS NE SUITE D

ALBUQUERQUE, NM 87109

1605958-001J / R.O. REJECT

Attn:

ANDY FREEMAN

Batch #:

160524028

Project Name:

1605958

Analytical Results Report

Sample Number Client Sample ID 160524028-001

Sampling Date

5/19/2016

Date/Time Received 5/24/2016 12:45 PM

Sampling Time 10:15 AM

Matrix

Water

Sample Location

Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	5/27/2016	MER	EPA 335.4	

Authorized Signature

John Coddington, Lab Manager

MCL

EPA's Maximum Contaminant Level

ND

Not Detected

PQL

Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.

The results reported relate only to the samples indicated.

Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com 504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:

HALL ENVIRONMENTAL ANALYSIS LAB

Address:

4901 HAWKINS NE SUITE D

ALBUQUERQUE, NM 87109

Attn:

ANDY FREEMAN

Batch #:

160524028

Project Name:

1605958

Analytical Results Report
Quality Control Data

Lab Control Sample			•		-		···			
Parameter Cyanide	LCS Result 0.534	Unit mg/l	-	Spike			%Rec)-110 —	-	Date /2016	Analysis Date 5/27/2016
Matrix Spike		<u> </u>	-							
Sample Number Parameter 160519034-025 Cyanide		Sample Result ND	MS Result 0.510	Unit	-	MS Spike 0.5	%Rec 102.0	AR %Rec 90-110	Prep Date 5/27/2016	•
Matrix Spike Duplicate				· · ·						
Parameter Cyanide	MSD Result 0.532	Units mg/L	MSD Spike 0.5	%R 106		%RPD 4.2	AR %RPD 0-20		p Date 7/2016	Analysis Date 5/27/2016
Method Blank								<u></u>	<u> </u>	
Parameter Cyanide			sult ID		nits g/L		PQL 0.01		ep Date 7/2016	Analysis Date 5/27/2016

AR

Acceptable Range

ND

Not Detected

PQL RPD

Practical Quantitation Limit Relative Percentage Difference

Comments:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A34409 RunNo: 34409 Prep Date: Analysis Date: 5/23/2016 SeqNo: 1060909 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND Iron 0.020 Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 Zinc ND 0.010

Sample ID LCS-A	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: LCSW	Bato	h ID: A3	4409	F	RunNo: 3	4409				
Prep Date:	Analysis	Date: 5/	23/2016	S	SeqNo: 1	060910	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	106	85	115			
Barium	0.50	0.0020	0.5000	0	101	85	115			
Boron	0.52	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.50	0.0060	0.5000	0	100	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Molybdenum	0.53	0.0080	0.5000	0	105	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	101	85	115			

Sample ID LLLCS-A	SampType: L	CSLL	Tes	200.7: Disso	ved Meta	ls			
Client ID: BatchQC	Batch ID: A	ID: A34409 RunNo: 34409							
Prep Date:	Analysis Date: 5	/23/2016	S	SeqNo: 1	060911	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.0097 0.020	0.01000	0	96.7	50	150			J
Barium	0.0018 0.0020	0.002000	0	89.0	50	150			J

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
- Page 5 of 19

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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

Sample ID LLLCS-A	Samp	Туре: LC	SLL	Test	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Bato	h ID: A3	4409	RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016			S	SeqNo: 10	060911	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	0.040	0.040	0.04000	0	100	50	150				
Cadmium	0.0017	0.0020	0.002000	0	87.0	50	150			J	
Chromium	0.0058	0.0060	0.006000	0	96.3	50	150			J	
Cobalt	0.0064	0.0060	0.006000	0	106	50	150				
Copper	0.0071	0.0060	0.006000	0	119	50	150				
Iron	0.023	0.020	0.02000	0	116	50	150				
Manganese	0.0021	0.0020	0.002000	0	103	50	150				
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150				
Nickel	0.0055	0.010	0.005000	0	110	50	150			J	
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J	
Zinc	0.0048	0.010	0.005000	0	95.4	50	150			J	

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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: B34393			RunNo: 34393						
Prep Date:	Analysis Date	S	eqNo: 10	060562	Units: mg/L					
Analyte	Result F	PQL SP	K value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025 0.0	.0010 0	.02500	0	98.5	85	115			
Lead	0.012 0.00	00050 0	.01250	0	97.6	85	115			
Selenium	0.026 0.0	.0010 0	.02500	0	103	85	115			
Uranium	0.012 0.00	00050 0	.01250	0	99.4	85	115			

Sample ID LLLCS	SampType: LC	SampType: LCSLL TestCode: EPA 200.8: D							
Client ID: BatchQC	Batch ID: B3	4393	R	RunNo: 34393					
Prep Date:	Analysis Date: 5/	/20/2016	S	SeqNo: 1	060563	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00099 0.0010	0.001000	0	98.8	50	150			J
Lead	0.00049 0.00050	0.0005000	0	97.8	50	150			J
Selenium	0.0010 0.0010	0.001000	0	99.6	50	150			J
Uranium	0.00049 0.00050	0.0005000	0	97.0	50	150			J

Sample ID MB	Samp ⁻	BLK	Tes	tCode: E						
Client ID: PBW	Batc	h ID: B3	4393	R	RunNo: 3	4393				
Prep Date:	Analysis Date: 5/20/2016			S	SeqNo: 1	060564	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsonic	ND	0.0010								

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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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

Sample ID MB-25455 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 25455 RunNo: 34451

Prep Date: 5/23/2016 Analysis Date: 5/24/2016 SeqNo: 1062360 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-25455 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 25455 RunNo: 34451

Prep Date: 5/23/2016 Analysis Date: 5/24/2016 SeqNo: 1062361 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 101 80 120

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

•	o Refining Cou hly R.O. Reject									
Sample ID MB	SampTy	/pe: ME	BLK	Tes	tCode: EF	PA Method	300.0: Anion	s		
Client ID: PBW	Batch	ID: A3	4410	R	RunNo: 34	4410				
Prep Date:	Analysis Da	ate: 5/ 2	20/2016	S	SeqNo: 10	061021	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	SampTy	/pe: LC	S	Tes	TestCode: EPA Method 300.0: Anions					
Client ID: LCSW	Batch	Batch ID: A34410			RunNo: 34410					
Prep Date:	Analysis Da	ate: 5/	20/2016	S	SeqNo: 10	061022	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.7	90	110			
Chloride	4.9	0.50	5.000	0	97.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.3	90	110			
Sample ID 1605958-001F	MC CompTi	ma. Mc		TestCode: EPA Method 300.0: Anions						
Cample 12 1003330-0011	MS SampTy	pe. ws	•	res	Code: Er	A Wethou	300.0: Anion	S		
Client ID: R.O. Reject	, ,	ID: A3			RunNo: 34		300.0: Anion	S		
	, ,	ID: A3	4410	R		4410	Units: mg/L			
Client ID: R.O. Reject	Batch	ID: A3	4410 21/2016	R	RunNo: 34	4410			RPDLimit	Qual
Client ID: R.O. Reject Prep Date: Analyte Fluoride	Batch Analysis Da Result 2.2	ID: A3 - ate: 5/ PQL 0.10	4410 21/2016 SPK value 0.5000	SPK Ref Val	RunNo: 3 4 SeqNo: 1 0 %REC 59.5	4410 061050 LowLimit 71.4	Units: mg/L HighLimit		RPDLimit	Qual S
Client ID: R.O. Reject Prep Date: Analyte	Batch Analysis Da Result	ID: A3 ate: 5/ PQL	4410 21/2016 SPK value	SPK Ref Val	RunNo: 34 SeqNo: 10 %REC	4410 061050 LowLimit	Units: mg/L HighLimit		RPDLimit	
Client ID: R.O. Reject Prep Date: Analyte Fluoride	Batch Analysis Da Result 2.2 3.7	ID: A3 ate: 5 /2 PQL 0.10 0.10	4410 21/2016 SPK value 0.5000 2.500	SPK Ref Val 1.948 1.246	RunNo: 3 4 SeqNo: 10 %REC 59.5 99.1	4410 061050 LowLimit 71.4 87.3	Units: mg/L HighLimit	%RPD	RPDLimit	
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N)	Batch Analysis Da Result 2.2 3.7 MSD SampTy	ID: A3 ate: 5 /2 PQL 0.10 0.10	21/2016 SPK value 0.5000 2.500	SPK Ref Val 1.948 1.246	RunNo: 3 4 SeqNo: 10 %REC 59.5 99.1	14410 061050 LowLimit 71.4 87.3 PA Method	Units: mg/L HighLimit 120 111	%RPD	RPDLimit	
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F	Batch Analysis Da Result 2.2 3.7 MSD SampTy	PQL 0.10 0.10 //pe: MS	4410 21/2016 SPK value 0.5000 2.500 6D 4410	SPK Ref Val 1.948 1.246 Tes	RunNo: 34 SeqNo: 10 %REC 59.5 99.1	4410 061050 LowLimit 71.4 87.3 PA Method	Units: mg/L HighLimit 120 111	%RPD	RPDLimit	
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F Client ID: R.O. Reject	Batch Analysis Da Result 2.2 3.7 MSD SampTy Batch	PQL 0.10 0.10 //pe: MS	4410 21/2016 SPK value 0.5000 2.500 6D 4410 21/2016	SPK Ref Val 1.948 1.246 Tes	RunNo: 34 SeqNo: 10 %REC 59.5 99.1 tCode: EF	4410 061050 LowLimit 71.4 87.3 PA Method	Units: mg/L HighLimit 120 111 300.0: Anion	%RPD	RPDLimit RPDLimit	
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F Client ID: R.O. Reject Prep Date: Analyte Fluoride	Batch Analysis Da Result 2.2 3.7 MSD SampTy Batch Analysis Da Result 2.4	PQL 0.10 0.10 ID: A3- id: 5// PQL 0.10 0.10 PP: MS ID: A3- id: 5// PQL 0.10	4410 21/2016 SPK value 0.5000 2.500 6D 4410 21/2016 SPK value 0.5000	SPK Ref Val 1.948 1.246 Tes SPK Ref Val 1.948	RunNo: 34 SeqNo: 10 %REC 59.5 99.1 tCode: EF RunNo: 34 SeqNo: 10 %REC 92.5	2061050 LowLimit 71.4 87.3 2A Method 4410 061051 LowLimit 71.4	Units: mg/L HighLimit 120 111 300.0: Anion Units: mg/L HighLimit 120	%RPD s %RPD 7.09	RPDLimit 20	S
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F Client ID: R.O. Reject Prep Date: Analyte	Batch Analysis Da Result 2.2 3.7 MSD SampTy Batch Analysis Da Result	PQL 0.10 0.10 0.10 //pe: MS ID: A3- PQL	4410 21/2016 SPK value 0.5000 2.500 6D 4410 21/2016 SPK value	SPK Ref Val 1.948 1.246 Tes R	RunNo: 34 SeqNo: 10 %REC 59.5 99.1 tCode: EF RunNo: 34 SeqNo: 10 %REC	4410 061050 LowLimit 71.4 87.3 PA Method 4410 061051 LowLimit	Units: mg/L HighLimit 120 111 300.0: Anion Units: mg/L HighLimit	%RPD s	RPDLimit	S
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F Client ID: R.O. Reject Prep Date: Analyte Fluoride	Batch Analysis Da Result 2.2 3.7 MSD SampTy Batch Analysis Da Result 2.4	PQL 0.10 0.10 PQL 0.10 O.10 PQL 0.10 O.10 O.10 PQL 0.10 O.10 O.10 O.10 O.10	4410 21/2016 SPK value 0.5000 2.500 6D 4410 21/2016 SPK value 0.5000 2.500	SPK Ref Val 1.948 1.246 Tes: SPK Ref Val 1.948 1.246	RunNo: 34 SeqNo: 10 %REC 59.5 99.1 tCode: EF RunNo: 34 SeqNo: 10 %REC 92.5 99.0	2061050 LowLimit 71.4 87.3 PA Method 4410 061051 LowLimit 71.4 87.3	Units: mg/L HighLimit 120 111 300.0: Anion Units: mg/L HighLimit 120	%RPD *** *** *** *** *** *** *** *** *** *	RPDLimit 20	S
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N)	Batch Analysis Da Result 2.2 3.7 MSD SampTy Batch Analysis Da Result 2.4 3.7 SampTy	PQL 0.10 0.10 //pe: MS ID: A3- ate: 5// PQL 0.10 0.10 //pe: MS ID: A3- ate: 5// PQL 0.10 0.10 0.10	4410 21/2016 SPK value 0.5000 2.500 4410 21/2016 SPK value 0.5000 2.500	SPK Ref Val 1.948 1.246 Tes: SPK Ref Val 1.948 1.246	RunNo: 34 SeqNo: 10 %REC 59.5 99.1 tCode: EF RunNo: 34 SeqNo: 10 %REC 92.5 99.0	LowLimit 71.4 87.3 PA Method 4410 061051 LowLimit 71.4 87.3 PA Method	Units: mg/L HighLimit 120 111 300.0: Anion Units: mg/L HighLimit 120 111	%RPD *** *** *** *** *** *** *** *** *** *	RPDLimit 20	S
Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID 1605958-001F Client ID: R.O. Reject Prep Date: Analyte Fluoride Nitrogen, Nitrate (As N) Sample ID MB	Batch Analysis Da Result 2.2 3.7 MSD SampTy Batch Analysis Da Result 2.4 3.7 SampTy	PQL 0.10 0.10 1D: A3-rate: 5/2 PQL 0.10 0.10 PQL 0.10 0.10 0.10 ID: R3-rate: 5/2 PQL 0.10 0.10 ID: R3-rate: R3-	4410 21/2016 SPK value 0.5000 2.500 6D 4410 21/2016 SPK value 0.5000 2.500 3LK 4453	SPK Ref Val 1.948 1.246 Tes SPK Ref Val 1.948 1.246	RunNo: 34 SeqNo: 10 %REC 59.5 99.1 stCode: EF RunNo: 34 SeqNo: 10 %REC 92.5 99.0 stCode: EF	4410 061050 LowLimit 71.4 87.3 PA Method 4410 061051 LowLimit 71.4 87.3 PA Method 4453	Units: mg/L HighLimit 120 111 300.0: Anion Units: mg/L HighLimit 120 111	%RPD s %RPD 7.09 0.0806 s	RPDLimit 20	S

Qualifiers:

Sulfate

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND

0.50

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSW Batch ID: R34453 RunNo: 34453

Prep Date: Analysis Date: 5/24/2016 SeqNo: 1062513 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 96.5 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

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

Sample ID MB-25433 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: **PBW** Batch ID: 25433 RunNo: 34423

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061420 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-25433 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 25433 RunNo: 34423

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061422 Units: µg/L

SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte Result PQL HighLimit Qual

1,2-Dibromoethane 0.12 0.010 0.1000 0 122 70 130

Sample ID 1605958-001CMS SampType: MS TestCode: EPA Method 8011/504.1: EDB

Client ID: R.O. Reject Batch ID: 25433 RunNo: 34423

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061456 Units: µg/L 5/23/2016

SPK value SPK Ref Val %REC Result **PQL** HighLimit %RPD **RPDLimit** Qual Analyte LowLimit

1.2-Dibromoethane 0.11 0.010 0.1000 114 40.3

Sample ID 1605958-001CMSD SampType: MSD TestCode: EPA Method 8011/504.1: EDB

Client ID: Batch ID: 25433 RunNo: 34423 R.O. Reject

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1061458 Units: µg/L

Analyte Result PQL SPK value SPK Ref Val %REC I owl imit HighLimit %RPD **RPDLimit** Qual

1,2-Dibromoethane 0.12 0.010 0.1000 0 117 40.3 153 3.01 29.5

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

RLReporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#:

1605958

27-May-16

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

Sample ID LCS-25440 SampType: LCS TestCode: EPA Method 8015D: Diesel Range

LCSW Client ID: Batch ID: 25440 RunNo: 34408

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1060963 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Diesel Range Organics (DRO) 2.5 0.20 0 65.4 2.500 101 162 Surr: DNOP 97.5 0.24 0.2500 63.2 161

TestCode: EPA Method 8015D: Diesel Range Sample ID MB-25440 SampType: MBLK

Client ID: PBW Batch ID: 25440 RunNo: 34408

Prep Date: 5/23/2016 Analysis Date: 5/23/2016 SeqNo: 1060964 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Diesel Range Organics (DRO) ND 0.20 Motor Oil Range Organics (MRO) ND 2.5

Surr: DNOP 0.56 0.5000 111 63.2 161

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

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: A34422 RunNo: 34422

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061336 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 20.00 94.8 19 66.4 120

Sample ID 2.5UG GRO LCSB SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: A34422 RunNo: 34422

Prep Date: Analysis Date: 5/23/2016 SeqNo: 1061337 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.50 0.050 0.5000 99.4 80 120 108 66.4 Surr: BFB 22 20.00 120

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

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

Sample ID MB-25436	SampType: MBLK			Tes	tCode: El	PA Method				
Client ID: PBW	Batch ID: 25436			R	tunNo: 3	4486				
Prep Date: 5/23/2016	Analysis Date: 5/26/2016			S	SeqNo: 1063584					
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		81.2	26.1	140			
Surr: Tetrachloro-m-xylene	3.0		2.500		119	15	123			

Sample ID LCS-25436	SampT	ype: LC	s	Tes	tCode: El	PA Method				
Client ID: LCSW	Batch ID: 25436			F	RunNo: 3	4486				
Prep Date: 5/23/2016	Analysis D	ate: 5/	26/2016	S	SeqNo: 1	063585	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.8	1.0	5.000	0	75.4	15	131			
Aroclor 1260	3.8	1.0	5.000	0	75.9	15	162			
Surr: Decachlorobiphenyl	1.9		2.500		75.6	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		92.8	15	123			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1605958**

27-May-16

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

Sample ID 100ng LCS	SampT	ype: LC	s	Tes	tCode: El								
Client ID: LCSW	Batch ID: C34390			R	RunNo: 34390								
Prep Date:	Analysis Date: 5/20/2016			S	SeqNo: 1060663 Ur				Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Benzene	18	1.0	20.00	0	91.4	70	130						
Toluene	19	1.0	20.00	0	97.5	70	130						
1,1-Dichloroethene	17	1.0	20.00	0	83.3	70	130						
Trichloroethene (TCE)	19	1.0	20.00	0	95.6	70	130						
Surr: 1,2-Dichloroethane-d4	8.3		10.00		82.9	70	130						
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130						
Surr: Dibromofluoromethane	8.5		10.00		85.4	70	130						
Surr: Toluene-d8	9.6		10.00		95.8	70	130						

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	n ID: C3	4390	F	RunNo: 3	4390				
Prep Date:	Analysis D	ate: 5 /	/20/2016	S	SeqNo: 1	060664	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	8.5		10.00		84.6	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Qualifiers:

Sample ID rb2

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 15 of 19

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

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

Sample ID MB-25416 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: **PBW** Batch ID: 25416 RunNo: 34425 Prep Date: 5/20/2016 Analysis Date: 5/24/2016 SeqNo: 1061459 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 0.30 Pyrene ND Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 Surr: Benzo(e)pyrene 14 20.00 69.0 20 153

Sample ID LCS-25416	SampT	ype: LC	S	Tes	tCode: El	PA Method						
Client ID: LCSW	Batch	n ID: 25 4	416	R	RunNo: 34	4425						
Prep Date: 5/20/2016	Analysis D	oate: 5/	24/2016	016 SeqNo: 1061630				Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Naphthalene	66	2.0	80.00	0	82.8	55.6	124					
1-Methylnaphthalene	65	2.0	80.20	0	80.8	55.3	124					
2-Methylnaphthalene	64	2.0	80.00	0	80.6	55.4	124					
Acenaphthylene	66	2.5	80.20	0	82.9	60.2	119					
Acenaphthene	64	2.0	80.00	0	80.4	56	126					
Fluorene	6.2	0.80	8.020	0	77.8	51.6	129					
Phenanthrene	3.3	0.60	4.020	0	81.1	58.8	129					
Anthracene	3.3	0.60	4.020	0	82.3	59.9	121					
Fluoranthene	5.4	0.30	8.020	0	67.0	48	145					
Pyrene	6.6	0.30	8.020	0	81.7	56.2	130					
Benz(a)anthracene	0.67	0.070	0.8020	0	83.5	50.4	142					
Chrysene	3.2	0.20	4.020	0	80.6	54.7	134					
Benzo(b)fluoranthene	0.82	0.10	1.002	0	81.8	61.8	120					
Benzo(k)fluoranthene	0.42	0.070	0.5000	0	84.0	55.9	134					

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

В Analyte detected in the associated Method Blank

Page 16 of 19

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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

Sample ID LCS-25416	SampT	SampType: LCS TestCode: EPA Method 8					8310: PAHs			
Client ID: LCSW	Batch	n ID: 25 4	416	RunNo: 34425						
Prep Date: 5/20/2016	Analysis D	ate: 5/	24/2016	SeqNo: 1061630			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.43	0.070	0.5020	0	85.7	51.3	137			
Dibenz(a,h)anthracene	0.84	0.12	1.002	0	83.8	57.8	134			
Benzo(g,h,i)perylene	0.85	0.12	1.000	0	85.0	57.2	134			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	58.2	137			
Surr: Benzo(e)pyrene	15		20.00		76.9	20	153			

Qualifiers:

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

Page 17 of 19

Hall Environmental Analysis Laboratory, Inc.

WO#: **1605958**

27-May-16

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

Sample ID MB-25543 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 25543 RunNo: 34512

Prep Date: 5/27/2016 Analysis Date: 5/27/2016 SeqNo: 1064497 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-25543 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 25543 RunNo: 34512

Prep Date: 5/27/2016 Analysis Date: 5/27/2016 SeqNo: 1064498 Units: μg/L

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

Phenolics, Total Recoverable 23 2.5 20.00 0 116 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

D G 1 HN I D

Page 18 of 19

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

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

Sample ID MB-25475 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 25475 RunNo: 34475

Prep Date: 5/24/2016 Analysis Date: 5/25/2016 SeqNo: 1063156 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-25475 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 25475 RunNo: 34475

Prep Date: 5/24/2016 Analysis Date: 5/25/2016 SeqNo: 1063157 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

Page 19 of 19

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87169

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Numb	per: 1605958		RcptNo:	1
Received by/date: A 05 700/10		- 5565		
Logged By: Lindsay Mangin 5/20/2016 9:50:00 A	AM	Julythan		
Completed By: Lindsay Mangin 5/20/2016 10:12:15	AM	Souly Hope		
Reviewed By: 05/20/16		0 0		
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 \square	
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes 🗸	No 🗆	NA 🗆	
6. Sample(s) in proper container(s)?	Yes 🗸	No 🗆		
7. Sufficient sample volume for indicated test(s)?	Yes 🗸	No 🗌		
8, Are samples (except VOA and ONG) properly preserved?	Yes 🗸	No 🗆		
Was preservative added to bottles?	Yes	No 🗸	NA \square	
10.VOA vials have zero headspace?	Yes 🗸	No 🗆	No VOA Vials	
11. Were any sample containers received broken?	Yes	No 🗹	# of preserved	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🔽	No 🗆	bottles checked 6 for pH:	r 12 unless noted
13. Are matrices correctly identified on Chain of Custody?	Yes 🗸	No 🗆	Adjusted?	00
14. Is it clear what analyses were requested?	Yes 🗸	No 🗌		as
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗹	No 🗆	Checked by:	
Special Handling (if applicable)				
16. Was client notified of all discrepancies with this order?	Yes	No 🗆	NA 🗹	
Person Notified: Date				
By Whom: Via:		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		

Air Bubbles (Y or N) ANALYSIS LABORATORY × 804:1:EDB HALL ENVIRONMENTAL Hd × Total Dissolved Solids × 4901 Hawkins NE - Albuquerque, NM 87109 Mtrate/Nitrite × Fax 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request × Phenols Sulfate Chloride Radioactivity (Ra-226+Ra-228) × 8082: PCBs × Tel. 505-345-3975 еко' рко' око :6108 × × 74 70: Mercury × Total Cyanide 335.4 × 6010B: WQCC Metals × 8270C: WQCC list SVOCs × 8260B:WQCC List VOC5 × HEAL NO. 3 ON D Brady Hubbard Rush Preservative Sample Temperature: / Project #: P.O. # 167796 2-40ml VOA Na2S2O3 Type 1 - 1L Glass | H2SO4 NaOH 2 - 1L Glass Junpres 1 - 1L Glass unpres 1-250mlGlastunpres X Yes -unbres HN03 HN03 HN03 Monthly R.O. Reject H2S04 | I urn-Around 1 me: 2-40ml VOA HCL Received by: 3-40ml VOA HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name: X Standard Type and # 2 - 500ml P Container 1-500ml P 1-125ml P 1-500ml P Sampler 2-1LP On Ice: ☐ Level 4 (Full Validation) Sample Request ID Chain-of-Custody Record R.O. Reject Trip Blank ailing Address: P.O. Box 159 Artesia, nail or Fax#: 575-746-5451 Matrix Navajo Refinery one #: 575-748-3311 liquid 10:15 liquid 88211-0159 Time /QC Package: EDD (Type) Standard Other 16-16 979 270 270 ent)ate 上 4 2 21-6 376

>

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

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

Remarks

Date

Relinquished by:

XEX.

8:8 Time:

Relinquished by:

Time:

0990 Time

2/18

Rebeived by:

Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-

Dibromoethane: 1,2-Dichloroethane: Benzene: Carbon Tetrachloride; Chloroform

Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methythaphthalene, 2-methylnaphthalene, naphthalene

Chavez, Carl J, EMNRD

From: Combs, Robert < Robert.Combs@HollyFrontier.com>

Sent: Wednesday, May 18, 2016 12:53 PM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Marks,

Allison, EMNRD; Brancard, Bill, EMNRD

Subject: RE: April RO Reject Monthly Report

Carl,

We will get this resampled and reported ASAP. We will also review this with our lab.

Thanks for bringing this to our attention.

Thanks, Robert

Robert Combs

Environmental Specialist The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159

office: 575-746-5382 cell: 575-308-2718 fax: 575-746-5451

Robert.Combs@hollyfrontier.com

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From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]

Sent: Wednesday, May 18, 2016 12:35 PM **To:** Combs, Robert; Griswold, Jim, EMNRD

Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Marks, Allison, EMNRD; Brancard, Bill,

EMNRD

Subject: RE: April RO Reject Monthly Report

Robert:

Good afternoon.

The New Mexico Oil Conservation Division observes environmental water quality detections of Diesel Range Organics-DRO and notices the Detection Limits used for GRO and MRO appear to be too high.

The detection of DROs in the RO Effluent appears to be new and may be associated with recent HollyFrontier Wastewater treatment activities at the facility? **OCD hereby requires** immediate resampling and environmental analysis of RO Reject Water from the Permanent RO and Temporary RO Units for Method 8015 (GRO/DRO/MRO) and Method 8260 <u>Full</u> Scan to identify the specific DROs detected in the above subject report with environmental analyses.

Please submit the analytical data with full QA/QC to OCD within the next 30-days with a summary explanation of any explanations for the recent detections in the RO effluent discharged to the farm fields. Please contact me if you have questions.

Thank you.

Carl J. Chavez, CHMM Environmental Engineer

Oil Conservation Division- Environmental Bureau

1220 South St. Francis Drive Santa Fe, New Mexico 87505

Phone: (505) 476-3490 Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u>
Website: <u>www.emnrd.state.nm.us/ocd</u>

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see

how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Combs, Robert [mailto:Robert.Combs@HollyFrontier.com]

Sent: Thursday, May 12, 2016 4:11 PM

To: Chavez, Carl J, EMNRD < CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD < Jim.Griswold@state.nm.us>

Cc: McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott

<<u>Scott.Denton@HollyFrontier.com</u>>; Marks, Allison, EMNRD <<u>AllisonR.Marks@state.nm.us</u>>; Brancard, Bill, EMNRD

<bill.brancard@state.nm.us>

Subject: April RO Reject Monthly Report

Jim & Carl,

Attached is the monthly report for the month of April concerning the RO Reject, as required by the GW-028 condition 4.B.7. This report will be mailed today.

Please let me know if you have any questions.

Thanks, Robert

Robert Combs

Environmental Specialist The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159

office: 575-746-5382 cell: 575-308-2718 fax: 575-746-5451

Robert.Combs@hollyfrontier.com

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May 12, 2016

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

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

RE: Discharge Permit GW-028

Monthly Report - April 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's April 2016 monthly report, for the period of April 1-30, 2016, under the Permit.

Specifically, this report covers the April 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on April 5, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through April 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the second quarter, samples were collected for the RO reject streams from the permanent units and temporary unit on April 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	nt RO Units		Tempor	ary Unit	Daily Discharge Volume
	Metere	ed Data	D.	RO Reject Calculated)	(Calculate	ect Discharge d from Log ta)	
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
4/1/2016	68	82	151	5,163	131	4489	9,652
4/2/2016	73	87	160	5,488	133	4557	10,045
4/3/2016	73	85	159	5,443	130	4453	9,896
4/4/2016	72	81	153	5,247	134	4585	9,832
4/5/2016	0	8	8	270	146	4991	5,261
4/6/2016	0	57	57	1,958	132	4509	6,467
4/7/2016	3	8	10	356	136	4646	5,002
4/8/2016	102	36	138	4,730	141	4849	9,579
4/9/2016	111	89	200	6,867	140	4801	11,668
4/10/2016	106	90	195	6,701	134	4596	11,297
4/11/2016	113	94	207	7,090	139	4772	11,862
4/12/2016	113	92	205	7,014	145	4954	11,968
4/13/2016	111	89	200	6,873	148	5091	11,964
4/14/2016	114	102	216	7,392	155	5307	12,699
4/15/2016	109	83	191	6,553	157	5390	11,943
4/16/2016	110	83	194	6,644	149	5110	11,754
4/17/2016	113	86	199	6,824	131	4485	11,309
4/18/2016	109	81	190	6,529	119	4066	10,595
4/19/2016	103	82	186	6,365	148	5081	11,446
4/20/2016	108	85	193	6,611	152	5207	11,818
4/21/2016	108	80	188	6,434	143	4903	11,337
4/22/2016	106	82	188	6,440	137	4688	11,128
4/23/2016	87	77	164	5,616	136	4679	10,295
4/24/2016	84	81	165	5,662	139	4754	10,416
4/25/2016	66	82	149	5,096	134	4593	9,689
4/26/2016	75	88	163	5,603	131	4476	10,079
4/27/2016	82	78	159	5,460	136	4653	10,113
4/28/2016	81	73	154	5,273	139	4768	10,041
4/29/2016	84	82	166	5,708	129	4427	10,135
4/30/2016	82	81	163	5,590		4314	9,904

Attachment 2 Analytical Lab Report



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

May 12, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly R.O. Reject OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/12/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Quarterly R.O. Reject
 Collection Date: 4/5/2016 8:15:00 AM

 Lab ID:
 1604184-001
 Matrix: AQUEOUS
 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	JLF
Arsenic	ND	0.0050		mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	ND	0.020		mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA 903.1: RA 226 AND EPA 904.0: R	A 228-SUBBEI)				Analyst	SUB
Radium-226	1.02	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803		pCi/L	1	4/29/2016	R34156
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	4.7	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
SM2540C MOD: TOTAL DISSOLVED S	SOLIDS					Analyst	KS
Total Dissolved Solids	5190	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656
EPA 335.4: TOTAL CYANIDE SUBBED)					Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	4/13/2016	R34156
SM4500-H+B: PH						Analyst	MRA
рН	8.17	1.68	Н	pH units	1	4/9/2016 2:23:07 AM	R33424
EPA METHOD 200.7: DISSOLVED ME	TALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cobalt	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	ND	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	ND	0.0080		mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EDA METHOD 245 1, MEDCHDY						Analyst	nmf

EPA METHOD 245.1: MERCURY Analyst: pmf

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

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 Page 1 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/12/2016

CLIENT: Navajo Refining Company Client Sample ID: R.O. Reject

 Project:
 Quarterly R.O. Reject
 Collection Date: 4/5/2016 8:15:00 AM

 Lab ID:
 1604184-001
 Matrix: AQUEOUS
 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY					Analyst	: pmf
Mercury	ND	0.00020	mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	1.0	μg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	26.1-140	%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	15-123	%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANG	iΕ				Analyst	: KJH
Diesel Range Organics (DRO)	9.4	1.0	mg/L	1	4/8/2016 9:58:45 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	4/8/2016 9:58:45 PM	24652
Surr: DNOP	114	70-141	%Rec	1	4/8/2016 9:58:45 PM	24652
EPA METHOD 8015D: GASOLINE RANG	GE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	49.5-130	%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS					Analyst	: SCC
Naphthalene	ND	2.0	μg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	2.0	μg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	2.0	μg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.070	μg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	33.4-129	%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Benzene	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
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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 Page 2 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/12/2016

CLIENT: Navajo Refining Company Client Sample ID: R.O. Reject

 Project:
 Quarterly R.O. Reject
 Collection Date: 4/5/2016 8:15:00 AM

 Lab ID:
 1604184-001
 Matrix: AQUEOUS
 Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Methylene Chloride	ND	3.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	1.0	μg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	1.5	μg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	70-130	%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	70-130	%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	70-130	%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	70-130	%Rec	1	4/14/2016 6:30:43 PM	R33550
TOTAL PHENOLICS BY SW-846 9067					Analyst	SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	4/21/2016	24923

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

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 Page 3 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/12/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Quarterly R.O. Reject Collection Date:

Lab ID: 1604184-002 **Matrix:** TRIP BLANK **Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	49.5-130	%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Benzene	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	3.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	1.0	μg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	1.5	μg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	70-130	%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	70-130	%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	70-130	%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	70-130	%Rec	1	4/14/2016 6:59:37 PM	R33550

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

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 Page 4 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-A	Samp	SampType: MBLK TestCode: EPA Method 2					200.7: Dissol	ved Meta	ls			
Client ID: PBW	Batch ID: A33606			F	RunNo: 3	3606						
Prep Date:	Analysis	Date: 4/	18/2016	8	SeqNo: 1034060			Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Aluminum	ND	0.020										
Barium	ND	0.0020										
Boron	ND	0.040										
Cadmium	ND	0.0020										
Chromium	ND	0.0060										
Cobalt	ND	0.0060										
Copper	ND	0.0060										
Iron	ND	0.020										
Manganese	ND	0.0020										
Molybdenum	ND	0.0080										
Nickel	ND	0.010										
Silver	ND	0.0050										
Zinc	ND	0.010										

Sample ID LCS-A	Samp	Type: LC	s	Tes	tCode: El	200.7: Dissol	ved Metal	s		
Client ID: LCSW	Bato	ch ID: A3	3606	F	RunNo: 3	3606				
Prep Date:	Analysis	Date: 4/	18/2016	S	034061	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID LLLCS-A	SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals							ls		
Client ID: BatchQC	Batc	Batch ID: A33606 RunNo: 33606								
Prep Date:	Analysis [Date: 4/	18/2016	S	SeqNo: 1	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	94.5	50	150			

Qualifiers:

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- E Value above quantitation range
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- P Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID LLLCS-A	SampType: LCSLL TestCode: EPA Method 2						200.7: Dissol	ved Meta	ls	
Client ID: BatchQC	Bato	Batch ID: A33606 RunNo: 33606								
Prep Date:	Analysis	Date: 4/	18/2016	S	SeqNo: 10	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

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- D Sample Diluted Due to Matrix
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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Project:		Navajo Refining C Quarterly R.O. Rej									
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Bato	h ID: A3	3644	F	RunNo: 3	3644				
Prep Date:		Analysis I	Date: 4/	19/2016	S	SeqNo: 1	036133	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.023	0.0010	0.02500	0	93.5	85	115			
Lead		0.011	0.00050	0.01250	0	91.9	85	115			
Uranium		0.011	0.00050	0.01250	0	91.8	85	115			
Sample ID	LCSLL	Samp	Type: LC	SLL	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	BatchQ	C Bato	h ID: A3	3644	F	RunNo: 3	3644				
Prep Date:		Analysis I	Date: 4/	19/2016	S	SeqNo: 1	036134	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	102	50	150			
Lead		0.00052	0.00050	0.0005000	0	105	50	150			
Uranium		ND	0.00050	0.0005000	0	99.1	50	150			
Sample ID	МВ	Samp	Туре: МЕ	BLK	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Sample ID Client ID:	MB PBW	·	Type: ME			tCode: El		Dissolved Me	tals		
'	PBW	·	th ID: A3	3644	F		3644	Dissolved Me	tals		
Client ID:	PBW	Bato	th ID: A3	3644 19/2016	F	RunNo: 3	3644		tals %RPD	RPDLimit	Qual
Client ID: Prep Date:	PBW	Bato Analysis I	ch ID: A3 : Date: 4/	3644 19/2016	F	RunNo: 3	3644 036136	Units: mg/L		RPDLimit	Qual
Client ID: Prep Date: Analyte	PBW	Bato Analysis I Result ND	ch ID: A3 : Date: 4/	3644 19/2016	F	RunNo: 3	3644 036136	Units: mg/L		RPDLimit	Qual
Client ID: Prep Date: Analyte Arsenic	PBW	Bato Analysis I Result ND ND	PQL 0.0010	3644 19/2016	F	RunNo: 3	3644 036136	Units: mg/L		RPDLimit	Qual
Client ID: Prep Date: Analyte Arsenic Lead	PBW	Bato Analysis I Result ND ND ND	PQL 0.0010 0.00050	3644 19/2016 SPK value	SPK Ref Val	RunNo: 3 SeqNo: 1 %REC	3644 036136 LowLimit	Units: mg/L	%RPD	RPDLimit	Qual
Client ID: Prep Date: Analyte Arsenic Lead Uranium	PBW	Bato Analysis I Result ND ND ND	PQL 0.0010 0.00050 0.00050	3644 19/2016 SPK value	SPK Ref Val	RunNo: 3 SeqNo: 1 %REC	3644 036136 LowLimit	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: Prep Date: Analyte Arsenic Lead Uranium Sample ID	PBW LCS LCSW	Bato Analysis I Result ND ND ND	PQL 0.0010 0.00050 0.00050 Type: LC	3644 19/2016 SPK value S 3677	SPK Ref Val	RunNo: 3 SeqNo: 1 %REC	3644 036136 LowLimit PA 200.8: I	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: Prep Date: Analyte Arsenic Lead Uranium Sample ID Client ID:	PBW LCS LCSW	Bato Analysis I Result ND ND ND Samp	PQL 0.0010 0.00050 0.00050 Type: LC	3644 19/2016 SPK value S 3677 20/2016	SPK Ref Val	RunNo: 3 SeqNo: 1 %REC tCode: El	3644 036136 LowLimit PA 200.8: I	Units: mg/L HighLimit Dissolved Me	%RPD	RPDLimit RPDLimit	Qual
Client ID: Prep Date: Analyte Arsenic Lead Uranium Sample ID Client ID: Prep Date:	PBW LCS LCSW	Bato Analysis I Result ND ND ND Samp Bato Analysis I	PQL 0.0010 0.00050 0.00050 Type: LC th ID: A3	3644 19/2016 SPK value S 3677 20/2016	SPK Ref Val Tes	RunNo: 3 SeqNo: 1 %REC tCode: El RunNo: 3 SeqNo: 1	3644 036136 LowLimit PA 200.8: I 3677 037321	Units: mg/L HighLimit Dissolved Me Units: mg/L	%RPD		
Client ID: Prep Date: Analyte Arsenic Lead Uranium Sample ID Client ID: Prep Date: Analyte	LCS LCSW	Bato Analysis I Result ND ND ND Samp Bato Analysis I Result 0.024	PQL 0.0010 0.00050 0.00050 Type: LC ch ID: A3	3644 19/2016 SPK value S 3677 20/2016 SPK value 0.02500	SPK Ref Val Tes SPK Ref Val 0	RunNo: 3 SeqNo: 1 **REC **REC RunNo: 3 SeqNo: 1 **REC 97.2	3644 036136 LowLimit PA 200.8: I 3677 037321 LowLimit 85	Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit	%RPD tals %RPD		
Client ID: Prep Date: Analyte Arsenic Lead Uranium Sample ID Client ID: Prep Date: Analyte Selenium Sample ID	LCS LCSW	Bato Analysis I Result ND ND ND Samp Bato Analysis I Result 0.024 Samp	PQL 0.0010 0.00050 0.00050 Type: LC th ID: A3 Date: 4/1	3644 19/2016 SPK value S 3677 20/2016 SPK value 0.02500 SLL	Tes SPK Ref Val O Tes	RunNo: 3 SeqNo: 1 **REC **REC RunNo: 3 SeqNo: 1 **REC 97.2	3644 036136 LowLimit PA 200.8: I 3677 037321 LowLimit 85 PA 200.8: I	Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit 115	%RPD tals %RPD		
Client ID: Prep Date: Analyte Arsenic Lead Uranium Sample ID Client ID: Prep Date: Analyte Selenium	LCS LCSW	Bato Analysis I Result ND ND ND Samp Bato Analysis I Result 0.024 Samp	PQL 0.0010 0.00050 0.00050 Type: LC th ID: A3 Date: 4/: PQL 0.0010 Type: LC	3644 19/2016 SPK value S 3677 20/2016 SPK value 0.02500 SLL 3677	SPK Ref Val Tes SPK Ref Val 0 Tes	RunNo: 3 SeqNo: 1 %REC tCode: El %REC 97.2	3644 036136 LowLimit PA 200.8: I 3677 037321 LowLimit 85 PA 200.8: I	Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit 115	%RPD tals %RPD		

Qualifiers:

Analyte

Selenium

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

Result

0.0011

0.0010

- 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

LowLimit

HighLimit

150

%RPD

E Value above quantitation range

%REC

106

- J Analyte detected below quantitation limits
- P Sample pH Not In Range

SPK value SPK Ref Val

0.001000

- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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RPDLimit

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037323 Units: mg/L

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

Selenium 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-24817 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032804 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-24817 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032805 Units: mg/L

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

Mercury 0.0052 0.00020 0.005000 0 105 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Project:	Navajo Refining Company Quarterly R.O. Reject			
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R33368	RunNo: 33368		
Prep Date:	Analysis Date: 4/6/2016	SeqNo: 1025773	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Nitrogen, Nitrite (As N) Nitrogen, Nitrate (As N)	ND 0.10 ND 0.10			
Sample ID LCS	SampType: LCS	TestCode: EPA Method	300.0: Anions	
Client ID: LCSW	Batch ID: R33368	RunNo: 33368		
Prep Date:	Analysis Date: 4/6/2016	SeqNo: 1025774	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Nitrogen, Nitrite (As N)	0.98 0.10 1.000	0 98.5 90	110	
Nitrogen, Nitrate (As N)	2.5 0.10 2.500	0 102 90	110	
Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R33628	RunNo: 33628		
Prep Date:	Analysis Date: 4/18/2016	SeqNo: 1035257	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			
Sulfate	ND 0.50			
Sample ID LCS	SampType: LCS	TestCode: EPA Method	300.0: Anions	
Client ID: LCSW	Batch ID: R33628	RunNo: 33628		
Prep Date:	Analysis Date: 4/18/2016	SeqNo: 1035258	Units: mg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Fluoride	0.54 0.10 0.5000	0 109 90	110	
Chloride	4.8 0.50 5.000	0 96.7 90	110	

Qualifiers:

Sulfate

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

9.8

0.50

10.00

- 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

98.3

90

110

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-24682 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027492 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-24682 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027494 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 0 116 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

12-May-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-24652 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 24652 RunNo: 33385 Prep Date: 4/6/2016 Analysis Date: 4/8/2016 SeqNo: 1026445 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 1.000 102 70 1.0 141

Sample ID LCS-24652 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Client ID: LCSW Batch ID: 24652 RunNo: 33385 Analysis Date: 4/8/2016 Prep Date: 4/6/2016 SeqNo: 1026634 Units: mg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 0 71.3 5.6 5.000 112 139 Surr: DNOP 0.53 0.5000 107 70 141

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027408 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 17 20.00 86.6 49.5 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R33412 RunNo: 33412

19

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027409 Units: mg/L

20.00

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.46 0.050 0.5000 92.9 80 120

96.6

49.5

130

Qualifiers:

Surr: BFB

* 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

D. Committee and New Jan Borner

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-24708	SampTy	ype: ME	BLK	TestCode: EPA Method 8082: PCB's						
Client ID: PBW	Batch	ID: 24	708	F	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis Da	ate: 4/	18/2016	5	SeqNo: 1	034347	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	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			
Sample ID LCS-24708	SampTy	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: I CSW	Batch	ID: 24	708	F	RunNo: 3	3583				

Sample ID LCS-24708	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW Batch ID: 24708 RunNo: 33583						3583				
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	S	SeqNo: 1	034348	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID LCSD-24708	SD	TestCode: EPA Method 8082: PCB's								
Client ID: LCSS02	ID: LCSS02 Batch ID: 24708 RunNo: 33583									
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	9	SeqNo: 1	034349	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surry Tetrachloro-m-xylene	29		2 500		118	15	123	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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: R3	3550	F	RunNo: 3	3550				
Prep Date:	Analysis D	ate: 4/	14/2016	S	SeqNo: 1	032303	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	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	n ID: R3	3550	F	RunNo: 3	3550				
Prep Date:	Analysis D	ate: 4	14/2016	S	SeqNo: 1	032305	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

Sample ID rb

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID MB-24709 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: **PBW** Batch ID: 24709 RunNo: 33614 Prep Date: 4/11/2016 Analysis Date: 4/19/2016 SeqNo: 1034469 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 Pyrene ND 0.30 Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 Surr: Benzo(e)pyrene 15 20.00 77.2 33.4 129

Sample ID LCS-24709	SampType: LCS TestCode: EPA Method 8310: PA							•	•	
Client ID: LCSW	Batcl	n ID: 24	709	R	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis D	Date: 4/	19/2016	S	SeqNo: 1	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604184**

12-May-16

Client: Navajo Refining Company
Project: Quarterly R.O. Reject

Sample ID LCS-24709	ample ID LCS-24709 SampType: LCS lient ID: LCSW Batch ID: 24709						8310: PAHs			
		Batch ID: 24709 RunNo: 33614 Analysis Date: 4/19/2016 SeqNo: 1034474								
Prep Date: 4/11/2016	Analysis L	oate: 4/	19/2016	8	eqino: 1	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID LCSD-24709	9 SampType: LCSD TestCode: EPA Method 8310: PAHs									
Client ID: LCSS02	Batc	h ID: 24 7	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis [Date: 4/	19/2016	S	SeqNo: 1	034484	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	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
- W Sample container temperature is out of limit as specified

Page 17 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

12-May-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-24923 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 24923 RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037376 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-24923 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 24923 Client ID: LCSW RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037377 Units: µg/L

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

Phenolics, Total Recoverable 18 2.5 20.00 0 89.0 64.4 135

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Reporting Detection Limit

P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

Page 18 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

12-May-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-R34156 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R34156 RunNo: 34156

Prep Date: Analysis Date: 4/13/2016 SeqNo: 1053134 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

0.0100 Cyanide ND

Sample ID LCS-R34156 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R34156 RunNo: 34156

0.507

Prep Date: Analysis Date: 4/13/2016 SeqNo: 1053135 Units: mg/L

0.5000

RPDLimit Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Result Qual 0

101

110

Qualifiers:

Cyanide

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Page 19 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

12-May-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-R34156 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R34156 RunNo: 34156 SeqNo: 1053137 Prep Date: Analysis Date: 4/29/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 -2.01 0.933 Radium-226 ± 0.459 0.933 Radium-228 0.321 0.795 Radium-228 ± 0.376 0.795

Qualifiers:

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

Page 20 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

12-May-16

Client: Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID MB-24656 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025974 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-24656 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025975 Units: mg/L

SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result PQL Qual

Total Dissolved Solids 1040 20.0 1000 0 104 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 21 of 21

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name:	NAVAJO REFINING CO	Work Order Number:	1604184		RcptNo: 1	
Received by/da	ate:	04/06/14	2_			-
Logged By:	Ashley Gallegos	/ / / 4/6/2016 9:40:00 AM		A		
Completed By:	Ashley £ allegos	4/6/2016 12:24:03 PM		A		
Reviewed By:	AN Q	04/06/16		V		
Chain of Cu	stody	01/07/				
	eals intact on sample bottles?		Yes 🗌	No 🗌	Not Present	
	Custody complete?		Yes 🗹	No 🗌	Not Present	
3. How was th	ne sample delivered?		Courier			
Log In						
	tempt made to cool the sample	s?	Yes 🗹	No 🗆	na 🗆	
5. Were all sa	amples received at a temperatu	re of >0° C to 6.0°C	Yes 🗹	No 🗌	na 🗆	
6. Sample(s)	in proper container(s)?		Yes 🗹	No 🗌		
7. Sufficient s	sample volume for indicated tes	st(s)?	Yes 🗸	No 🗌		
	es (except VOA and ONG) prop		Yes 🗸	No 🗆		
9. Was prese	rvative added to bottles?		Yes \square	No 🗹	NA 🗆	
10.VOA vials	have zero headspace?		Yes 🗹	No 🗆	No VOA Vials	
	sample containers received bro	oken?	Yes	No 🗹		- -
•	·				# of preserved bottles checked	Ĭ.
	rwork match bottle labels? repancies on chain of custody)		Yes 🗸	No LI	for pH: (£2)or	(12)unless noted)
•	es correctly identified on Chain	of Custody?	Yes 🗸	No 🗆	Adjusted?	NO
	vhat analyses were requested?		Yes 🗹	No 🗆		
15. Were all he	olding times able to be met? fy customer for authorization.)		Yes 🗹	No 🗆	Checked by:	<u>aus</u>
(II IIO, IIOtii	y customer for authorization.					
Special Han	dling (if applicable)					
16. Was client	notified of all discrepancies wi	th this order?	Yes 🗌	No 🗆	NA 🗹	_
By V Rega	on Notified: Vhom: arding: nt Instructions:	Date Via:	eMail	Phone Fax	☐ In Person	
17. Additional	remarks:				-	
18. <u>Cooler In</u> Cooler	No Temp °C Condition	Seal Intact Seal No Yes	Seal Date	Signed By		

Air Bubbles (Y or N) > × 804:1:EDB **ANALYSIS LABORATORY** HALL ENVIRONMENTAL Hd × Total Dissolved Solids × 4901 Hawkins NE - Albuquerque, NM 87109 Aitrate/Nitrite × Fax 505-345-4107 Fluoride **F** × www.hallenvironmental.com × Analysis Request Phenols Surfate Chloride \times × Radioactivity (Ra-226+Ra-228) × 8082: PCBs × × GRO, DRO, ORO :9108 Tel. 505-345-3975 Mercury :0747 × 335.4: Total Cyanide × × 9010B: MGCC Metals × 8270C: WQCC list SVOCs 8260B:WQCC List VOCs × 2 **Brady Hubbard** Preservative □ Rush Na2S203 Project #: P.O. # 167796 Type Sample Temperature: 1-250mlGlastunpres 1-unpres H2SO4 2 - 1L Glass Junpres 1 - 1L Glass |unpres Quarterly R.O. Reject HN03 NaOH HN03 HN03 X Yes 3-40ml VOA |HCI 3-40ml VOA HCL Turn-Around Time Project Manager: Robert Combs 3-40ml VOA Project Name: Type and # X Standard 2 - 500ml P Container 1-500ml P 1-125ml P 1-500ml P 2-1LP Sampler: On Ice ☐ Level 4 (Full Vaidation) Sample Request ID Chain-of-Custody Record R.O. Reject iling Address: P.O. Box 159 Artesia lail or Fax#: 575-746-5451 Matrix ent: Navajo Refinery one #: 575-748-3311 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid liguid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 liquid 8:15 A 88211-0159 /QC Package: Time EDD (Type) Standard 4/5/16 Other 1/2/16 4/5/16 4/5/16 4/5/16 /5/16 /5/16 /5/16 /5/16 /5/16 /2/16 Jate

At this Asserbility. Any sub-contracted data will be clearly notated on the analytical report.

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnàphthalene, naphthalene

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-

Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform;

Time

me

Date

1 - 1L Glass |H2SO4

R.O. Reject

8:15 | liquid

4/5/16

4/5/16

ate:

8:15 liquid

Trip Blank

2-40ml VOA

Réceived by:

Relinquished by Figable 20 Sterry

Perabeth Labra

7:00

Relinquished by:

Time:

ate:

Received by

Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride



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

Quarterly RO Reject Sample Details Attachment

#HOLLYFRONTI	The HollyFrontier Companies
 	

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	<u> </u>			
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- Pie))	Comp	Comp	
0.00		hted	hted	
93 V. 36		Wei	/ Weig	
		Time	Flow	

Parts / Sample Intervals One

cal Property		7	
Physic	Solid	Liquid	Sludge

Type of Sampler Directly to sample jars

☐ North Field R.O. Reject Discarge	Land to the second seco
□ North Field R.O	The second secon
Outfall / Sample Location	

Samplers Affiliation Navajo Refining Co. LLC Start Date and Time 4/5/2016 @ 8:05 a.m. End Date and Time 4/5/2016 @ 8:30 a.m.

Project Name Biannual RO Reject Samplers Name Brady Hubbard South Field R.O. Reject Discarge

	2	September 1	$\overline{}$	т	٦	_	_	Т	Т	Т	7		Г	Т	7
		Y.	pH, Cl, F, S04, NOZ/NO3, IDS	8015 GRU	6020 total metals, 7470 Hg	6020 Dissolved Metals	Cyanide	Dadium 226/228	CZOZOZO INCIDENTA	8260 see attached list	8270 see attached list	8082 PCBs	8015 DRO	Color Color	National Zeorge
		Other													
		NaHSO4							ļ						
	atīves 🛌	Na25203												1	
	in Phesent	pso4 Naole					<u> </u>	<		<u>.</u>					
		NOS HASS	×	-	×	×			×						
		JOE ST		×		-				×					×
		# of F Neat Neat None	×			-					×	{ <u>></u>	<	×	
		Confaine	2	3	\- -		- (7	က	2	-	- -	7	2	2
		Material	Plastic	VOA	Plastic	Disatio	Oncol L	Plastic	Plastic	VOA	Sel	Class	Glass	VOA	VOA
		91.e	ລັ	40ml	L			500ml	1	4	1	1	1L	40ml	40ml
		obtainel		6			4		9.	i k		0	6	< 10	¥

Storage Method (ce <	Officer	Shipping Media	Other 🗆
Field Data Weather Observations Etc). 4/5/2016 Tmp.55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear Date and Time:	Field Temp. 23.6C Field pH 7.05		



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

OrderNo.: 1604182

May 10, 2016

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Quarterly Temporary R.O. Reject

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/6/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/10/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Quarterly Temporary R.O. RejectCollection Date: 4/5/2016 7:45:00 AM

Lab ID: 1604182-001 **Matrix:** AQUEOUS **Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB					Analyst: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	4/8/2016 2:24:54 PM
EPA METHOD 8082: PCB'S					Analyst: SCC
Aroclor 1016	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Aroclor 1221	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Aroclor 1232	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Aroclor 1242	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Aroclor 1248	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Aroclor 1254	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Aroclor 1260	ND	1.0	μg/L	1	4/19/2016 2:04:17 AM
Surr: Decachlorobiphenyl	106	26.1-140	%Rec	1	4/19/2016 2:04:17 AM
Surr: Tetrachloro-m-xylene	74.4	15-123	%Rec	1	4/19/2016 2:04:17 AM
EPA METHOD 8015M/D: DIESEL RA	NGE				Analyst: KJH
Diesel Range Organics (DRO)	2.4	1.0	mg/L	1	4/8/2016 9:37:25 PM
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	4/8/2016 9:37:25 PM
Surr: DNOP	114	70-141	%Rec	1	4/8/2016 9:37:25 PM
EPA METHOD 8015D: GASOLINE RA	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	4/8/2016 10:42:12 AM
Surr: BFB	84.7	49.5-130	%Rec	1	4/8/2016 10:42:12 AM
EPA METHOD 8310: PAHS					Analyst: SCC
Naphthalene	ND	2.0	μg/L	1	4/19/2016 11:01:30 AM
1-Methylnaphthalene	ND	2.0	μg/L	1	4/19/2016 11:01:30 AM
2-Methylnaphthalene	ND	2.0	μg/L	1	4/19/2016 11:01:30 AM
Benzo(a)pyrene	ND	0.070	μg/L	1	4/19/2016 11:01:30 AM
Surr: Benzo(e)pyrene	101	33.4-129	%Rec	1	4/19/2016 11:01:30 AM
EPA METHOD 300.0: ANIONS					Analyst: LGT
Fluoride	1.9	0.10	mg/L	1	4/18/2016 10:02:35 PM
Chloride	55	10	mg/L	20	4/7/2016 5:15:57 AM
Nitrogen, Nitrite (As N)	ND	0.10	mg/L	1	4/7/2016 5:03:33 AM
Nitrogen, Nitrate (As N)	1.0	0.10	mg/L	1	4/7/2016 5:03:33 AM
Sulfate	880	25	mg/L	50	4/18/2016 10:15:00 PM
EPA METHOD 200.7: DISSOLVED M	ETALS				Analyst: ELS
Aluminum	ND	0.020	mg/L	1	4/18/2016 5:39:41 PM
Barium	0.040	0.0020	mg/L	1	4/18/2016 5:39:41 PM
Boron	0.052	0.040	mg/L	1	4/18/2016 5:39:41 PM
Cadmium	ND	0.0020	mg/L	1	4/18/2016 5:39:41 PM
Chromium	ND	0.0060	mg/L	1	4/18/2016 5:39:41 PM

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

- * 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 Page 1 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/10/2016

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject

Project:Quarterly Temporary R.O. RejectCollection Date: 4/5/2016 7:45:00 AMLab ID:1604182-001Matrix: AQUEOUSReceived Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED ME	TALS				Analyst: ELS
Cobalt	ND	0.0060	mg/L	1	4/18/2016 5:39:41 PM
Copper	ND	0.0060	mg/L	1	4/18/2016 5:39:41 PM
Iron	0.051	0.020	mg/L	1	4/18/2016 5:39:41 PM
Manganese	ND	0.0020	mg/L	1	4/18/2016 5:39:41 PM
Molybdenum	ND	0.0080	mg/L	1	4/18/2016 5:39:41 PM
Nickel	ND	0.010	mg/L	1	4/18/2016 5:39:41 PM
Silver	ND	0.0050	mg/L	1	4/18/2016 5:39:41 PM
Zinc	0.032	0.010	mg/L	1	4/18/2016 5:39:41 PM
EPA 200.8: DISSOLVED METALS					Analyst: JLF
Arsenic	ND	0.0050	mg/L	5	4/19/2016 6:16:53 PM
Lead	ND	0.00050	mg/L	1	4/19/2016 2:29:28 PM
Selenium	ND	0.0050	mg/L	5	4/20/2016 6:26:09 PM
Uranium	0.0029	0.00050	mg/L	1	4/19/2016 2:29:28 PM
EPA METHOD 245.1: MERCURY					Analyst: pmf
Mercury	ND	0.00020	mg/L	1	4/15/2016 11:59:33 AM
EPA METHOD 8260B: VOLATILES					Analyst: AG
Benzene	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Toluene	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Ethylbenzene	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Chloroform	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Methylene Chloride	ND	3.0	μg/L	1	4/14/2016 6:01:59 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/14/2016 6:01:59 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Vinyl chloride	ND	1.0	μg/L	1	4/14/2016 6:01:59 PM
Xylenes, Total	ND	1.5	μg/L	1	4/14/2016 6:01:59 PM
Surr: 1,2-Dichloroethane-d4	104	70-130	%Rec	1	4/14/2016 6:01:59 PM
Surr: 4-Bromofluorobenzene	108	70-130	%Rec	1	4/14/2016 6:01:59 PM
Surr: Dibromofluoromethane	117	70-130	%Rec	1	4/14/2016 6:01:59 PM
Surr: Toluene-d8	103	70-130	%Rec	1	4/14/2016 6:01:59 PM

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

- 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 Page 2 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/10/2016

CLIENT: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Lab ID: 1604182-001

Matrix: AQUEOUS

Client Sample ID: Temporary R.O. Reject

Collection Date: 4/5/2016 7:45:00 AM

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	PQL Q	Qual Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067					Analyst: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	4/21/2016
EPA 335.4: TOTAL CYANIDE SUBBED					Analyst: SUB
Cyanide	ND	0.0100	mg/L	1	4/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBED				Analyst: SUB
Radium-226	5.67	0.512	pCi/L	1	4/26/2016 7:54:00 PM
Radium-226 ±	2.13	0.512	pCi/L	1	4/26/2016 7:54:00 PM
Radium-228	0.76	0.949	pCi/L	1	4/26/2016 7:54:00 PM
Radium-228 ±	0.5	0.949	pCi/L	1	4/26/2016 7:54:00 PM
SM4500-H+B: PH					Analyst: MRA
рН	8.26	1.68	H pH units	1	4/9/2016 2:18:47 AM
SM2540C MOD: TOTAL DISSOLVED SO	LIDS				Analyst: KS
Total Dissolved Solids	1870	20.0	* mg/L	1	4/7/2016 3:22:00 PM

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

- 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 Page 3 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID MB-A SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: A33606 RunNo: 33606 Prep Date: Analysis Date: 4/18/2016 SeqNo: 1034060 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND Iron 0.020 Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 Zinc ND 0.010

Sample ID LCS-A	SampType: LCS TestCode: EPA Method 2						200.7: Dissol	ved Metal	s	
Client ID: LCSW	Bato	ch ID: A3	3606	F	RunNo: 3	3606				
Prep Date:	Analysis	Date: 4/	18/2016	8	SeqNo: 1	034061	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID LLLCS-A	SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals							ls	
Client ID: BatchQC	Batch ID:	Batch ID: A33606 RunNo: 33606							
Prep Date:	Analysis Date:	4/18/2016	SeqNo: 1034062			Units: mg/L			
Analyte	Result PC	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND 0.0	20 0.01000	0	100	50	150			
Barium	ND 0.00	20 0.002000	0	94.5	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID LLLCS-A	SampType: LCSLL TestCode: EPA Method 2						200.7: Disso	ved Meta	ls	
Client ID: BatchQC	Bato	h ID: A3	3606	F	RunNo: 3	3606				
Prep Date:	Analysis	Date: 4/	18/2016	8	SeqNo: 1	034062	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	94.9	50	150			
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	ND	0.0060	0.006000	0	92.7	50	150			
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	ND	0.020	0.02000	0	98.6	50	150			
Manganese	ND	0.0020	0.002000	0	90.5	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.0	50	150			
Nickel	ND	0.010	0.005000	0	86.2	50	150			
Silver	ND	0.0050	0.005000	0	92.6	50	150			
Zinc	ND	0.010	0.005000	0	108	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

10-May-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID LCS SampType: LCS TestCode: EPA 200.8: Dissolved Metals Client ID: LCSW Batch ID: A33635 RunNo: 33635 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1035657 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.013 0.00050 Lead 0.01250 0 100 85 115 Uranium 0.012 0.00050 0.01250 0 97.5 85 115

Sample ID LLLCS SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals Client ID: BatchQC Batch ID: A33635 RunNo: 33635 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1035658 Units: mg/L Analyte Result POL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Lead 0.00054 0.00050 0.0005000 0 107 50 150 ND 0.00050 0.0005000 O 97.6 50 150 Uranium

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals Client ID: PBW Batch ID: A33635 RunNo: 33635 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1035659 Units: mg/L SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte Result PQL HighLimit Qual

Lead 0.00050 ND 0.00050 Uranium

Sample ID LCS TestCode: EPA 200.8: Dissolved Metals SampType: LCS RunNo: 33644 Client ID: LCSW Batch ID: A33644 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1036133 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Arsenic 0.023 0.0010 93.5 85 115 0.02500

Sample ID LCSLL SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals Client ID: **BatchQC** Batch ID: A33644 RunNo: 33644 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1036134 Units: mg/L %RPD **RPDLimit** PQI SPK value SPK Ref Val %REC HighLimit Analyte Result LowLimit Qual 0.0010 0.0010 0.001000 Arsenic 102 50 150

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals Client ID: PBW Batch ID: A33644 RunNo: 33644 Prep Date: Analysis Date: 4/19/2016 SeqNo: 1036136 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

Н 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P

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Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID LCS SampType: LCS TestCode: EPA 200.8: Dissolved Metals

Client ID: LCSW Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037321 Units: mg/L

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

Selenium 0.024 0.0010 0.02500 0 97.2 85 115

Sample ID LLLCS SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals

Client ID: BatchQC Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037322 Units: mg/L

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

Selenium 0.0011 0.0010 0.001000 0 106 50 150

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A33677 RunNo: 33677

Prep Date: Analysis Date: 4/20/2016 SeqNo: 1037323 Units: mg/L

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

Selenium 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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID MB-24817 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032804 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-24817 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 24817 RunNo: 33567

Prep Date: 4/14/2016 Analysis Date: 4/15/2016 SeqNo: 1032805 Units: mg/L

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

Mercury 0.0052 0.00020 0.005000 0 105 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

W Sample container temperature is out of limit as specified

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Client:

Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 4/18/2016

PQL

0.10

0.50

SPK value SPK Ref Val

0

0

0.5000

10.00

Result

0.54

9.8

Navajo Refining Company

WO#: **1604182**

10-May-16

Project:	Quarterly Temporar		Reject							
Sample ID MB	SampTy	/pe: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	3		
Client ID: PBW	Batch	ID: R3	3368	F	RunNo: 3	3368				
Prep Date:	Analysis Da	ate: 4/	6/2016	S	SeqNo: 1	025773	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sample ID LCS	SampT	ype: LC	s	Tes	tCode: El	PA Method	300.0: Anion	3		
Client ID: LCSW	Batch	Batch ID: R33368			RunNo: 3	3368				
Prep Date:	Analysis Da	Analysis Date: 4/6/2016			SeqNo: 1025774					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Sample ID MB	SampTy	/pe: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	3		
Client ID: PBW	Batch	ID: R3	3628	F	RunNo: 3	3628				
Prep Date:	Analysis Da	ate: 4/	18/2016	S	SeqNo: 1	035257	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
luoride	ND	0.10								
Sulfate	ND	0.50								
Sample ID LCS	SampT	SampType: LCS			TestCode: EPA Method 300.0: Anions					
Client ID: LCSW	Batch	ID: R3	3628	F	RunNo: 3	3628				

Qualifiers:

Prep Date:

Analyte

Fluoride

Sulfate

- * 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

SeqNo: 1035258

LowLimit

90

90

%REC

109

98.3

Units: mg/L

HighLimit

110

110

%RPD

RPDLimit

Qual

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID MB-24682 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027492 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-24682 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 24682 RunNo: 33411

Prep Date: 4/7/2016 Analysis Date: 4/8/2016 SeqNo: 1027494 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 0 116 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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

10-May-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-24652 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 24652 RunNo: 33385 Prep Date: 4/6/2016 Analysis Date: 4/8/2016 SeqNo: 1026445 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 1.000 102 70 1.0 141

Sample ID LCS-24652 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Client ID: LCSW Batch ID: 24652 RunNo: 33385 Analysis Date: 4/8/2016 Prep Date: 4/6/2016 SeqNo: 1026634 Units: mg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 0 71.3 5.6 5.000 112 139 Surr: DNOP 0.53 0.5000 107 70 141

Qualifiers:

- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Value exceeds Maximum Contaminant Level. В Analyte detected in the associated Method Blank

Е

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027408 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 17 20.00 86.6 49.5 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027409 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
 92.9
 80
 120

 Surr: BFB
 19
 20.00
 96.6
 49.5
 130

Sample ID 1604182-001BMS SampType: MS TestCode: EPA Method 8015D: Gasoline Range

Client ID: Temporary R.O. Rej Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027412 Units: mg/L

PQL SPK value SPK Ref Val %RPD **RPDLimit** Analyte Result %REC LowLimit HighLimit Qual 0.48 0.050 0.5000 95.4 70 130

 Gasoline Range Organics (GRO)
 0.48
 0.050
 0.5000
 0
 95.4
 70
 130

 Surr: BFB
 20
 20.00
 98.2
 49.5
 130

Sample ID 1604182-001BMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: Temporary R.O. Rej Batch ID: R33412 RunNo: 33412

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1027413 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 94.6 70 130 0.884 20 Surr: BFB 20 20.00 99.5 49.5 130 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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID MB-24708	SampT	ype: ME	BLK	Tes	tCode: E	PA Method				
Client ID: PBW	Batch ID: 24708			F	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	5	SeqNo: 1	034347	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	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			
Sample ID LCS-24708	SampT	Type: LCS TestCode: EPA Method 8082: PCB's								

Sample ID LCS-24708	Sampi	ype: LC	S	I es	tCode: El	PA Method				
Client ID: LCSW	Batch	ID: 24	708	R	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	S	SeqNo: 1	034348	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	6.5	1.0	5.000	0	130	15	131			
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S

Sample ID LCSD-24708	SampT	ype: LC	SD	Tes	tCode: El	PA Method				
Client ID: LCSS02	Batch	ID: 24	708	F	RunNo: 3	3583				
Prep Date: 4/11/2016	Analysis D	ate: 4/	18/2016	S	SeqNo: 1	034349	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1604182**

10-May-16

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

Sample ID 100ng lcs	SampType: LCS TestCode: EPA Method 8260B: VOLATILES									
Client ID: LCSW	Batch	1D: R3	3550	F	RunNo: 3					
Prep Date:	Analysis Date: 4/14/2016			8	SeqNo: 1	032303				
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	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch ID: R33550			F	RunNo: 3	3550				
Prep Date:	Analysis D	ate: 4/	14/2016	8	SeqNo: 1	032305	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

Sample ID rb

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID MB-24709	SampT	уре: МЕ	BLK	Tes	tCode: El	8310: PAHs				
Client ID: PBW	Batcl	n ID: 24	709	F	RunNo: 3	3614				
Prep Date: 4/11/2016	Analysis D	Date: 4/	19/2016	S	SeqNo: 1	034469	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID LCS-24709	SampType: LCS TestCode: EPA Method 8310: PAHs											
Client ID: LCSW	Batch	Batch ID: 24709 RunNo: 3				33614						
Prep Date: 4/11/2016	Analysis D	Date: 4/	19/2016	S	SeqNo: 1	034474	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Naphthalene	79	2.0	80.00	0	98.3	54.6	110					
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116					
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111					
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122					
Acenaphthene	81	2.0	80.00	0	101	50.6	114					
Fluorene	8.2	0.80	8.020	0	103	48.9	106					
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110					
Anthracene	3.7	0.60	4.020	0	92.5	52	106					
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113					
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118					
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S		
Chrysene	4.1	0.20	4.020	0	102	57.6	110					
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106					
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112					

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

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

Sample ID LCS-24709 Client ID: LCSW	SampType: LCS Batch ID: 24709				tCode: El	PA Method 3614				
Prep Date: 4/11/2016	Analysis D	oate: 4/	19/2016	S	SeqNo: 1	034474	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID LCSD-24709	SampType: LCSD TestCode: EPA Method 8310: PAHs									
Client ID: LCSS02	Batc	h ID: 24 7	709	R	tunNo: 3	3614				
Prep Date: 4/11/2016	Analysis [Date: 4/	19/2016	S	SeqNo: 1	034484	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID MB-24923 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 24923 RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037376 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-24923 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 24923 RunNo: 33678

Prep Date: 4/21/2016 Analysis Date: 4/21/2016 SeqNo: 1037377 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 89.0 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

D G 1 HN I D

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1604182**

10-May-16

Client: Navajo Refining Company

Project: Quarterly Temporary R.O. Reject

Sample ID MB-R34094 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R34094 RunNo: 34094

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1050918 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R34094 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R34094 RunNo: 34094

Prep Date: Analysis Date: 4/8/2016 SeqNo: 1050919 Units: mg/L

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

Cyanide 0.512 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

10-May-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-R34094 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R34094 RunNo: 34094 SeqNo: 1050921 Prep Date: Analysis Date: 4/26/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 0.965 0.799 Radium-226 ± 0.644 0.799 Radium-228 0.0941 0.772 Radium-228 ± 0.341 0.772

Qualifiers:

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

Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

10-May-16

Client: Navajo Refining Company **Project:** Quarterly Temporary R.O. Reject

Sample ID MB-24656 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025974 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-24656 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 24656 RunNo: 33372

Prep Date: 4/6/2016 Analysis Date: 4/7/2016 SeqNo: 1025975 Units: mg/L

SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Result PQL Qual

Total Dissolved Solids 1040 20.0 1000 0 104 120

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 20 of 20

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com NAVAJO REFINING CO Work Order Number: 1604182 RcptNo: 1 Client Name: Received by/date/ 4/6/2016 9:40:00 AM Logged By: **Ashley Gallegos** 4/6/2016 12:16:42 PM Completed By: Ashley Gaffegos Reviewed By: Chain of Custod No 🗆 Not Present 🗹 Yes 🗌 1. Custody seals intact on sample bottles? No 🗌 Not Present Yes 🗸 2. Is Chain of Custody complete? 3 How was the sample delivered? Courier Log In NA 🗌 No 🗌 4. Was an attempt made to cool the samples? Yes 🗸 NA 🗆 No 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No 🗌 Yes 🗸 Sample(s) in proper container(s)? 7. Sufficient sample volume for indicated test(s)? Yes 🗸 8. Are samples (except VOA and ONG) properly preserved? Yes 🔽 NA 📖 9. Was preservative added to bottles? Yes 🗸 No 🗌 No VOA Vials 🗌 10. VOA vials have zero headspace? Yes \square No 🗸 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 for pH: Yes 🗸 12. Does paperwork match bottle labels? >12 Unless noted) (Note discrepancies on chain of custody) Adjusted? 425 Yes 🗸 No ∐ 13. Are matrices correctly identified on Chain of Custody? Yes 🗸 No 14. Is it clear what analyses were requested? 43 Yes 🗸 Checked by: No 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No 🗀 NA 🗹 16. Was client notified of all discrepancies with this order? Person Notified: Date eMail Phone Fax In Person By Whom: Via: Regarding: Client Instructions: 17. Additional remarks: For metals analysis: added IML HNO3 to -ool 6 FOT acceptable 18. Cooler Information Cooler No Temp °C | Condition | Seal Intact | Seal No | Seal Date Signed By 417@1150 1.3 Good Yes

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



Quarterly

4	HOLLYFRONTIER	C i
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Navajo kerinting company, LLC 501 E. Main Artesia, NM 88210 (Tel) 575.748.3311 (Fax) 575.746.5451	Temporary RO Reject Sample Details	HOLLYFRONTIER The HollyFrontier Companies
	San ple Type	Physical Property
Project Name Biannual RO Reject	Grab ☑	Dilos
Samplers Name Brady Hubbard	Time Weighted Composite	∑ Stiguid ⊆
ampiers Affiliation Navajo Refining Co. LLC	Flow Weighted Composite □	☐ egludge ☐
int Date and Time 4/5/2016 @ 7:30 a.m.		
d Date and Time 4/5/2016 @ 8:00 a.m.	Parts / Sample Intervals One	Type of Sampler Directly to sample jars
uffalls, Sample Location: U North Field R.O. Reject Discarge	Discarge	enge

	heatseuped Requested	pH, Cl, F, S04, NO2/NO3, TDS	8015 GRO	6020 total metals, 7470 Hg	6020 Dissolved Metals	Cyanide	Radium 226/228	3260 see attached list	8270 see attached list	8082 PCBs	8015 DRO	Radium 226/228
	04. Other											
	a2S268 NaHS04											
* Preservative	Oğ F.NaGE					×						
	O ZEVO O O NIET	×		×	×		×					
-	leat one): HOL	×	×					×	×	×	×	×
	Sontainers (N	2	က	-	-	2	8	2	_	2	2	2
	Materials	Plastic	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA
	Size	500ml	40ml	500ml	125ml	500ml	_	40ml	7	7	40ml	40ml
	Container			3. 6.	4	9	9	25.25	8	- 6 - 8	10	11

Storage Method	Remogerated	Shipping Media	Other
Eleja Data (Weather Observations: Etc) 4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear	Field Temp. 23.6C Field pH 7.05		



April 14, 2016

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

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

RE: Discharge Permit GW-028
Monthly Report – March 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's March 2016 monthly report, for the period of March 1-31, 2016, under the Permit.

Specifically, this report covers the March 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.
- Analytical results of a discharge sample collected on March 3, 2016.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the two permanent RO units and the temporary RO unit on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. (Note that the temporary RO unit operated through March 2016, and will be replaced in the second quarter of 2016 with the permanent unit, as authorized by OCD on April 1, 2016.)

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit, samples were collected for the RO reject streams from the permanent units and temporary unit on March 3, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units		Tempo	rary Unit	Daily Discharge Volume
	Meter	ed Data	The second secon	l RO Reject (Calculated)		ect Discharge rom Log Data)	
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
3/1/2016	79	109	188	6434	119	4080	10,514
3/2/2016	76	108	184	6293	66	2280	8,573
3/3/2016	74	108	181	6217	116	3969	10,186
3/4/2016	95	103	198	6788	124	4261	11,049
3/5/2016	92	108	200	6862	126	4309	11,171
3/6/2016	91	110	201	6897	125	4291	11,188
3/7/2016	93	108	201	6887	120	4120	11,007
3/8/2016	90	110	200	6855	125	4281	11,136
3/9/2016	84	110	194	6656	123	4220	10,876
3/10/2016	79	107	187	6397	122	4183	10,580
3/11/2016	75	109	184	6316	122	4183	10,499
3/12/2016	76	105	180	6180	128	4392	10,572
3/13/2016	76	107	182	6249	64	2197	8,446
3/14/2016	85	108	193	6611	95	3269	9,880
3/15/2016	86	87	173	5944	128	4392	10,336
3/16/2016	91	107	197	6771	112	3849	10,620
3/17/2016	94	105	199	6832	63	2172	9,004
3/18/2016	90	105	195	6698	97	3333	10,031
3/19/2016	88	101	189	6466	126	4322	10,788
3/20/2016	92	94	186	6363	127	4363	10,726
3/21/2016	92	103	195	6686	127	4354	11,040
3/22/2016	92	94	186	6385	130	4458	10,843
3/23/2016	93	94	187	6413	132	4512	10,925
3/24/2016	90	101	191	6545	130	4441	10,986
3/25/2016	92	95	188	6430	135	4639	11,069
3/26/2016	94	94	188	6432	140	4800	11,232
3/27/2016	92	100	192	6591	133	4547	11,138
3/28/2016	94	87	182	6230	129	4417	10,647
3/29/2016	92	105	197	6741	128	4405	11,146
3/30/2016	59	72	132	4509	132	4541	9,050
3/31/2016	71	82	153	5236	133	4550	9,786

Attachment 2 Analytical Lab Report



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

April 01, 2016

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly R.O. Reject OrderNo.: 1603242

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/4/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Date Reported: 4/1/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 3/3/2016 9:45:00 AM

 Lab ID:
 1603242-001
 Matrix: AQUEOUS
 Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB					Analyst: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	3/7/2016 4:42:17 PM
EPA METHOD 8082: PCB'S					Analyst: SCC
Aroclor 1016	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Aroclor 1221	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Aroclor 1232	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Aroclor 1242	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Aroclor 1248	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Aroclor 1254	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Aroclor 1260	ND	1.0	μg/L	1	3/11/2016 2:01:36 PM
Surr: Decachlorobiphenyl	100	26.1-140	%Rec	1	3/11/2016 2:01:36 PM
Surr: Tetrachloro-m-xylene	119	15-123	%Rec	1	3/11/2016 2:01:36 PM
EPA METHOD 8015M/D: DIESEL RA	NGE				Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	3/7/2016 5:37:40 PM
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	3/7/2016 5:37:40 PM
Surr: DNOP	102	70-141	%Rec	1	3/7/2016 5:37:40 PM
EPA METHOD 8015D: GASOLINE RA	ANGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	3/4/2016 9:22:09 PM
Surr: BFB	92.5	49.5-130	%Rec	1	3/4/2016 9:22:09 PM
EPA METHOD 8310: PAHS					Analyst: SCC
Naphthalene	ND	2.0	μg/L	1	3/17/2016 12:56:02 PM
1-Methylnaphthalene	ND	2.0	μg/L	1	3/17/2016 12:56:02 PM
2-Methylnaphthalene	ND	2.0	μg/L	1	3/17/2016 12:56:02 PM
Benzo(a)pyrene	ND	0.070	μg/L	1	3/17/2016 12:56:02 PM
Surr: Benzo(e)pyrene	75.2	33.4-129	%Rec	1	3/17/2016 12:56:02 PM
EPA METHOD 300.0: ANIONS					Analyst: JRR
Fluoride	3.5	2.0	mg/L	20	3/4/2016 3:03:27 PM
Chloride	370	10	mg/L	20	3/4/2016 3:03:27 PM
Nitrogen, Nitrate (As N)	2.2	0.10	mg/L	1	3/4/2016 2:51:02 PM
Sulfate	1900	25	mg/L	50	3/18/2016 3:05:33 AM
EPA METHOD 200.7: DISSOLVED M	ETALS				Analyst: ELS
Aluminum	ND	0.020	mg/L	1	3/18/2016 6:31:34 PM
Barium	0.069	0.0020	mg/L	1	3/18/2016 6:31:34 PM
Boron	0.093	0.040	mg/L	1	3/18/2016 6:31:34 PM
Cadmium	ND	0.0020	mg/L	1	3/18/2016 6:31:34 PM
Chromium	ND	0.0060	mg/L	1	3/18/2016 6:31:34 PM
Cobalt	ND	0.0060	mg/L	1	3/18/2016 6:31:34 PM

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

- * 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 Page 1 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 3/3/2016 9:45:00 AM

 Lab ID:
 1603242-001
 Matrix: AQUEOUS
 Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED MET	ALS				Analyst: ELS
Copper	ND	0.0060	mg/L	1	3/18/2016 6:31:34 PM
Iron	ND	0.020	mg/L	1	3/18/2016 6:31:34 PM
Manganese	ND	0.0020	mg/L	1	3/18/2016 6:31:34 PM
Molybdenum	0.0099	0.0080	mg/L	1	3/18/2016 6:31:34 PM
Nickel	ND	0.010	mg/L	1	3/18/2016 6:31:34 PM
Silver	ND	0.0050	mg/L	1	3/18/2016 6:31:34 PM
Zinc	0.014	0.010	mg/L	1	3/18/2016 6:31:34 PM
EPA 200.8: DISSOLVED METALS					Analyst: JLF
Arsenic	ND	0.0050	mg/L	5	3/29/2016 5:36:33 PM
Lead	ND	0.0025	mg/L	5	3/29/2016 5:36:33 PM
Selenium	0.0093	0.0050	mg/L	5	3/29/2016 5:36:33 PM
Uranium	0.0058	0.0025	mg/L	5	3/29/2016 5:36:33 PM
EPA METHOD 245.1: MERCURY					Analyst: pmf
Mercury	ND	0.00020	mg/L	1	3/10/2016 11:32:03 AM
EPA METHOD 8260B: VOLATILES					Analyst: DJF
Benzene	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Toluene	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Ethylbenzene	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Chloroform	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Methylene Chloride	ND	3.0	μg/L	1	3/11/2016 7:47:26 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	3/11/2016 7:47:26 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Vinyl chloride	ND	1.0	μg/L	1	3/11/2016 7:47:26 PM
Xylenes, Total	ND	1.5	μg/L	1	3/11/2016 7:47:26 PM
Surr: 1,2-Dichloroethane-d4	97.6	70-130	%Rec	1	3/11/2016 7:47:26 PM
Surr: 4-Bromofluorobenzene	108	70-130	%Rec	1	3/11/2016 7:47:26 PM
Surr: Dibromofluoromethane	94.2	70-130	%Rec	1	3/11/2016 7:47:26 PM
Surr: Toluene-d8	92.0	70-130	%Rec	1	3/11/2016 7:47:26 PM

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

TOTAL PHENOLICS BY SW-846 9067

- 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 Page 2 of 20

Analyst: SCC

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc. Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 3/3/2016 9:45:00 AM

 Lab ID:
 1603242-001
 Matrix: AQUEOUS
 Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL Q	ual Unit	s DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067					Analyst: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	. 1	3/8/2016
EPA 335.4: TOTAL CYANIDE SUBBED					Analyst: SUB
Cyanide	ND	0.0100	mg/	L 1	3/16/2016
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE)			Analyst: SUB
Radium-226	1.08	0.770	pCi/	L 1	3/18/2016 10:42:00 AM
Radium-226 ±	0.67	0.770	pCi/	L 1	3/18/2016 10:42:00 AM
Radium-228	0.451	0.810	pCi/	L 1	3/18/2016 10:42:00 AM
Radium-228 ±	0.39	0.810	pCi/	L 1	3/18/2016 10:42:00 AM
SM4500-H+B: PH					Analyst: JRR
рН	8.02	1.68	Н рН і	units 1	3/7/2016 7:54:14 PM
SM2540C MOD: TOTAL DISSOLVED SO	LIDS				Analyst: KS
Total Dissolved Solids	4030	20.0	* mg/	L 1	3/9/2016 11:47:00 AM

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

Qualifiers: * Value e

- * 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 Page 3 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly R.O. Reject Collection Date:

Lab ID: 1603242-002 **Matrix:** TRIP BLANK **Received Date:** 3/4/2016 10:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB					Analyst: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	3/7/2016 4:57:25 PM
EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	3/4/2016 9:46:30 PM
Surr: BFB	88.1	49.5-130	%Rec	1	3/4/2016 9:46:30 PM
EPA METHOD 8260B: VOLATILES					Analyst: DJF
Benzene	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Toluene	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Ethylbenzene	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Chloroform	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Methylene Chloride	ND	3.0	μg/L	1	3/11/2016 8:15:43 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	3/11/2016 8:15:43 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Vinyl chloride	ND	1.0	μg/L	1	3/11/2016 8:15:43 PM
Xylenes, Total	ND	1.5	μg/L	1	3/11/2016 8:15:43 PM
Surr: 1,2-Dichloroethane-d4	98.7	70-130	%Rec	1	3/11/2016 8:15:43 PM
Surr: 4-Bromofluorobenzene	112	70-130	%Rec	1	3/11/2016 8:15:43 PM
Surr: Dibromofluoromethane	97.7	70-130	%Rec	1	3/11/2016 8:15:43 PM
Surr: Toluene-d8	99.6	70-130	%Rec	1	3/11/2016 8:15:43 PM

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

- 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 Page 4 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

ND

ND

0.0050

0.010

WO#: **1603242**

01-Apr-16

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

Sample ID MB-C SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: C32891 RunNo: 32891 Prep Date: Analysis Date: 3/18/2016 SeqNo: 1008301 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010

Sample ID LCS-C	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	ls	
Client ID: LCSW	Bato	h ID: C3	2891	R	RunNo: 3	2891				
Prep Date:	Analysis	Date: 3/	18/2016	S	SeqNo: 1	008302	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	85	115			
Barium	0.50	0.0020	0.5000	0	99.1	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.8	85	115			
Copper	0.50	0.0060	0.5000	0	101	85	115			
Iron	0.49	0.020	0.5000	0	98.4	85	115			
Manganese	0.49	0.0020	0.5000	0	97.8	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	93.6	85	115			
Zinc	0.48	0.010	0.5000	0	96.3	85	115			

Sample ID LLLCS-C	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Bato	h ID: C3	2891	R	RunNo: 3	2891				
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008303			Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	111	50	150			
Barium	0.0021	0.0020	0.002000	0	103	50	150			
Boron	ND	0.040	0.04000	0	97.7	50	150			

Qualifiers:

Silver

Zinc

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

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Hall Environmental Analysis Laboratory, Inc.

PQL

0.0050

Result 0.10 WO#: 1603242

01-Apr-16

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

Sample ID LLLCS-C	SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals							ls		
Client ID: BatchQC	Bato	ch ID: C3	2891	F	RunNo: 32891					
Prep Date:	Analysis	Date: 3/	18/2016	S	SeqNo: 1	008303	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020	0.002000	0	99.5	50	150			
Chromium	ND	0.0060	0.006000	0	87.8	50	150			
Cobalt	ND	0.0060	0.006000	0	85.3	50	150			
Copper	0.0068	0.0060	0.006000	0	114	50	150			
Iron	0.021	0.020	0.02000	0	103	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum	0.0097	0.0080	0.008000	0	121	50	150			
Nickel	ND	0.010	0.005000	0	98.6	50	150			
Silver	ND	0.0050	0.005000	0	76.2	50	150			
Zinc	ND	0.010	0.005000	0	100	50	150			
Sample ID LCS-C	Samp	Туре: LC	s	Tes	tCode: E	PA Method	200.7: Disso	ved Meta	ls	_
Client ID: LCSW	Bato	ch ID: C3	2891	F	RunNo: 3	2891				
Prep Date:	Analysis	Date: 3/	18/2016	8	SeqNo: 1	008305	Units: mg/L			

%REC

101

LowLimit

HighLimit

115

SPK value SPK Ref Val

0.1000

Qualifiers:

Analyte

Silver

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

Analyte detected in the associated Method Blank

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RPDLimit

Qual

%RPD

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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

Sample ID LCS	SampType: LC	s	Tes	tCode: El	tals				
Client ID: LCSW	Batch ID: B3	3154	F	RunNo: 33154					
Prep Date:	Analysis Date: 3/	29/2016	S	SeqNo: 1	018089	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024 0.0010	0.02500	0	97.7	85	115			
Lead	0.012 0.00050	0.01250	0	95.4	85	115			
Selenium	0.025 0.0010	0.02500	0	101	85	115			
Uranium	0.011 0.00050	0.01250	0	91.8	85	115			
Sample ID LLLCS	SampType: LC	SLL	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID. Betel CO	Datab ID: Do	0454	_		0454				

Sample ID LLLCS	SampType:	LCSLL	Tes	tCode: El	PA 200.8:	Dissolved Met	als		
Client ID: BatchQC	Batch ID:	B33154	F	RunNo: 3	3154				
Prep Date:	Analysis Date:	3/29/2016	5	SeqNo: 1	018090	Units: mg/L			
Analyte	Result PQ	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND 0.00	0 0.001000	0	98.0	50	150			
Lead	0.00050 0.0005	0.0005000	0	100	50	150			
Selenium	ND 0.00	0.001000	0	94.9	50	150			
Uranium	ND 0.000	0.0005000	0	91.1	50	150			

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals	
Client ID: PBW	Batch ID: B33154	RunNo: 33154	
Prep Date:	Analysis Date: 3/29/2016	SeqNo: 1018091 Units: mg/L	
Analyte	Result PQL SPK value S	PK 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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

Sample ID MB-24156 SampType: mblk TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 24156 RunNo: 32702

Prep Date: 3/9/2016 Analysis Date: 3/10/2016 SeqNo: 1000942 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-24156 SampType: Ics TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 24156 RunNo: 32702

Prep Date: 3/9/2016 Analysis Date: 3/10/2016 SeqNo: 1000945 Units: mg/L

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

Mercury 0.0054 0.00020 0.005000 0 109 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

9.5

0.50

10.00

WO#: 1603242

01-Apr-16

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: R32618 RunNo: 32618 Prep Date: Analysis Date: 3/4/2016 SeqNo: 997926 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 ND Nitrogen, Nitrate (As N) 0.10

Sample ID LCS TestCode: EPA Method 300.0: Anions SampType: LCS Client ID: LCSW Batch ID: R32618 RunNo: 32618 Prep Date: Analysis Date: 3/4/2016 SeqNo: 997927 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Fluoride 0.50 0.10 0.5000 0 101 90 110 Chloride 4.7 0.50 5.000 0 94.9 90 110 0.10 2.500 0 101 90 110 Nitrogen, Nitrate (As N) 2.5

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: PBW Batch ID: R32879 RunNo: 32879 Prep Date: Analysis Date: 3/17/2016 SeqNo: 1007965 Units: mg/L Result **PQL** SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte HighLimit Qual Sulfate ND 0.50

Sample ID LCS TestCode: EPA Method 300.0: Anions SampType: LCS Client ID: LCSW Batch ID: R32879 RunNo: 32879 Prep Date: Analysis Date: 3/17/2016 SeqNo: 1007966 Units: mg/L SPK value SPK Ref Val Analyte %REC %RPD **RPDLimit** Result LowLimit HighLimit Qual

0

94.6

90

Qualifiers:

Sulfate

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

RLReporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

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

Sample ID MB-24100 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 24100 RunNo: 32621

Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 998470 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-24100 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 24100 RunNo: 32621

Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 998471 Units: µg/L

LowLimit Result SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte PQL Qual

1,2-Dibromoethane 0.11 0.010 0.1000 0 108 70 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Ε Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

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

Sample ID LCS-24101 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range LCSW Client ID: Batch ID: 24101 RunNo: 32603 Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 997914 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 5.9 1.0 5.000 0 118 71.3 139

Diesel Range Organics (DRO) Surr: DNOP 0.50 0.5000 99.7 70 141

Sample ID MB-24101 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range

Client ID: PBW Batch ID: 24101 RunNo: 32603

Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 997915 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 0.91 1.000 90.8 70 141

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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: A32596 RunNo: 32596

Prep Date: Analysis Date: 3/4/2016 SeqNo: 997207 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 19 20.00 95.0 49.5 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: A32596 RunNo: 32596

Prep Date: Analysis Date: 3/4/2016 SeqNo: 997208 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.51 0.050 0.5000 103 80 120 Surr: BFB 21 20.00 106 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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

2.2

3.0

WO#: **1603242**

01-Apr-16

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

Sample ID MB-24175	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: PBW	Batch	n ID: 24	175	F	RunNo: 3	2727				
Prep Date: 3/10/2016	Analysis D	ate: 3/	11/2016	5	SeqNo: 1	002684	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		94.4	26.1	140			
Surr: Tetrachloro-m-xylene	3.9		2.500		155	15	123			S
Sample ID LCS-24175	SampT	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSW	Batch	1D: 24	175	F	RunNo: 3	2727				
Prep Date: 3/10/2016	Analysis D	ate: 3/	11/2016	5	SeqNo: 1	002685	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.3	15	131			
Aroclor 1260	3.3	1.0	5.000	0	66.9	15	162			

Sample ID LCSD-24175	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	Batch ID: 24175			RunNo: 32727					
Prep Date: 3/10/2016	Analysis D	ate: 3/	11/2016	S	SeqNo: 1	002686	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.4	1.0	5.000	0	68.0	15	131	8.66	24.4	
Aroclor 1260	3.7	1.0	5.000	0	74.8	15	162	11.1	28	
Surr: Decachlorobiphenyl	2.4		2.500		94.8	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	3.3		2.500		130	15	123	0	0	S

89.2

122

26.1

15

140

123

2.500

2.500

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

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

Reporting Detection Limit

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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

Sample ID rb	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: B3	2762	F	RunNo: 3	2762				
Prep Date:	Analysis D	ate: 3/	11/2016	\$	SeqNo: 1	002996	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		90.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID 100ng lcs b	SampT	ype: LC	s	Tes						
Client ID: LCSW	Batch	n ID: B3	2762	F	RunNo: 3	2762				
Prep Date:	Analysis D	oate: 3/	11/2016	5	SeqNo: 1	003007				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.5	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.8	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.1		10.00		90.9	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

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

Sample ID MB-24176	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batch	n ID: 24	176	F	RunNo: 3	2851				
Prep Date: 3/10/2016	Analysis D	oate: 3/	17/2016	5	SeqNo: 1	006908	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	13		20.00		64.4	33.4	129			

Sample ID LCS-24176	Samp1	ype: LC	/pe: LCS TestCode: EPA Method 8310: PAHs							
Client ID: LCSW	Batcl	n ID: 24	176	F	RunNo: 3	2851				
Prep Date: 3/10/2016	Analysis D	oate: 3/	17/2016	S	SeqNo: 1	006935	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.6	54.6	110			
1-Methylnaphthalene	75	2.0	80.20	0	93.6	49.1	116			
2-Methylnaphthalene	75	2.0	80.00	0	94.1	52.5	111			
Acenaphthylene	69	2.5	80.20	0	85.9	63.7	122			
Acenaphthene	77	2.0	80.00	0	96.2	50.6	114			
Fluorene	8.0	0.80	8.020	0	99.6	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	100	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	8.1	0.30	8.020	0	101	59.7	118			
Benz(a)anthracene	0.75	0.070	0.8020	0	93.5	56.6	109			
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.96	0.10	1.002	0	95.8	54.9	106			
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112			

Qualifiers:

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

В Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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

Sample ID LCS-24176 SampType: LCS TestCode: EPA Method 8310: PAHs LCSW Client ID: Batch ID: 24176 RunNo: 32851 SeqNo: 1006935 Prep Date: 3/10/2016 Analysis Date: 3/17/2016 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzo(a)pyrene 0.53 0.070 0.5020 0 106 62 107 0 103 54.8 Dibenz(a,h)anthracene 1.0 0.12 1.002 108 0 103 56.9 Benzo(g,h,i)perylene 1.0 0.12 1.000 110 Indeno(1,2,3-cd)pyrene 2.1 0.25 2.004 0 105 55.2 109 Surr: Benzo(e)pyrene 17 20.00 83.0 33.4 129

Sample ID LCSD-24176	SampType: LCSD TestCode: EPA Method 8310: PAHs									
Client ID: LCSS02	Batc	h ID: 24 ′	176	F	RunNo: 3	2851				
Prep Date: 3/10/2016	Analysis [Date: 3/	17/2016	8	SeqNo: 1	006990	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.3	54.6	110	0.314	20	
1-Methylnaphthalene	73	2.0	80.20	0	91.2	49.1	116	2.51	20	
2-Methylnaphthalene	73	2.0	80.00	0	90.7	52.5	111	3.64	20	
Acenaphthylene	68	2.5	80.20	0	85.4	63.7	122	0.640	20	
Acenaphthene	74	2.0	80.00	0	92.3	50.6	114	4.22	20	
Fluorene	7.2	0.80	8.020	0	89.7	48.9	106	10.5	20	
Phenanthrene	4.0	0.60	4.020	0	99.5	54.7	110	0.747	24	
Anthracene	3.7	0.60	4.020	0	92.5	52	106	0	20	
Fluoranthene	8.7	0.30	8.020	0	108	57.8	113	0.460	20.9	
Pyrene	8.1	0.30	8.020	0	101	59.7	118	0.618	20.8	
Benz(a)anthracene	0.77	0.070	0.8020	0	96.0	56.6	109	2.63	20	
Chrysene	4.1	0.20	4.020	0	102	57.6	110	0.244	20	
Benzo(b)fluoranthene	0.95	0.10	1.002	0	94.8	54.9	106	1.05	20.6	
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112	0	20.8	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	0	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	104	54.8	108	0.966	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	103	56.9	110	0	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	0	20	
Surr: Benzo(e)pyrene	17		20.00		82.8	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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

Sample ID MB-24124 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 24124 RunNo: 32622

Prep Date: 3/8/2016 Analysis Date: 3/8/2016 SeqNo: 998125 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-24124 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 24124 RunNo: 32622

Prep Date: 3/8/2016 Analysis Date: 3/8/2016 SeqNo: 998126 Units: μg/L

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

Phenolics, Total Recoverable 21 2.5 20.00 0 106 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

P Sample pH Not In Range RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

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

Sample ID MB-R32959 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R32959 RunNo: 32959

Prep Date: Analysis Date: 3/16/2016 SeqNo: 1010968 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

0.0100 Cyanide ND

Sample ID LCS-R32959 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R32959 RunNo: 32959

Prep Date: Analysis Date: 3/16/2016 SeqNo: 1010969 Units: mg/L

RPDLimit Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Result Qual

Cyanide 0.493 0.5000 0 98.6 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Ε Value above quantitation range

J Analyte detected below quantitation limits

P

Sample pH Not In Range

RL Reporting Detection Limit Sample container temperature is out of limit as specified Page 18 of 20

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

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

Sample ID MB-R32954 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R32954 RunNo: 32954 SeqNo: 1010754 Prep Date: Analysis Date: 3/18/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 0.501 0.776 Radium-226 ± 0.521 0.776 Radium-228 0.0536 0.871 Radium-228 ± 0.38 0.871

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603242**

01-Apr-16

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

Sample ID MB-24120 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 24120 RunNo: 32669

Prep Date: 3/7/2016 Analysis Date: 3/9/2016 SeqNo: 999682 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-24120 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 24120 RunNo: 32669

Prep Date: 3/7/2016 Analysis Date: 3/9/2016 SeqNo: 999683 Units: mg/L

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

Total Dissolved Solids 1030 20.0 1000 0 103 80 120

Qualifiers:

* Value exceeds Maximum Contaminant Level.

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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

RcptNo: 1 Work Order Number: 1603242 NAVAJO REFINING CO Client Name: Received by/date 3/4/2016 10:00:00 AM Ashley Gallegos Logged By: 3/4/2016 10:28:24 AM **Ashley Gallegos** Completed By: 03/04/16 Reviewed By: TO Chain of Custody No 📋 Not Present 🖃 Yes [] 1 Custody seals intact on sample bottles? No 🗌 Not Present [...] Yes 🔛 2. Is Chain of Custody complete? Courier 3. How was the sample delivered? Log In NA [] No [...] 4. Was an attempt made to cool the samples? NA 🛄 No 🗀 Were all samples received at a temperature of >0° C to 6.0°C No 🗀 Sample(s) in proper container(s)? No 🗔 7. Sufficient sample volume for indicated test(s)? Yes 🗷 No [] Yes 🐱 8. Are samples (except VOA and ONG) properly preserved? NA 🗔 No 🙀 Yes 9. Was preservative added to bottles? No VOA Vials No 🗍 10. VOA vials have zero headspace? No 🖈 Yes 11. Were any sample containers received broken? # of preserved bottles checked for pH: No 🗍 12. Does paperwork match bottle labels? unless noted) (Note discrepancies on chain of custody) NO Adjusted? No [] Yes 13. Are matrices correctly identified on Chain of Custody? No 🛄 14. Is it clear what analyses were requested? Yes Checked by: No 📑 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA 🖈 No 🗀 16. Was client notified of all discrepancies with this order? Person Notified: Date eMail Phone Fax In Person Via: By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Condition | Seal Intact | Seal No | Seal Date Signed By Cooler No | Temp °C | Good

				X Standard	□ Rush	h				4	ANAI YSTS	. ×	IS	IABORATORY	30	Z N	ANALYSTS LABORATOR	N
				Project Name							www.hallenvironmental.com	ivaell)	1 10				
Mailing	Address	. P.O. Bo	Mailing Address: P.O. Box 159 Artesia,	Monthly R.O. Reject	Reject			4	4901 Hawkins NE - Albuquerque, NM 87109	awkin	SNE	- Albi	rdner	ne. N	M 87	109		
NM 88;	NM 88211-0159	0.5-414		Project #: P.O.	. # 167796				Tel. 505-345-3975	5-345	-3975	ш	Fax 50	505-345-4107	410	_		
Phone	Phone #: 575-748-3311	18-3311							1		100.7	Analysis		Request	+			
email o	email or Fax#: 575-746-5451	75-746-5	1451	Project Manager:	ger.			_			_		(8	_			H	H
QAVQC	QA/QC Package:												322-					
X Standard	dard		□ Level 4 (Full Validation)	Robert Combs	S						08		-Ка	_				
□ Other	jo.			Sampler:	Elizabeth Sa	alsberry				әр	40		+97	_			spil	
O EDC	EDD (Type)_				X Yes \(\Bar\)	ON [ins	,OF					_	08	
	Section 36			Sample Temperature:	erature: Z.	5-1,0cF=1	1.5					_		anur		ə	pəv	
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO	S. C.	8260B:WQC	9010B: MO	835.4: Tota	7470: Mero 8015: GRO	8085: PCB	Radioactivity	Sulfate Chlo Phenols	Fluoride	Nitrate/Nitrit	Total Dissol	PH 1:EDB
3/3/16		9:45 liquid	R.O. Reject	2 - 500ml P	1-unpres 1 H2SO4) -	8						×		×	×	×	
3/3/16		9:45 liquid	R.O. Reject	3-40ml VOA HCL	HCL			×										
3/3/16		9:45 liquid	R.O. Reject	1-500ml P	HNO3						×							
3/3/16		9:45 liquid	R.O. Reject	1-125ml P	HNO3				×									
3/3/16		9:45 liquid	R.O. Reject	1-500ml P	NaOH					×								
3/3/16		9:45 liquid	R.O. Reject		HN03								×					
3/3/16		9:45 liquid	R.O. Reject	3-40ml VOA Na2S2O3	Na2S203			<u>.</u>			_							×
3/3/16		9:45 liquid	R.O. Reject	2 - 1L Glass	unpres							×						
3/3/16		9:45 liquid	R.O. Reject	1 - 1L Glass unpres	nubres			×										
3/3/16		9:45 liquid	R.O. Reject	3-40ml VOA HCI	HCI						×							
3/3/16		9:45 liquid	R.O. Reject	1-250mlGlas unpres	nubres						×							
3/3/16		liquid	R.O. Reject	1 - 1L Glass	H2SO4									×				
3/3/16	9:45	9:45 liquid	Trip Blank	2-40ml VOA HCL	HCL	þ	C				Н		Н	Н		П	Н	H
Date:	Time: P:00	Relinquish 205,00	Relinquished by Elizabeth Balsberry Recond Decount Management	Received by:	Mart	Date 07/04/16	Time /000/	Remarks: Metals: As, Al, Ba, 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; 1,1,2,2-Tetrachlor	rks: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-	B, Cd, (7, Co, C	u, Fe, Pi ,2-Tetra	, Mn, H	, Mo, N ane; 1,	, Se, A,	g, U, Zr trachlor	n oethyle	ne; 1,1,
Date:	Time:	Relinquished by:	ed by:	Received by:		Date	Time	Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2- Dibromoethane; 1,2-Dichloroethane; Banzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Totuene; Total Xylenes; Virryl Chloride SVCCs: benzo(a)pyrene, phenol, 1-metrylnaphthalene, 2-metrylnaphthalene, naphthalene	ethane; 1 rthane; 1 nethane; benzo(a)	1.2-Trichloroethylene: 1,1-Dichicroethane: 1,1-Dichic (2-Dichloroethane; Benzene; Carbon Tetrachloride; C Ethylbenzene; Toluene; Total Xylenes; Viryl Chloride pyrene, phenol, 1-methylnaphthalene, 2-methylnaphtl	iloroethy roethane zene; To shenol, 1	lene, 1, Benzer luene; T methylr	-Dichlor le; Carb ctal Xyle aphthale	pethane on Tetra nes; Vir ne, 2-m	1,1-Dit chloride yl Chlor ethylnar	Chloroet Chloro ide htthaler	hene; 1 oform; ne, nap	,2. Ithalene



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

April 01, 2016

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.: 1603243

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/4/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/1/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 3/3/2016 9:30:00 AMLab ID:1603243-001Matrix: AQUEOUSReceived Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: JME
1,2-Dibromoethane	ND	0.010		μg/L	1	3/7/2016 5:12:38 PM
EPA METHOD 8082: PCB'S						Analyst: SCC
Aroclor 1016	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Aroclor 1221	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Aroclor 1232	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Aroclor 1242	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Aroclor 1248	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Aroclor 1254	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Aroclor 1260	ND	1.0		μg/L	1	3/11/2016 3:10:44 PM
Surr: Decachlorobiphenyl	119	26.1-140		%Rec	1	3/11/2016 3:10:44 PM
Surr: Tetrachloro-m-xylene	126	15-123	S	%Rec	1	3/11/2016 3:10:44 PM
EPA METHOD 8015M/D: DIESEL RAM	NGE					Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/7/2016 5:59:24 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/7/2016 5:59:24 PM
Surr: DNOP	102	70-141		%Rec	1	3/7/2016 5:59:24 PM
EPA METHOD 8015D: GASOLINE RA	NGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2016 10:11:02 PM
Surr: BFB	89.2	49.5-130		%Rec	1	3/4/2016 10:11:02 PM
EPA METHOD 8310: PAHS						Analyst: SCC
Naphthalene	ND	2.0		μg/L	1	3/17/2016 1:25:22 PM
1-Methylnaphthalene	ND	2.0		μg/L	1	3/17/2016 1:25:22 PM
2-Methylnaphthalene	ND	2.0		μg/L	1	3/17/2016 1:25:22 PM
Benzo(a)pyrene	ND	0.070		μg/L	1	3/17/2016 1:25:22 PM
Surr: Benzo(e)pyrene	75.2	33.4-129		%Rec	1	3/17/2016 1:25:22 PM
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	2.6	2.0		mg/L	20	3/4/2016 3:28:16 PM
Chloride	100	10		mg/L	20	3/4/2016 3:28:16 PM
Nitrogen, Nitrate (As N)	1.5	0.10		mg/L	1	3/4/2016 3:15:51 PM
Sulfate	1100	25		mg/L	50	3/18/2016 3:17:58 AM
EPA METHOD 200.7: DISSOLVED ME	ETALS					Analyst: ELS
Aluminum	ND	0.020		mg/L	1	3/18/2016 6:33:30 PM
Barium	0.047	0.0020		mg/L	1	3/18/2016 6:33:30 PM
Boron	0.066	0.040		mg/L	1	3/18/2016 6:33:30 PM
Cadmium	ND	0.0020		mg/L	1	3/18/2016 6:33:30 PM
Chromium	ND	0.0060		mg/L	1	3/18/2016 6:33:30 PM
Cobalt	ND	0.0060		mg/L	1	3/18/2016 6:33:30 PM

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

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 Page 1 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/1/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 3/3/2016 9:30:00 AMLab ID:1603243-001Matrix: AQUEOUSReceived Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED ME	TALS				Analyst: ELS
Copper	ND	0.0060	mg/L	1	3/23/2016 5:28:16 PM
Iron	ND	0.020	mg/L	1	3/18/2016 6:33:30 PM
Manganese	ND	0.0020	mg/L	1	3/18/2016 6:33:30 PM
Molybdenum	ND	0.0080	mg/L	1	3/18/2016 6:33:30 PM
Nickel	ND	0.010	mg/L	1	3/18/2016 6:33:30 PM
Silver	ND	0.0050	mg/L	1	3/18/2016 6:33:30 PM
Zinc	0.043	0.010	mg/L	1	3/18/2016 6:33:30 PM
EPA 200.8: DISSOLVED METALS					Analyst: JLF
Arsenic	ND	0.0050	mg/L	5	3/29/2016 5:48:50 PM
Lead	ND	0.00050	mg/L	1	3/28/2016 8:28:07 PM
Selenium	0.0065	0.0010	mg/L	1	3/28/2016 8:28:07 PM
Uranium	0.0042	0.00050	mg/L	1	3/28/2016 8:28:07 PM
EPA METHOD 245.1: MERCURY					Analyst: pmf
Mercury	ND	0.00020	mg/L	1	3/10/2016 11:34:07 AM
EPA METHOD 8260B: VOLATILES					Analyst: DJF
Benzene	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Toluene	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Ethylbenzene	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Chloroform	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Methylene Chloride	ND	3.0	μg/L	1	3/11/2016 8:44:01 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	3/11/2016 8:44:01 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Vinyl chloride	ND	1.0	μg/L	1	3/11/2016 8:44:01 PM
Xylenes, Total	ND	1.5	μg/L	1	3/11/2016 8:44:01 PM
Surr: 1,2-Dichloroethane-d4	101	70-130	%Rec	1	3/11/2016 8:44:01 PM
Surr: 4-Bromofluorobenzene	107	70-130	%Rec	1	3/11/2016 8:44:01 PM
Surr: Dibromofluoromethane	99.8	70-130	%Rec	1	3/11/2016 8:44:01 PM
Surr: Toluene-d8	94.1	70-130	%Rec	1	3/11/2016 8:44:01 PM

TOTAL PHENOLICS BY SW-846 9067

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

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 Page 2 of 21

Analyst: SCC

- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/1/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 3/3/2016 9:30:00 AMLab ID:1603243-001Matrix: AQUEOUSReceived Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL Q	Qual U	Inits	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: SCC
Phenolics, Total Recoverable	ND	2.5	ŀ	µg/L	1	3/8/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: SUB
Cyanide	ND	0.0100	r	mg/L	1	3/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE)				Analyst: SUB
Radium-226	0.561	0.671	F	oCi/L	1	3/21/2016 10:40:00 AM
Radium-226 ±	0.478	0.671	F	oCi/L	1	3/21/2016 10:40:00 AM
Radium-228	0.425	0.810	F	oCi/L	1	3/21/2016 10:40:00 AM
Radium-228 ±	0.397	0.810	F	oCi/L	1	3/21/2016 10:40:00 AM
SM4500-H+B: PH						Analyst: JRR
рН	8.15	1.68	Н р	oH units	1	3/7/2016 7:58:22 PM
SM2540C MOD: TOTAL DISSOLVED SO	LIDS					Analyst: KS
Total Dissolved Solids	2490	20.0	* r	mg/L	1	3/9/2016 11:47:00 AM

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

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 Page 3 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1603243-002 **Matrix:** TRIP BLANK **Received Date:** 3/4/2016 10:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RAI	NGE				Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	3/4/2016 10:35:40 PM
Surr: BFB	87.8	49.5-130	%Rec	1	3/4/2016 10:35:40 PM
EPA METHOD 8260B: VOLATILES					Analyst: DJF
Benzene	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Toluene	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Ethylbenzene	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Chloroform	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Methylene Chloride	ND	3.0	μg/L	1	3/11/2016 9:12:13 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	3/11/2016 9:12:13 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Vinyl chloride	ND	1.0	μg/L	1	3/11/2016 9:12:13 PM
Xylenes, Total	ND	1.5	μg/L	1	3/11/2016 9:12:13 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130	%Rec	1	3/11/2016 9:12:13 PM
Surr: 4-Bromofluorobenzene	110	70-130	%Rec	1	3/11/2016 9:12:13 PM
Surr: Dibromofluoromethane	94.6	70-130	%Rec	1	3/11/2016 9:12:13 PM
Surr: Toluene-d8	98.6	70-130	%Rec	1	3/11/2016 9:12:13 PM

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

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 Page 4 of 21
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603243**

01-Apr-16

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

Sample ID MB-C SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: C32891 RunNo: 32891 Prep Date: Analysis Date: 3/18/2016 SeqNo: 1008301 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Iron ND 0.020 ND 0.0020 Manganese Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-C	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	ls	
Client ID: LCSW	Bato	h ID: C3	2891	R	RunNo: 3	2891				
Prep Date:	Analysis	Date: 3/	18/2016	S	SeqNo: 1	008302	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	85	115			
Barium	0.50	0.0020	0.5000	0	99.1	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.8	85	115			
Iron	0.49	0.020	0.5000	0	98.4	85	115			
Manganese	0.49	0.0020	0.5000	0	97.8	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	93.6	85	115			
Zinc	0.48	0.010	0.5000	0	96.3	85	115			

Sample ID LLLCS-C	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID: BatchQC	Bato	h ID: C3	2891	R	RunNo: 3	2891				
Prep Date:	Analysis I	Date: 3/	18/2016	S	SeqNo: 1	008303	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	111	50	150			
Barium	0.0021	0.0020	0.002000	0	103	50	150			
Boron	ND	0.040	0.04000	0	97.7	50	150			
Cadmium	ND	0.0020	0.002000	0	99.5	50	150			
Chromium	ND	0.0060	0.006000	0	87.8	50	150			

Qualifiers:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
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- S % Recovery outside of range due to dilution or matrix
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- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Page 5 of 21

Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1603243

01-Apr-16

Project:	•	thly Temporary R.O.	Reject							
Sample ID	LLLCS-C	SampType: L0	CSLL	Test	Code: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Batch ID: C:	32891	R	unNo: 3	2891				
Prep Date:		Analysis Date: 3	/18/2016	S	eqNo: 10	008303	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt		ND 0.0060	0.006000	0	85.3	50	150			
Iron		0.021 0.020	0.02000	0	103	50	150			
Manganese		0.0021 0.0020	0.002000	0	104	50	150			
Molybdenum		0.0097 0.0080	0.008000	0	121	50	150			
Nickel		ND 0.010	0.005000	0	98.6	50	150			
Silver		ND 0.0050	0.005000	0	76.2	50	150			
Zinc		ND 0.010	0.005000	0	100	50	150			
Sample ID	LCS-C	SampType: Lo	cs	Test	Code: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	LCSW	Batch ID: C:	32891	R	unNo: 3	2891				
Prep Date:		Analysis Date: 3	/18/2016	S	eqNo: 10	008305	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver		0.10 0.0050	0.1000	0	101	85	115			
Sample ID	мв-с	SampType: M	BLK	Test	Code: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Batch ID: C	33001	R	unNo: 3	3001				
Prep Date:		Analysis Date: 3	/23/2016	S	eqNo: 10	012812	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		ND 0.0060								
Sample ID	LCS-C	SampType: L0	cs	Test	Code: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	LCSW	Batch ID: C	33001	R	unNo: 3	3001				
Prep Date:		Analysis Date: 3	/23/2016	S	eqNo: 10	012813	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		0.48 0.0060	0.5000	0	95.4	85	115			
Sample ID	LLLCS-C	SampType: Lo	CSLL	Test	Code: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Batch ID: C:	33001	R	unNo: 3	3001				
Prep Date:		Analysis Date: 3	/23/2016	S	eqNo: 10	012814	Units: mg/L			

Qualifiers:

Analyte

Copper

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

Result

0.0074

0.0060

0.006000

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

HighLimit

150

%RPD

RPDLimit

Qual

E Value above quantitation range

124

- J Analyte detected below quantitation limits
- P Sample pH Not In Range

SPK value SPK Ref Val %REC

0

- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified

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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: **1603243**

01-Apr-16

Project:	Mont	aly Temporary R.O. Reject
Sample ID	LCS	SampType: LCS TestCode: EPA 200.8: Dissolved Metals
Client ID:	LCSW	Batch ID: C33120 RunNo: 33120
Prep Date:		Analysis Date: 3/28/2016 SeqNo: 1016768 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 98.1 85 115
Selenium		0.026 0.0010 0.02500 0 103 85 115
Uranium		0.012 0.00050 0.01250 0 95.1 85 115
Sample ID	LLLCS	SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals
Client ID:	BatchQC	Batch ID: C33120 RunNo: 33120
Prep Date:		Analysis Date: 3/28/2016 SeqNo: 1016770 Units: mg/L
Analyte		Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Lead		0.00051 0.00050 0.0005000 0 103 50 150
Selenium		0.0011 0.0010 0.001000 0 108 50 150
Uranium		ND 0.00050 0.0005000 0 96.8 50 150
Sample ID	MB	SampType: MBLK TestCode: EPA 200.8: Dissolved Metals
Client ID:	PBW	Batch ID: C33120 RunNo: 33120
Prep Date:		Analysis Date: 3/28/2016 SeqNo: 1016772 Units: mg/L
Analyte		Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Lead		ND 0.00050
Selenium		ND 0.0010
Uranium		ND 0.00050
Sample ID	LCS	SampType: LCS TestCode: EPA 200.8: Dissolved Metals
Client ID:	LCSW	Batch ID: B33154 RunNo: 33154
Prep Date:		Analysis Date: 3/29/2016 SeqNo: 1018089 Units: mg/L
Analyte		Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Arsenic		0.024 0.0010 0.02500 0 97.7 85 115
Sample ID	LLLCS	SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals
Client ID:	BatchQC	Batch ID: B33154 RunNo: 33154

Qualifiers:

Prep Date:

Analyte

Arsenic

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

Analysis Date: 3/29/2016

0.0010

0.001000

Result

ND

- 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

SeqNo: 1018090

98.0

SPK value SPK Ref Val %REC

0

Units: mg/L

HighLimit

150

%RPD

RPDLimit

Qual

D. Canala all Nat In Danas

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- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1603243**

01-Apr-16

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

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: B33154 RunNo: 33154

Prep Date: Analysis Date: 3/29/2016 SeqNo: 1018091 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603243**

01-Apr-16

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

Sample ID MB-24156 SampType: mblk TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 24156 RunNo: 32702

Prep Date: 3/9/2016 Analysis Date: 3/10/2016 SeqNo: 1000942 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-24156 SampType: Ics TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 24156 RunNo: 32702

Prep Date: 3/9/2016 Analysis Date: 3/10/2016 SeqNo: 1000945 Units: mg/L

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

Mercury 0.0054 0.00020 0.005000 0 109 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

9.5

0.50

10.00

WO#: 1603243

01-Apr-16

Client:	Navajo Refining Company	/							
Project:	Monthly Temporary R.O.	Reject							
Sample ID MB	SampType: M	BLK	Tes	Code: El	PA Method	300.0: Anions	5		
Client ID: PBW	Batch ID: R	32618	R	RunNo: 3	2618				
Prep Date:	Analysis Date: 3	3/4/2016	S	SeqNo: 9	97926	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	1							
Nitrogen, Nitrate (As N) ND 0.10)							
Sample ID LCS	SampType: L (cs	Tes	Code: EI	PA Method	300.0: Anions	5		
Client ID: LCSV	V Batch ID: R	32618	R	RunNo: 32	2618				
Prep Date:	Analysis Date: 3	3/4/2016	S	SeqNo: 9	97927	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50 0.10	0.5000	0	101	90	110			
Chloride	4.7 0.50	5.000	0	94.9	90	110			
Nitrogen, Nitrate (As N) 2.5 0.10	2.500	0	101	90	110			
Sample ID MB	SampТуре: M	BLK	Tes	Code: El	PA Method	300.0: Anions	3		
Client ID: PBW	Batch ID: R	32879	R	RunNo: 3	2879				
Prep Date:	Analysis Date: 3	3/17/2016	S	SeqNo: 10	007965	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: L0	cs	Tes	Code: El	PA Method	300.0: Anions	<u> </u>		
Client ID: LCSV	V Batch ID: R	32879	R	RunNo: 3	2879				
Prep Date:	Analysis Date: 3	3/17/2016	S	SeqNo: 10	007966	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

Sulfate

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range

94.6

110

- J Analyte detected below quantitation limits
- Page 10 of 21

- P Sample pH Not In Range
- RLReporting Detection Limit
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB-24100 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 24100 RunNo: 32621

Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 998470 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-24100 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 24100 RunNo: 32621

Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 998471 Units: µg/L

LowLimit Result SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Analyte PQL Qual

1,2-Dibromoethane 0.11 0.010 0.1000 0 108 70 130

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Reporting Detection Limit

P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID LCS-24101 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range LCSW Client ID: Batch ID: 24101 RunNo: 32603 Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 997914 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 5.9 1.0 5.000 0 118 71.3 139 Surr: DNOP 0.50 0.5000 99.7 70 141

Sample ID MB-24101 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 24101 RunNo: 32603 Prep Date: 3/7/2016 Analysis Date: 3/7/2016 SeqNo: 997915 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 0.91 1.000 90.8 70 141

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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: A32596 RunNo: 32596

Prep Date: Analysis Date: 3/4/2016 SeqNo: 997207 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 20.00 95.0 49.5 19 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: A32596 RunNo: 32596

Prep Date: Analysis Date: 3/4/2016 SeqNo: 997208 Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) 0.51 0.050 0.5000 103 80 120 Surr: BFB 21 20.00 106 49.5 130

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

3.1

3.3

2.2

3.0

1.0

1.0

5.000

5.000

2.500

2.500

WO#: **1603243**

01-Apr-16

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

Sample ID MB-24175	SampType: M	BLK	Test	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch ID: 24	175	R	RunNo: 3	2727				
Prep Date: 3/10/2016	Analysis Date: 3	/11/2016	S	SeqNo: 1	002684	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		94.4	26.1	140			
Surr: Tetrachloro-m-xylene	3.9	2.500		155	15	123			S
Sample ID LCS-24175	SampType: L (s	Test	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 24	175	R	RunNo: 3	2727				
Prep Date: 3/10/2016	Analysis Date: 3	/11/2016	S	SeqNo: 1	002685	Units: µg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sample ID LCSD-24175	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	n ID: 24	175	F	RunNo: 3	2727				
Prep Date: 3/10/2016	Analysis D	ate: 3/	11/2016	S	SeqNo: 1	002686	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.4	1.0	5.000	0	68.0	15	131	8.66	24.4	
Aroclor 1260	3.7	1.0	5.000	0	74.8	15	162	11.1	28	
Surr: Decachlorobiphenyl	2.4		2.500		94.8	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	3.3		2.500		130	15	123	0	0	S

0

0

62.3

66.9

89.2

122

15

15

15

26.1

131

162

140

123

Qualifiers:

Aroclor 1016

Aroclor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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: B32762			RunNo: 32762						
Prep Date:	Analysis Date: 3/11/2016		SeqNo: 1002996			Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		90.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID 100ng lcs b	SampT	ype: LC	s	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch	n ID: B3	2762	RunNo: 32762						
Prep Date:	Analysis Date: 3/11/2016			5	SeqNo: 1	003007	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.5	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.8	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.1		10.00		90.9	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P

Sample pH Not In Range

RLReporting Detection Limit

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB-24176 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: **PBW** Batch ID: 24176 RunNo: 32851 Prep Date: 3/10/2016 Analysis Date: 3/17/2016 SeqNo: 1006908 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 ND 0.30 Pyrene Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 Surr: Benzo(e)pyrene 13 20.00 64.4 33.4 129

Sample ID LCS-24176	SampType: LCS			Tes	tCode: El	PA Method				
Client ID: LCSW	Batch ID: 24176			F	2851					
Prep Date: 3/10/2016	Analysis Date: 3/17/2016			S	SeqNo: 1	006935	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.6	54.6	110			
1-Methylnaphthalene	75	2.0	80.20	0	93.6	49.1	116			
2-Methylnaphthalene	75	2.0	80.00	0	94.1	52.5	111			
Acenaphthylene	69	2.5	80.20	0	85.9	63.7	122			
Acenaphthene	77	2.0	80.00	0	96.2	50.6	114			
Fluorene	8.0	0.80	8.020	0	99.6	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	100	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	8.1	0.30	8.020	0	101	59.7	118			
Benz(a)anthracene	0.75	0.070	0.8020	0	93.5	56.6	109			
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.96	0.10	1.002	0	95.8	54.9	106			
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603243**

01-Apr-16

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

Sample ID LCS-24176 SampType: LCS TestCode: EPA Method 8310: PAHs LCSW Client ID: Batch ID: 24176 RunNo: 32851 SeqNo: 1006935 Prep Date: 3/10/2016 Analysis Date: 3/17/2016 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzo(a)pyrene 0.53 0.070 0.5020 0 106 62 107 0 103 54.8 Dibenz(a,h)anthracene 1.0 0.12 1.002 108 0.12 0 103 56.9 Benzo(g,h,i)perylene 1.0 1.000 110 Indeno(1,2,3-cd)pyrene 2.1 0.25 2.004 0 105 55.2 109 Surr: Benzo(e)pyrene 17 20.00 83.0 33.4 129

Sample ID LCSD-24176	SampType: LCSD TestCode: EPA Method 8310: PAHs									
Client ID: LCSS02	Batc	h ID: 24 ′	176	R	2851					
Prep Date: 3/10/2016	Analysis Date: 3/17/2016			S	SeqNo: 1	006990	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.3	54.6	110	0.314	20	
1-Methylnaphthalene	73	2.0	80.20	0	91.2	49.1	116	2.51	20	
2-Methylnaphthalene	73	2.0	80.00	0	90.7	52.5	111	3.64	20	
Acenaphthylene	68	2.5	80.20	0	85.4	63.7	122	0.640	20	
Acenaphthene	74	2.0	80.00	0	92.3	50.6	114	4.22	20	
Fluorene	7.2	0.80	8.020	0	89.7	48.9	106	10.5	20	
Phenanthrene	4.0	0.60	4.020	0	99.5	54.7	110	0.747	24	
Anthracene	3.7	0.60	4.020	0	92.5	52	106	0	20	
Fluoranthene	8.7	0.30	8.020	0	108	57.8	113	0.460	20.9	
Pyrene	8.1	0.30	8.020	0	101	59.7	118	0.618	20.8	
Benz(a)anthracene	0.77	0.070	0.8020	0	96.0	56.6	109	2.63	20	
Chrysene	4.1	0.20	4.020	0	102	57.6	110	0.244	20	
Benzo(b)fluoranthene	0.95	0.10	1.002	0	94.8	54.9	106	1.05	20.6	
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112	0	20.8	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	0	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	104	54.8	108	0.966	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	103	56.9	110	0	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	0	20	
Surr: Benzo(e)pyrene	17		20.00		82.8	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB-24124 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 24124 RunNo: 32622

Prep Date: 3/8/2016 Analysis Date: 3/8/2016 SeqNo: 998125 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-24124 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 24124 Client ID: LCSW RunNo: 32622

Prep Date: 3/8/2016 Analysis Date: 3/8/2016 SeqNo: 998126 Units: µg/L

RPDLimit Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD Analyte LowLimit Qual

Phenolics, Total Recoverable 21 2.5 20.00 0 106 64.4 135

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1603243**

01-Apr-16

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

Sample ID MB-R33030 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R33030 RunNo: 33030

Prep Date: Analysis Date: 3/8/2016 SeqNo: 1013399 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R33030 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R33030 RunNo: 33030

Prep Date: Analysis Date: 3/8/2016 SeqNo: 1013400 Units: mg/L

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

Cyanide 0.545 0.5000 0 109 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

D G 1 HN I D

P Sample pH Not In Range RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Page 19 of 21

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB-R32960 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R32960 RunNo: 32960

SeqNo: 1010971 Prep Date: Analysis Date: 3/21/2016 Units: pCi/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Radium-226 0 0.643 Radium-226 ± 0.287 0.643 Radium-228 0.31 0.686 Radium-228 ± 0.33 0.686

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB-24120 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 24120 RunNo: 32669

Prep Date: 3/7/2016 Analysis Date: 3/9/2016 SeqNo: 999682 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-24120 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Batch ID: 24120 Client ID: LCSW RunNo: 32669

Prep Date: 3/7/2016 Analysis Date: 3/9/2016 SeqNo: 999683 Units: mg/L

Result SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte PQL Qual

Total Dissolved Solids 1030 20.0 1000 0 103 120

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Page 21 of 21



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

RcptNo: 1 **NAVAJO REFINING CO** Work Order Number: 1603243 Client Name: Received by/date: 3/4/2016 10:00:00 AM Logged By: Ashley Gallegos 3/4/2016 10:29:02 AM Completed By: Ashley Gallegos 03/04/16 Reviewed By: TO Chain of Custody No 🗀 Not Present Yes 1. Custody seals intact on sample bottles? No [] Not Present Yes 🐼 2. Is Chain of Custody complete? Courier 3. How was the sample delivered? Log In NA No 🗀 Yes 🖈 4. Was an attempt made to cool the samples? No 🔲 NA [_] Were all samples received at a temperature of >0° C to 6.0°C No 🗀 Yes 🏓 Sample(s) in proper container(s)? No 🗀 7. Sufficient sample volume for indicated test(s)? Yes No [..] 8. Are samples (except VOA and ONG) properly preserved? Yes NA [] No 🗷 Yes 🗔 9. Was preservative added to bottles? No VOA Vials No 🗀 Yes 😿 10. VOA vials have zero headspace? Yes 11. Were any sample containers received broken? # of preserved bottles checked for pH: No 🗔 12. Does paperwork match bottle labels? Yes unless noted) (Note discrepancies on chain of custody) Adjusted? No | 13. Are matrices correctly identified on Chain of Custody? Yes No [14. Is it clear what analyses were requested? a\ Checked by: No [...] Yes 🖈 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA 🐼 No 🗌 Yes ... 16. Was client notified of all discrepancies with this order? Date Person Notified: eMail Phone Fax In Person By Whom: Via: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Seal Intact | Seal No Seal Date Signed By Condition Cooler No Temp °C Good

Air Bubbles (Y or N) > VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methynaphthalene, naphthalene × 804.1:EDB ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichlorosthane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Hd × Dibromoethane; 1.2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Vitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene: Total Xylenes; Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request × Phenols Sulfate Chloride × × Radioactivity (Ra-226+Ra-228) **bcBs** × :2808 Tel. 505-345-3975 × × СКО, DRO, ОКО :6108 Mercury × :0747 × Total Cyanide 335.4: × × Remarks 8270C: WQCC list SVOCs × 8260B:WQCC List VOCs 000/ というい Time Time HEAL No. 03/64/16 Date Sample Temperature, 2.3-10= **8** □ Monthly Temporary R.O. Reject Elizbeth Salsberry Rush Preservative Project #: P.O. # 167796 3-40ml VOA Na2S203 1 - 1L Glass | H2SO4 1-250mlGlas unpres 1 - 1L Glass unpres 2 - 1L Glass unpres HN03 -nubres HN03 HN03 NaOH X Yes H2S04 2-40ml VOA HCL 3-40ml VOA HCI וחווו-אוסחות וווופי 3-40ml VOA HCL Project Manager: Robert Combs Project Name: 2 - 500ml P X Standard Type and # Container 1-500ml P Received by: 1-500ml P 1-125ml P B Received by Sampler: 2-1LP On Ice: ☐ Level 4 (Full Validation) Temporary R.O. Reject Temporary R.O. Reject Temporary R.O. Reject Relinquished by Elizabeth Saldorny Temporary R.O. Reject Temporary R.O. Reject Sample Request ID Temporary R.O. Reject Chain-of-Custody Record Eisabeth doublasmy Trip Blank ailing Address: P.O. Box 159 Artesia. Relinquished by nail or Fax#: 575-746-5451 Matrix ient: Navajo Refinery 10ne #: 575-748-3311 9:30 liquid 1:00 M 88211-0159 A/QC Package: Тіте EDD (Type) Time: Time: Standard 3/3/16 3/3/16 Other 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 3/3/16 Date)ate:)ate:

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



April 4, 2016

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail 7014 3490 0000 6269 5833

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order - RO Reject February 2015 ACO - Civil Penalty Payment

HollyFrontier Navajo LLC

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$300 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for February 2016 submitted electronically on March 15, 2016. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc:

OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC:

Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

160404 RO Reject ACO Civil Penalty Payment

Combs, Robert

From: Chavez, Carl J, EMNRD < CarlJ.Chavez@state.nm.us>

Sent: Friday, March 18, 2016 9:13 AM
To: Denton, Scott; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert (Bob)

K.; Holder, Mike; Combs, Robert

Subject: WQA-OCD-C0-2015-002 ACO RO Reject Water Discharge Monthly Report for February

1 - 4, 2016 Reporting Period (Final Penalty Amount)

Scott:

The New Mexico Oil Conservation Division has completed its review of the above subject report and concurs with the Permittee's calculated penalty amount of \$300.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM Environmental Engineer Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505

Phone: (505) 476-3490 Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u> Website: <u>www.emnrd.state.nm.us/ocd</u>

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

03/24/2016 Check Date Check Amount 300.00 Vendor No 5126527 Payment Document 2000034595 Company Code 1020

Invoice Date	Invoice Number	Description		Invoice	Amount Discoun	Amount	Net Amount
03/22/2016	032216	OCD REJECT	WATER DISCHARGE	FINAL PE	300.00	0.00	300.00
Payment (2000034595		Check number	Date 03/24/2016		Currency		Payment amount **********300.00*

I PLEASE FOLD ON PERFORATION AND DETACH HERE I

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT.

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

64-1278/611

1000323451 03/24/2016

PAY EXACTLY **********300.00*USD

VOID AFTER 180 DAYS

*** THREE HUNDRED and 00 /100 USD*** PAY

TO THE

STATE OF N M GENERAL FUND ORDER OF

DIRECTOR OIL CONSERVATION DIV

NM EMNR

1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Bank of America N.A.

AUTHORIZED SIGNATURE



Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Friday, March 18, 2016 9:13 AM

To: Denton, Scott (Scott.Denton@HollyFrontier.com); Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise

(Denise.McWatters@hollyfrontier.com); O'Brien, Robert (Bob) K.

(Robert.O'Brien@HollyFrontier.com); Holder, Mike (Mike.Holder@hollyfrontier.com);

Combs, Robert (Robert.Combs@hollyfrontier.com)

Subject: WQA-OCD-C0-2015-002 ACO RO Reject Water Discharge Monthly Report for February

1 - 4, 2016 Reporting Period (Final Penalty Amount)

Scott:

The New Mexico Oil Conservation Division has completed its review of the above subject report and concurs with the Permittee's calculated penalty amount of \$300.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM Environmental Engineer Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3490

Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u>
Website: <u>www.emnrd.state.nm.us/ocd</u>

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Wednesday, March 16, 2016 4:17 PM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Combs, Robert; Denton, Scott; Aguilar, Susie

Subject: ACO Monthly Report for February 2016 and GW-28 Report for February 2016

Attachments: 2016-03-15 ACO Monthly Report Feb 2016 Reporting Period.pdf; 2016-03-16 GW-028

Monthly Report Feb 2016 Reporting Period.pdf

Jim & Carl,

Attached it the final monthly report for the ACO covering February concerning the RO Reject. We will be submitting reports according to the GW-28 permit from February going forward. These reports were mailed yesterday.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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March 15, 2016

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report - February 1 to February 4, 2016 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD) on the 15th day of the month following each monthly reporting period. OCD issued modifications to Discharge Permit GW-028 with an effective date of February 4, 2016, and as a result, the Agreed Order has been terminated as of that date. However, to meet the requirements of the Order through February 4, 2016, Navajo hereby submits this letter and all attachments constituting Navajo's February 2016 monthly report. This monthly report covers the period of February 1 through February 4, 2016, and is the final report to satisfy requirements under the Order. Monthly reporting required by the modified Discharge Permit GW-028, Condition 4.B.7, will commence in March 2016.

Specifically, this report covers the February 1 through February 4, 2016 reporting period, and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a-c:

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted the GW-028 discharge permit modification request on May 22, 2015, prior to 30 days from April 27, 2015, the date of the Order. Therefore, for the period of February 1 through February 4, 2016, reporting period, Paragraph III.2.b.i.2 of the Order is applicable. Stipulated penalties were calculated for each day following Navajo's submittal of the permit modification request, and prior to OCD action on that request, as follows:

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from February 1 through February 4.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from February 1 through February 4.

Navajo has calculated a penalty of \$300 for the reporting period from February 1 through February 4, 2016. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit in effect during the reporting period, but was under 15,000 barrels total, on 3 days from February 1 to February 4, 2016. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on February 4, 2016. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a notification to submit to OCD for Discharge Permit GW-028 authorization regarding installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid

produced. Navajo is also evaluating options for the underground injection, and other options for discharge, of RO reject fluid.

OCD issued the final modified permit conditions on February 4, 2016. In accordance with the modified Condition 4.B.4, Navajo is maintaining daily records of the flow rate and volumes from each RO unit, as well as the discharge locations. No exceedances of the 15,000 bpd limit have occurred since the permit modifications took effect on February 4, 2016. In accordance with the modified Condition 4.B.7, Navajo will submit under separate cover a monthly report to include the daily discharge flow measurements and analytical sample results for the February reporting period by March 15, 2016.

Navajo is currently preparing an early submittal of the Renewal Application for Discharge Permit GW-028. The Renewal Application will include a permit application for construction and operation of water management ponds for evaporation of RO reject fluid and possibly additional fluid streams.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	nt RO Units	Tempor	Daily Discharge Volume		
	Metere	ed Data		l RO Reject Calculated)	(Calculate	ect Discharge d from Log ta)	
	GPM	GPM	GPM	GPM BBL/DAY		BBL/DAY	BBL
	SOUTH	NORTH					
2/1/2016	91	81	172	5,897	145	4957	10,854
2/2/2016	89	88	177	6,069	154	154 5271	
2/3/2016	89	88	177 6,069		98	3365	9,434
2/4/2016	94	83	177	6,069	122	4167	10,236

Attachment 2 Stipulated Penalty Calculation

Calculation of Stipulated Penalties – February 1 – February 4, 2016

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000	er i	\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	3	\$300
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	mount:	\$300

Attachment 3 Analytical Lab Report



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

February 24, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly R.O. Reject OrderNo.: 1602206

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/5/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 22, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

anded

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report Lab Order 1602206

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 2/4/2016 9:35:00 AM

 Lab ID:
 1602206-001
 Matrix: AQUEOUS
 Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: JLF
Arsenic	ND	0.0050		mg/L	5	2/9/2016 4:03:42 PM	A32026
Lead	ND	0.00050		mg/L	1	2/8/2016 7:55:24 PM	B31999
Selenium	0.0086	0.0010		mg/L	1	2/8/2016 7:55:24 PM	B31999
Uranium	0.0049	0.00050		mg/L	1	2/8/2016 7:55:24 PM	B31999
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	: SUB
Radium-226	0.537	0.826		pCi/L	1	2/16/2016	R32295
Radium-226 ±	0.546	0.826		pCi/L	1	2/16/2016	R32295
Radium-228	0.595	0.672		pCi/L	1	2/16/2016	R32295
Radium-228 ±	0.361	0.672		pCi/L	1	2/16/2016	R32295
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	2.2	0.10		mg/L	1	2/6/2016 12:10:43 AM	R31977
Chloride	71	10		mg/L	20	2/6/2016 12:23:08 AM	R31977
Nitrogen, Nitrate (As N)	1.3	0.10		mg/L	1	2/6/2016 12:10:43 AM	R31977
Sulfate	900	25		mg/L	50	2/18/2016 7:37:57 PM	R32274
SM2540C MOD: TOTAL DISSOLVED SO	LIDS					Analyst	: KS
Total Dissolved Solids	1940	20.0	*	mg/L	1	2/10/2016 3:47:00 PM	23638
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	: SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH						Analyst	: MRA
рН	7.94	1.68	Н	pH units	1	2/8/2016 3:55:25 PM	R32011
EPA METHOD 200.7: DISSOLVED META	LS					Analyst	: ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Barium	0.059	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Boron	0.094	0.040		mg/L	1	2/24/2016 11:17:05 AM	B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Molybdenum	0.0094	0.0080		mg/L	1	2/24/2016 11:17:05 AM	B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:17:05 AM	B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:17:05 AM	B32368
Zinc	0.023	0.010		mg/L	1	2/24/2016 11:17:05 AM	B32368
EPA METHOD 245.1: MERCURY						Analyst	: pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:05:40 PM	23640

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

Qualifiers: *	Value exceeds Maximum	Con
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- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

taminant Level.

- 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1602206**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 2/4/2016 9:35:00 AM

 Lab ID:
 1602206-001
 Matrix: AQUEOUS
 Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF Date Analyzed Ba	atch
EPA METHOD 8011/504.1: EDB				Analyst: J l	ME
1,2-Dibromoethane	ND	0.010	μg/L	1 2/8/2016 12:55:14 PM 23	3604
EPA METHOD 8082: PCB'S				Analyst: S	CC
Aroclor 1016	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1221	ND	1.0	μg/L		3676
Aroclor 1232	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1242	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1248	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1254	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1260	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Surr: Decachlorobiphenyl	96.0	26.1-140	%Rec	1 2/17/2016 7:18:10 AM 23	3676
Surr: Tetrachloro-m-xylene	60.8	15-123	%Rec	1 2/17/2016 7:18:10 AM 23	3676
EPA METHOD 8015M/D: DIESEL RAN	IGE			Analyst: T 0	ОМ
Diesel Range Organics (DRO)	ND	1.0	mg/L	1 2/8/2016 1:52:07 PM 23	3596
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1 2/8/2016 1:52:07 PM 23	3596
Surr: DNOP	105	70-141	%Rec	1 2/8/2016 1:52:07 PM 23	3596
EPA METHOD 8015D: GASOLINE RA	NGE			Analyst: R	:AA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1 2/5/2016 4:52:41 PM R	31967
Surr: BFB	86.7	49.5-130	%Rec	1 2/5/2016 4:52:41 PM R	31967
EPA METHOD 8310: PAHS				Analyst: S	CC
Naphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM 23	3677
1-Methylnaphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM 23	3677
2-Methylnaphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM 23	3677
Benzo(a)pyrene	ND	0.070	μg/L	1 2/17/2016 9:51:15 AM 23	3677
Surr: Benzo(e)pyrene	61.3	33.4-129	%Rec	1 2/17/2016 9:51:15 AM 23	3677
EPA METHOD 8260B: VOLATILES				Analyst: D	JF
Benzene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Toluene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Ethylbenzene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B:	31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B:	31998
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Carbon Tetrachloride	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Chloroform	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
1,1-Dichloroethane	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
1,1-Dichloroethene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Methylene Chloride	ND	3.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998

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

Qualifiers:	*	Value
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- * 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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1602206

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject **Collection Date:** 2/4/2016 9:35:00 AM 1602206-001 Lab ID: Matrix: AQUEOUS **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1	2/9/2016 5:47:24 AM	B31998
Surr: 1,2-Dichloroethane-d4	93.8	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: 4-Bromofluorobenzene	111	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: Dibromofluoromethane	100	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: Toluene-d8	103	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	2/18/2016	23801

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

Value exceeds Maximum Contaminant Level.

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 23 J
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Qualifiers:

Analytical Report

Lab Order 1602206

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank **Project:** Monthly R.O. Reject **Collection Date:**

1602206-002 Lab ID: Matrix: TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result PQ		Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	st: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	2/8/2016 1:10:09 PM	23604
EPA METHOD 8015D: GASOLINE RANG	E				Analys	st: RAA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	2/5/2016 5:17:25 PM	R31967
Surr: BFB	82.9	49.5-130	%Rec	1	2/5/2016 5:17:25 PM	R31967
EPA METHOD 8260B: VOLATILES					Analys	st: DJF
Benzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Toluene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Ethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Methyl tert-butyl ether (MTBE)	ND	1.0		1	2/9/2016 6:15:43 AM	B31998
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0		1	2/9/2016 6:15:43 AM	B31998
Naphthalene	ND	2.0	. 0	1	2/9/2016 6:15:43 AM	B31998
1-Methylnaphthalene	ND	4.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
2-Methylnaphthalene	ND	4.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Acetone	ND	10		1	2/9/2016 6:15:43 AM	B31998
Bromobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Bromodichloromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Bromoform	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Bromomethane	ND	3.0	. •	1	2/9/2016 6:15:43 AM	B31998
2-Butanone	ND	10	1.0	1	2/9/2016 6:15:43 AM	B31998
Carbon disulfide	ND	10	1.0	1	2/9/2016 6:15:43 AM	B31998
Carbon Tetrachloride	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Chlorobenzene	ND	1.0	. •	1	2/9/2016 6:15:43 AM	B31998
Chloroethane	ND	2.0		1	2/9/2016 6:15:43 AM	B31998
Chloroform	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Chloromethane	ND	3.0	. •	1	2/9/2016 6:15:43 AM	B31998
2-Chlorotoluene	ND	1.0	1.0	1	2/9/2016 6:15:43 AM	B31998
4-Chlorotoluene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
cis-1,2-DCE	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dibromo-3-chloropropane	ND	2.0	. •	1	2/9/2016 6:15:43 AM	B31998
Dibromochloromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Dibromomethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,3-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,4-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
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- Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 23 J
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1602206**

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly R.O. Reject Collection Date:

Lab ID: 1602206-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result PQL Qual Units			DF I	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Dichlorodifluoromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichloropropane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,3-Dichloropropane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
2,2-Dichloropropane	ND	2.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Hexachlorobutadiene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
2-Hexanone	ND	10	μg/L	1	2/9/2016 6:15:43 AM	B31998
Isopropylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
4-Isopropyltoluene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
4-Methyl-2-pentanone	ND	10	μg/L	1	2/9/2016 6:15:43 AM	B31998
Methylene Chloride	ND	3.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
n-Butylbenzene	ND	3.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
n-Propylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
sec-Butylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Styrene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
tert-Butylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
trans-1,2-DCE	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,1-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Trichlorofluoromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,3-Trichloropropane	ND	2.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1	2/9/2016 6:15:43 AM	B31998
Surr: 1,2-Dichloroethane-d4	94.4	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: 4-Bromofluorobenzene	105	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: Dibromofluoromethane	101	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: Toluene-d8	101	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998

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

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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB-B SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: **B32368** RunNo: 32368 Prep Date: Analysis Date: 2/24/2016 SeqNo: 989628 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-B	Samp	Type: LC	S	Test	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID: LCSW	Bato	ch ID: B3	2368	R	RunNo: 32	2368				
Prep Date:	Analysis	Date: 2/	24/2016	S	SeqNo: 98	89629	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	105	85	115	_		
Barium	0.48	0.0020	0.5000	0	96.9	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.6	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.3	85	115			
Copper	0.49	0.0060	0.5000	0	98.6	85	115			
Iron	0.49	0.020	0.5000	0	97.7	85	115			
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			
Nickel	0.47	0.010	0.5000	0	94.0	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.9	85	115			

Sample ID LLLCS-B	SampTyp	pe: LCS	SLL	Test	Code: El	PA Method	200.7: Dissol	ved Metal	s		
Client ID: BatchQC	Batch II	D: B32	368	R	unNo: 3	2368					
Prep Date:	Analysis Date: 2/24/2016			S	eqNo: 9	89630	Units: mg/L				
Analyte	Result	PQL :	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND (0.020	0.01000	0	95.9	50	150				
Barium	0.0021 0.	.0020	0.002000	0	105	50	150				

P

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
 - Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID LLLCS-B	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Disso	00.7: Dissolved Metals					
Client ID: BatchQC	Bato	h ID: B3	2368	R	RunNo: 32368								
Prep Date:	Analysis Date: 2/24/2016			S	SeqNo: 9	89630	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Boron	ND	0.040	0.04000	0	100	50	150						
Cadmium	ND	0.0020	0.002000	0	85.0	50	150						
Chromium	0.0062	0.0060	0.006000	0	103	50	150						
Cobalt	ND	0.0060	0.006000	0	97.2	50	150						
Copper	0.0064	0.0060	0.006000	0	107	50	150						
Iron	ND	0.020	0.02000	0	90.8	50	150						
Manganese	0.0020	0.0020	0.002000	0	101	50	150						
Molybdenum	0.010	0.0080	0.008000	0	130	50	150						
Nickel	ND	0.010	0.005000	0	101	50	150						
Silver	ND	0.0050	0.005000	0	95.0	50	150						
Zinc	ND	0.010	0.005000	0	90.2	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
- W Sample container temperature is out of limit as specified

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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: **1602206**

24-Feb-16

Project:	IVIO	onthly R.O. Reject									
Sample ID	LCS	SampType: LC	s	Test	tCode: El	PA 200.8: [Dissolved Me	tals			
Client ID:	LCSW	Batch ID: B3	1999	R	tunNo: 3	1999					
Prep Date:		Analysis Date: 2/3	8/2016	S	eqNo: 9	78440	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	102	85	115				
Selenium		0.026 0.0010	0.02500	0	106	85	115				
Uranium		0.013 0.00050	0.01250	0	101	85	115				
Sample ID	LLLCS	SampType: LC	SLL	Test	tCode: El	PA 200.8: [Dissolved Me	tals			
Client ID:	BatchQC	Batch ID: B3	1999	R	RunNo: 31999						
Prep Date:		Analysis Date: 2/6	8/2016	S	SeqNo: 978441 Units: mg/L						
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead		ND 0.00050	0.0005000	0	99.7	50	150				
Selenium		ND 0.0010	0.001000	0	88.9	50	150				
Uranium		ND 0.00050	0.0005000	0	98.6	50	150				
Sample ID	MD										
	IVID	SampType: ME	BLK	Test	tCode: El	PA 200.8: [Dissolved Me	tals			
Client ID:		SampType: ME Batch ID: B3			tCode: El		Dissolved Me	tals			
Client ID: Prep Date:			1999	R		1999	Dissolved Me Units: mg/L				
		Batch ID: B3	1999 8/2016	R	tunNo: 3 SeqNo: 9	1999			RPDLimit	Qual	
Prep Date:		Batch ID: B3 Analysis Date: 2 /	1999 8/2016	R	tunNo: 3 SeqNo: 9	1999 78442	Units: mg/L		RPDLimit	Qual	
Prep Date:		Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.0010	1999 8/2016	R	tunNo: 3 SeqNo: 9	1999 78442	Units: mg/L		RPDLimit	Qual	
Prep Date: Analyte Lead		Batch ID: B3 Analysis Date: 2/ 8 Result PQL ND 0.00050	1999 8/2016	R	tunNo: 3 SeqNo: 9	1999 78442	Units: mg/L		RPDLimit	Qual	
Prep Date: Analyte Lead Selenium	PBW	Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.0010	1999 8/2016 SPK value	SPK Ref Val	eunNo: 3 SeqNo: 9 %REC	1999 78442 LowLimit	Units: mg/L	%RPD	RPDLimit	Qual	
Prep Date: Analyte Lead Selenium Uranium	PBW LCS	Batch ID: B3 Analysis Date: 2/ Result PQL ND 0.00050 ND 0.0010 ND 0.00050	1999 8/2016 SPK value	SPK Ref Val	eunNo: 3 SeqNo: 9 %REC	1999 78442 LowLimit	Units: mg/L HighLimit	%RPD	RPDLimit	Qual	
Prep Date: Analyte Lead Selenium Uranium Sample ID	PBW LCS	Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.0010 ND 0.00050 SampType: LC	1999 8/2016 SPK value S 8 2026	SPK Ref Val Test	eunNo: 3 seqNo: 9 %REC	1999 78442 LowLimit PA 200.8: [Units: mg/L HighLimit	%RPD	RPDLimit	Qual	
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID:	PBW LCS	Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.0010 ND 0.00050 SampType: LC Batch ID: A3	1999 8/2016 SPK value S 2026 9/2016	SPK Ref Val Test	eunNo: 3: GeqNo: 9 %REC CCode: El	1999 78442 LowLimit PA 200.8: [Units: mg/L HighLimit Dissolved Me	%RPD	RPDLimit RPDLimit	Qual	
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date:	PBW LCS	Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.0010 ND 0.00050 SampType: LC Batch ID: A3: Analysis Date: 2/8	1999 8/2016 SPK value S 2026 9/2016	SPK Ref Val Test	eunNo: 3: SeqNo: 9 %REC CCode: EI SunNo: 3: SeqNo: 9	1999 78442 LowLimit PA 200.8: [2026 79375	Units: mg/L HighLimit Dissolved Me Units: mg/L	%RPD			
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte	LCS LCSW	Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.0010 ND 0.00050 SampType: LC Batch ID: A3: Analysis Date: 2/8	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500	Test SPK Ref Val O	eunNo: 3: GeqNo: 9 **REC **Code: El **LunNo: 3: GeqNo: 9 **REC 101	1999 78442 LowLimit PA 200.8: [2026 79375 LowLimit 85	Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit	%RPD tals %RPD			
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte Arsenic	LCS LCSW	Batch ID: B3 Analysis Date: 2/8 Result PQL ND 0.00050 ND 0.00050 SampType: LC Batch ID: A3: Analysis Date: 2/8 Result PQL 0.025 0.0010	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500 SLL	Test SPK Ref Val O Test	eunNo: 3: GeqNo: 9 **REC **Code: El **LunNo: 3: GeqNo: 9 **REC 101	1999 78442 LowLimit PA 200.8: [2026 79375 LowLimit 85 PA 200.8: [Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit 115	%RPD tals %RPD			

SPK value SPK Ref Val

0.001000

Qualifiers:

Analyte

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

Result

0.0010

0.0010

- 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

HighLimit

150

%RPD

E Value above quantitation range

%REC

100

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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RPDLimit

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A32026 RunNo: 32026

Prep Date: Analysis Date: 2/9/2016 SeqNo: 979379 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23640 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979810 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

ND 0.00020 Mercury

Sample ID LCS-23640 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979811 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 102 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 10 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Client:

Prep Date:

Analyte

Sulfate

Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 2/18/2016

PQL

0.50

Result

ND

Navajo Refining Company

WO#: 1602206

24-Feb-16

Project: Mon	othly R.O. Reject	et								
Sample ID MB	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: PBW	Batch	n ID: R3	1977	F	RunNo: 3	1977				
Prep Date:	Analysis D	ate: 2/	5/2016	S	SeqNo: 9	77910	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			Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: LCSW	Batch	n ID: R3	1977	F	RunNo: 31977					
Prep Date:	Analysis D	ate: 2/	5/2016	SeqNo: 977911			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	109	90	110			
Chloride	4.9	0.50	5.000	0	98.1	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Sample ID MB	SampT	уре: МЕ	BLK	Tes	TestCode: EPA Method 300.0: Anions					
Client ID: PBW	Batch	Batch ID: R32274			RunNo: 3	2274				

Sample ID LCS	SampType: LC:	S	Tes	tCode: El	PA Method	300.0: Anions	3		
Client ID: LCSW	Batch ID: R32	2274	R	RunNo: 3	2274				
Prep Date:	Analysis Date: 2/1	S	SeqNo: 9	86554	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10 0.50	10.00	0	99.6	90	110	•		

SPK value SPK Ref Val %REC LowLimit

SeqNo: 986553

Units: mg/L

HighLimit

%RPD

RPDLimit

Qual

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Page 11 of 23

- P Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23604 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 23604 RunNo: 31988

Analysis Date: 2/8/2016 Prep Date: 2/8/2016 SeqNo: 978001 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-23604 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978002 Units: µg/L

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL LowLimit HighLimit Qual

1,2-Dibromoethane 0.13 0.010 0.1000 0 129 70 130

Sample ID LCSD-23604 SampType: LCSD TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSS02 Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978003 Units: µg/L

%REC Result **PQL** SPK value SPK Ref Val HighLimit %RPD **RPDLimit** Qual Analyte LowLimit

1.2-Dibromoethane 0.12 0.010 0.1000 0 123 70 130 4.17

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RLReporting Detection Limit Sample container temperature is out of limit as specified Page 12 of 23

Hall Environmental Analysis Laboratory, Inc.

5.3

0.50

1.0

5.000

0.5000

WO#: **1602206**

24-Feb-16

Sample ID MB-23596 SampType: MB K TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 23596 RunNo: 31978 Client ID: 275/2016 Analysis Date: 288/2016 SeqNo: 977994 Units: mg/L Analyte Result PQL SPK value SPK Ref Val REC LowLimit HighLimit RPD RPDLimit Qual PRDLimit Qual PRDLimit PRDLImit	Client: Project:	· ·	efining Co R.O. Rejec												
Prep Date: 2/5/2016	Sample ID	MB-23596	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	Method 8015M/D: Diesel Range						
Analyte	Client ID:	PBW	Batch	ID: 23	596	F	RunNo: 31978								
Diesel Range Organics (DRO)	Prep Date:	2/5/2016	Analysis D	ate: 2/ 8	8/2016	5	SeqNo: 9	77994	Units: mg/L						
Motor Oil Range Organics (MRO) ND 5.0 1.000 100 70 141	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Sum: DNOP 1.0 1.00 1.00 70 141 Sample ID LCS-23596 Sample ID LCSW Batch ID: 23596 RunNo: 31978 Prep Date: 2/5/2016 Analysis Date: 2/6/2016 SeqNo: 977995 Units: mg/L Analyte Result PQL SPK Ref Val %REC LowLimit High Limit %RPD RPDLimit Qual Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Sample ID 1602206-001AMS SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 SeqNo: 978052 Units: mg/L Analysis Date: 2/8/2016 SegNo: 978052 Units: mg/L Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Sample ID 1602206-001AMSD SampType: MSD TestCode:	•	•		_											
Client ID: LCSW Batch ID: 23596 RunNo: 31978 RunNo: 31978 RunNo: 215/2016 Analysis Date: 2/8/2016 SeqNo: 977995 Units: mg/L		e Organics (MRO)		5.0	1.000		100	70	141						
Prep Date: 2/5/2016 Analysis Date: 2/8/2016 SeqNo: 977995 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 0.49 0.5000 97.8 70 141 Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52	Sample ID	LCS-23596	SampT	ype: LC	S	Tes	tCode: E	PA Method	8015M/D: Die	sel Range	e				
Analyte	Client ID:	LCSW	Batch	ID: 23	596	F	RunNo: 31978								
Diesel Range Organics (DRO) S.1 1.0 5.000 0 102 52.4 154	Prep Date:	2/5/2016	Analysis D	ate: 2/ 8	8/2016	8	SeqNo: 9	77995	Units: mg/L	ts: mg/L					
Surr: DNOP 0.49 0.5000 97.8 70 141 Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range	Diesel Range	Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154						
Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Surr: DNOP		0.49		0.5000		97.8	70	141						
Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Sample ID	1602206-001AMS	SampT	ype: MS	5	Tes	tCode: E	PA Method	8015M/D: Die	sel Range	e				
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Client ID:	R.O. Reject	Batch	ID: 23	596	F	RunNo: 3	1978							
Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Prep Date:	2/8/2016	Analysis D	ate: 2/ 3	8/2016	S	SeqNo: 9	78052	Units: mg/L						
Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Diesel Range	Organics (DRO)	5.4	1.0	5.000	0	109	41.3	177						
Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Surr: DNOP		0.52		0.5000		104	70	141						
Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Sample ID	1602206-001AMS	D SampT	ype: MS	SD	Tes	tCode: E	PA Method	8015M/D: Die	sel Rang	e				
	Client ID:	R.O. Reject	Batch	ID: 23	596	F	RunNo: 3	1978							
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual	Prep Date:	2/8/2016	Analysis D	ate: 2/ 8	8/2016	S	SeqNo: 9	78077	Units: mg/L						
	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Diesel Range Organics (DRO)

Surr: DNOP

- 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

105

99.3

-94.6

70

317

141

3.46

0

22.1

0

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977541 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) 0.45 0.050 0.5000 0 90.6 80 120 Surr: BFB 97.9 49.5 20 20.00 130

TestCode: EPA Method 8015D: Gasoline Range Sample ID 5ML RB SampType: MBLK

Client ID: PBW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977542 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 0.050

20.00 83.7 Surr: BFB 17 49.5 130

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

4.7

2.3

1.6

1.0

WO#: 1602206

24-Feb-16

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

Sample ID MB-23676	SampType: MI	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch ID: 23	676	R	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Date: 2	/17/2016	SeqNo: 984090 Units: μg/L			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	3.3	2.500		132	26.1	140			
Surr: Tetrachloro-m-xylene	2.6	2.500		104	15	123			
Sample ID LCS-23676	SampType: L (s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 23	676	R	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Date: 2	/17/2016	S	SeqNo: 98	84091	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	57.3	15	131	•		

Sample ID LCSD-23676	SampT	ype: LC	SD	Tes	tCode: El	PA Method				
Client ID: LCSS02	Batch	Batch ID: 23676			RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	S	SeqNo: 9	84092	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.8	1.0	5.000	0	56.4	15	131	1.55	24.4	
Aroclor 1260	4.5	1.0	5.000	0	90.4	15	162	3.99	28	
Surr: Decachlorobiphenyl	2.2		2.500		87.2	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	15	123	0	0	

0

94.0

92.0

65.2

15

15

26.1

162

140

123

5.000

2.500

2.500

Qualifiers:

Aroclor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

Page 15 of 23

P Sample pH Not In Range

Reporting Detection Limit RL

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID rb2 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: **B31998** RunNo: 31998 Prep Date: Analysis Date: 2/9/2016 SeqNo: 978345 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 ND Toluene 1.0 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene Bromodichloromethane ND 1.0 ND Bromoform 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 1.0 ND 1.0 1,3-Dichlorobenzene 1.4-Dichlorobenzene ND 1.0 Dichlorodifluoromethane ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 ND 1,2-Dichloropropane 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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID rb2	SampT	ype: ME	BLK TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch	1D: B3	1998	R	tunNo: 3	1998				
Prep Date:	Analysis D	ate: 2/	9/2016	S	SeqNo: 9	78345	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	9.7		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID 100ng lcs2	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL			
Client ID: LCSW	Batch	ID: B3	1998	R	RunNo: 3	1998				
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	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			
Toluene	22	1.0	20.00	0	109	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

Page 17 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID 100ng lcs2 Client ID: LCSW	Batch	ype: LC	1998	F	RunNo: 3		ATILES			
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		106	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB-23677 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: PBW Batch ID: 23677 RunNo: 32189 Prep Date: 2/11/2016 Analysis Date: 2/17/2016 SeqNo: 984104 Units: µg/L Analyte **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 9.8 20.00 48.8 33.4 129

Sample ID LCS-23677	SampT	ype: LC	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 23	677	R	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	S	SeqNo: 9	84239	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	78	2.0	80.00	0	97.6	54.6	110			
1-Methylnaphthalene	79	2.0	80.20	0	98.2	49.1	116			
2-Methylnaphthalene	79	2.0	80.00	0	98.8	52.5	111			
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107			
Surr: Benzo(e)pyrene	10		20.00		50.0	33.4	129			

Sample ID LCSD-23677	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSS02	Batch	n ID: 23 0	677	F	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	Date: 2/	17/2016	8	SeqNo: 9	84240	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	81	2.0	80.00	0	101	54.6	110	3.55	20	
1-Methylnaphthalene	82	2.0	80.20	0	102	49.1	116	3.43	20	
2-Methylnaphthalene	82	2.0	80.00	0	102	52.5	111	3.47	20	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	3.85	20	
Surr: Benzo(e)pyrene	10		20.00		51.4	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

D C 1 HN (I D

Page 19 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23801 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 23801 RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984921 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-23801 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 23801 Client ID: LCSW RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984922 Units: µg/L

RPDLimit Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Analyte Qual

Phenolics, Total Recoverable 23 2.5 20.00 0 113 64.4 135

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 20 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-R32129 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982291 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

0.0100 Cyanide ND

Sample ID LCS-R32129 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982292 Units: mg/L

RPDLimit Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Result Qual

Cyanide 0.485 0.5000 0 97.0 110

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P

Sample pH Not In Range RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-R32295 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R32295 RunNo: 32295 SeqNo: 987217 Prep Date: Analysis Date: 2/16/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 -0.078 0.841 Radium-226 ± 0.357 0.841 Radium-228 0.165 0.797 Radium-228 ± 0.36 0.797

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB-23638 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979976 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-23638 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979977 Units: mg/L

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

Total Dissolved Solids 1030 20.0 1000 0 103 80 120

Qualifiers:

* Value exceeds Maximum Contaminant Level.

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

Reporting Detection Limit

J Analyte detected below quantitation limits

D C----1- ---II N-+ I-- D-----

Page 23 of 23

P Sample pH Not In Range

RL

W Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Website: www.hallenvironmental.com

Clie	nt Name:	NAVAJO RE	FINING CO	Work (Order Number	: 1602206		RcptNo:	1
Rece	eived by/date	e: <u> </u>		03/0	5/10			_	
Logg	ed By:	Ashley Gal	legos	2/5/2016	10:05:00 AM		A		
Com	pleted By:	Ashley Gal	legos	2/5/2016	11:05:04 AM		A		
Revie	ewed By:		_	02 05	114		V		
<u>Chai</u>	n of Cus	tody			•				
1. 0	ustody seal	ls intact on sa	mple bottles?			Yes 🗌	No 🗆	Not Present 🗹	
2. 15	s Chain of C	ustody comp	lete?			Yes 🗸	No 🗌	Not Present	
3. ⊦	low was the	sample deliv	ered?			<u>Courier</u>			
<u>Log</u>	<u>In</u>								
4. v	Nas an atter	mpt made to	cool the samp	les?		Yes 🗸	No □	NA \square	
5. V	Vere all sam	nples received	l at a tempera	ture of >0° C	to 6.0°C	Yes 🔽	No 🗆	na 🗆	
6. s	Sample(s) in	proper conta	iner(s)?			Yes 🗹] No □		
7. S	ufficient sar	nple volume f	for indicated te	est(s)?		Yes 🗸	No 🗌		
8. A	re samples	(except VOA	and ONG) pro	perly preserve	ed?	Yes 🗸	No 🗀		
9. v	Vas preserva	ative added to	bottles?			Yes 🗌	No 🗹	NA \square	
10.v	OA vials ha	ve zero heads	space?			Yes 🗹	No 🗌	No VOA Vials	
11. V	Vere any sa	mple containe	ers received bi	roken?		Yes	No 🗸	# of preserved	·
40 -							\Box	bottles checked / 1	1
		ork match bo pancies on cha	ttle labels? ain of custody)	I		Yes 🗹	No 🗀	for pH:	r (12 unless noted)
			tified on Chair		-	Yes 🗹	No 🗆	Adjusted?	10
14. Is	s it clear wha	at analyses w	ere requested	?		Yes 🗹	No 🗌		
		ing times able				Yes 🗸	No 🗌	Checked by:	Ja-
(I	i iio, notily c	sustomer for a	uthorization.)						
Spec	ial Handi	ing (if app	licable)						
			screpancies w	ith this order?		Yes 🗌	No 🗆	NA 🗹	_
	Person	Notified:			Date	Anna ann an Aige an Air an Air ann an Air an Air an Air	en en selven men en en en egy bleggept de egy en bleggept de egy en bleggept de egy en bleggept de egy en blegge	•	
	By Who	om:			Via:	eMail	☐ Phone ☐ Fax	In Person	
	Regardi	<u>-</u>							
	_	nstructions:							
17. <i>p</i>	Additional rei	marks:							
18. <u>c</u>	Cooler Infor		1 =	l		_	1		
	Cooler No	Temp °C	Condition Good	Seal Intact Not Present	Seal No	Seal Date	Signed By	-	
	I		1		L			_l ·	

Chain-of-Custody Record | Turn-Around Time: Vaili Shor Shor X St Sie |

FNVTBONMENTAL	ANALYSIS LABORATORY	ı i i											PH 504,1:EDB Air Bubbles	×						×								VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethane; 1,2-Trichloroethylene; 1,3-Trichloroethylene; 1,3-Trichlor	::::::::::::::::::::::::::::::::::::::
2 1	5	 	9					-		 sbild	PS P		Nitrate/Nitri	×	_				_	_			\dashv			Н	U, Zn	chloroe	Dibromoethane; 1,1,2-Titolioroethane; Benzene; Carbon Tetrachloride; Chloroform
Σ	08	; 	4901 Hawkins NE - Albuquerque, NM 87109	107	5								Fluoride	×						-	\dashv					Н	Remarks: Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn	2-Tetra	oride; C
Č	AB	www.hallenvironmental.com	Σ. Σ	Fax 505-345-4107		est							Phenols												×	П	o, Ni, S	3; 1,1,2,	errachl
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	3	ww.h	Ä K	3975					90	10.			7470: Mer 8015: GRO								_		×	×		H	i, 69, 0	1e; 1,1,;	oethan
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			490	ā	9			s	00	۸S	tsil (occ	8270C: WC									×		-			arks: s:As,A	: 1,1,1	noetha
	J L.								sO	OΛ	tsi J	၁၁	8260B:WQ		×	"											Remarks Metals: As	VOC.	Dibro
													No.	100												808	Time	5 1005	Time
										sberry	□ No		HEAL NO	ļ	į											7	Date	72/05/11	Dáte
ë	□ Rush		Reject	# 167796			er:			Elizabeth Salsberry	X Yes	eraturė: $/\!\!/\zeta$	Preservative Type	1-unpres 1- H2SO4	HCL	HNO3	HN03	NaOH	HNO3	Na2S2O3	npres	unpres	HCI	npres	12SO4	HCL		suft c	
i urn-Around Time	X Standard	Project Name:	Monthly R.O. F	Project #: P.O. # 167796			Project Manager:		Robert Combs	Sampler.	On Ice:	Sample Temperature.	Container Type and #	2 - 500ml P	3-40ml VOA	1-500ml P	1-125ml P	1-500ml P	2- 1L P	3-40ml VOA	2 - 1L Glass unpres	1 - 1L Glass	3-40ml VOA	1-250mlGlastunpres	1 - 1L Glass	ا≿ا	Received by:	Smeile	Received by:
									□ Level 4 (Full Validation)				Sample Request ID	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject		bastan		2
Chain-of-Custody Record			Mailing Address: P.O. Box 159 Artesia,				151		□ Level 4 (Fi				Sample F	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	Trip	d by Elizat	K:00 Elisabeth Solder	d by:
of-Cu	Refinery		P.O. Box			575-748-3311	email or Fax#: 575-746-5451						Matrix	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	liquid	9:35 liquid	Relinquishe	305312	Relinquished by:
hain-	Navajo Refinery		Address	VM 88211-0159	001011	#: 575-74	r Fax#: 5	2A/QC Package:	dard	7.	EDD (Type)_		Time														-		Time:
ပ ်	Client:		Mailing	MM 882	41M 000	2hone #:	email o	JA/QC I	X Standard	□ Other			Date	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	Date:	ا ا	Date:



Navajo Refining Company, LLC
Sol E. Main
Artesia, NM 88210
(Tel) 575.746.5451

Attachment

Monthly RO
Reject Sample
Details
Attachment

sample Ails HOLLY



	7				One
ple Type	Grab	Somposite	Somposite		e Intervals
Sam		Weighted (Weighted (rts / Sampl
		Time	Flow	The second secon	Pa

l Property				
Physica	PiloS	Liquid V	Sludge	

Type of Sampler Directly to sample jars

Samplers Name Elizabeth Salsberry
Samplers Affiliation Navajo Refining Co. LLC

Project Name Biannual RO Reject

Start Date; and Time; 2/4/2016; @ 9:30 a.m. End: Date; god Time; 2/4/2016; @ 9:45 a.m. South Field R.O. Reject Discarge

narysis and/or wethood Requested pH. C. F. S04, 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		Storage Method
HOL MINOS 112504 NACESCOS NARSOUR CURREN	X	, ×	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	X	<	X	×					e Hirmidity 51% Wind Dir. Calm, Wind Speed Calm, Conditions Clear
Near Roomamers (None)	2 ×	က	-	1	2	3	2	- ×	2 X	2 X	2	30 0 cm T 20 00 10 00
Silvaiend	l Plastic	VOA	n Plastic	ار Plastic	I Plastic	Plastic	VOA	Glass	Glass	NOA	II VOA	29 0 trin 23 0 trin 23 0
eziewie	500ml	40ml	m005 - 200ml	4 125ml	500ml	1	7		11	40ml	.40ml	esglates and the control of the cont

2 300	Refrigerated U	Other	Shipping Media	[S] eq. [S]	Other 🗆
216 Tmp.32.0 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Cortolitors Creat					
Field Data (Weather Observations, Etc.) 2/4/2016 Tmp	Date and Time	134 Find the Table 1970 Fi			



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

OrderNo.: 1602208

February 24, 2016

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

FAX

RE: Monthly Temporary R.O. Reject

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/5/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 22, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

anded

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 2/4/2016 9:20:00 AM

Lab ID: 1602208-001 **Matrix:** AQUEOUS **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: JLF
Arsenic	ND	0.0050		mg/L	5	2/9/2016 7:05:53 PM	C32026
Lead	ND	0.00050		mg/L	1	2/8/2016 8:10:53 PM	B31999
Selenium	0.0055	0.0010		mg/L	1	2/8/2016 8:10:53 PM	B31999
Uranium	0.0031	0.00050		mg/L	1	2/8/2016 8:10:53 PM	B31999
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-226	0.755	0.989		pCi/L	1	2/16/2016	R32295
Radium-226 ±	0.667	0.989		pCi/L	1	2/16/2016	R32295
Radium-228	0.583	0.726		pCi/L	1	2/16/2016	R32295
Radium-228 ±	0.38	0.726		pCi/L	1	2/16/2016	R32295
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	2.3	0.10		mg/L	1	2/16/2016 9:14:11 PM	R32210
Chloride	62	10		mg/L	20	2/16/2016 9:26:36 PM	R32210
Sulfate	1000	25		mg/L	50	2/16/2016 11:12:24 AM	R32200
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/16/2016 8:49:22 PM	R32210
SM2540C MOD: TOTAL DISSOLVED SO	DLIDS					Analyst	: KS
Total Dissolved Solids	2040	20.0	*	mg/L	1	2/10/2016 3:47:00 PM	23638
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH						Analyst	MRA
рН	8.05	1.68	Н	pH units	1	2/8/2016 3:59:56 PM	R32011
EPA METHOD 200.7: DISSOLVED MET	ALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Barium	0.039	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Boron	0.064	0.040		mg/L	1	2/24/2016 11:26:24 AM	B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Molybdenum	ND	0.0080		mg/L	1	2/24/2016 11:26:24 AM	B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:26:24 AM	B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:26:24 AM	B32368
Zinc	0.036	0.010		mg/L	1	2/24/2016 11:26:24 AM	B32368
EPA METHOD 245.1: MERCURY						Analyst	pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:07:57 PM	23640

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

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
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1602208**Date Reported: **2/24/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 2/4/2016 9:20:00 AMLab ID:1602208-001Matrix: AQUEOUSReceived Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analysi	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	2/8/2016 1:25:12 PM	23604
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1221	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1232	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1242	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1248	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1254	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1260	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Surr: Decachlorobiphenyl	54.8	26.1-140	%Rec	1	2/17/2016 7:54:09 AM	23676
Surr: Tetrachloro-m-xylene	33.2	15-123	%Rec	1	2/17/2016 7:54:09 AM	23676
EPA METHOD 8015M/D: DIESEL RAI	NGE				Analyst	t: TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	2/8/2016 2:56:32 PM	23596
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	2/8/2016 2:56:32 PM	23596
Surr: DNOP	104	70-141	%Rec	1	2/8/2016 2:56:32 PM	23596
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	t: RAA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	2/5/2016 5:42:13 PM	R31967
Surr: BFB	85.4	49.5-130	%Rec	1	2/5/2016 5:42:13 PM	R31967
EPA METHOD 8310: PAHS					Analyst	t: SCC
Naphthalene	ND	2.0	μg/L	1	2/17/2016 10:20:33 AM	1 23677
1-Methylnaphthalene	ND	2.0	μg/L	1	2/17/2016 10:20:33 AM	1 23677
2-Methylnaphthalene	ND	2.0	μg/L	1	2/17/2016 10:20:33 AM	1 23677
Benzo(a)pyrene	ND	0.070	μg/L	1	2/17/2016 10:20:33 AM	1 23677
Surr: Benzo(e)pyrene	51.0	33.4-129	%Rec	1	2/17/2016 10:20:33 AM	1 23677
EPA METHOD 8260B: VOLATILES					Analyst	t: DJF
Benzene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Toluene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Ethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Carbon Tetrachloride	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Chloroform	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Methylene Chloride	ND	3.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998

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

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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject **Project:** Monthly Temporary R.O. Reject Collection Date: 2/4/2016 9:20:00 AM

1602208-001 Lab ID: Matrix: AQUEOUS **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1	2/9/2016 6:44:04 AM	B31998
Surr: 1,2-Dichloroethane-d4	90.4	70-130	%Rec	1	2/9/2016 6:44:04 AM	B31998
Surr: 4-Bromofluorobenzene	106	70-130	%Rec	1	2/9/2016 6:44:04 AM	B31998
Surr: Dibromofluoromethane	97.5	70-130	%Rec	1	2/9/2016 6:44:04 AM	B31998
Surr: Toluene-d8	102	70-130	%Rec	1	2/9/2016 6:44:04 AM	B31998
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	2/18/2016	23801

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

Qualifiers: Value exceeds Maximum Contaminant Level. Analyte detected in the associated Method Blank D Sample Diluted Due to Matrix Е Value above quantitation range Analyte detected below quantitation limits Page 3 of 23 Н Holding times for preparation or analysis exceeded J ND Not Detected at the Reporting Limit P Sample pH Not In Range R RPD outside accepted recovery limits RL Reporting Detection Limit Sample container temperature is out of limit as specified

% Recovery outside of range due to dilution or matrix

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1602208-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual Units	DF	Date Analyzed	Batch	
EPA METHOD 8011/504.1: EDB					Analys	t: JME	
1,2-Dibromoethane	ND	0.010	μg/L	1	2/8/2016 1:40:14 PM	23604	
EPA METHOD 8015D: GASOLINE RAN	IGE				Analys	nalyst: RAA	
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	2/5/2016 6:06:58 PM	R31967	
Surr: BFB	88.4	49.5-130	%Rec	1	2/5/2016 6:06:58 PM	R31967	
EPA METHOD 8260B: VOLATILES					Analys	t: DJF	
Benzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Toluene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Ethylbenzene	ND	1.0		1	2/9/2016 7:12:24 AM	B31998	
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
1,2,4-Trimethylbenzene	ND	1.0		1	2/9/2016 7:12:24 AM	B31998	
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
1,2-Dichloroethane (EDC)	ND	1.0		1	2/9/2016 7:12:24 AM	B31998	
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Naphthalene	ND	2.0		1	2/9/2016 7:12:24 AM	B31998	
1-Methylnaphthalene	ND	4.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
2-Methylnaphthalene	ND	4.0		1	2/9/2016 7:12:24 AM	B31998	
Acetone	ND	10		1	2/9/2016 7:12:24 AM	B31998	
Bromobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Bromodichloromethane	ND ND	1.0		1	2/9/2016 7:12:24 AM	B31998	
Bromoform	ND	1.0		1	2/9/2016 7:12:24 AM	B31998	
Bromomethane	ND	3.0	1.0	1	2/9/2016 7:12:24 AM	B31998	
2-Butanone	ND ND	3.0 10		1	2/9/2016 7:12:24 AM	B31998	
Carbon disulfide	ND ND	10	1.3	1	2/9/2016 7:12:24 AM	B31998	
Carbon Tetrachloride	ND ND	1.0		1	2/9/2016 7:12:24 AM	B31998	
Chlorobenzene			1 0	1			
***************************************	ND	1.0	μg/L	· · · · · · · · · · · · · · · · · · ·	2/9/2016 7:12:24 AM	B31998	
Chloroethane	ND	2.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Chloroform	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Chloromethane	ND	3.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
2-Chlorotoluene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
4-Chlorotoluene	ND	1.0	μg/L "	1	2/9/2016 7:12:24 AM	B31998	
cis-1,2-DCE	ND	1.0	1 0	1	2/9/2016 7:12:24 AM	B31998	
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
1,2-Dibromo-3-chloropropane	ND	2.0	1.0	1	2/9/2016 7:12:24 AM	B31998	
Dibromochloromethane	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
Dibromomethane	ND	1.0	1.3	1	2/9/2016 7:12:24 AM	B31998	
1,2-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
1,3-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	
1,4-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998	

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

- 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1602208-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF Da	ate Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Dichlorodifluoromethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2-Dichloropropane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,3-Dichloropropane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
2,2-Dichloropropane	ND	2.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1-Dichloropropene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Hexachlorobutadiene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
2-Hexanone	ND	10	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Isopropylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
4-Isopropyltoluene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
4-Methyl-2-pentanone	ND	10	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Methylene Chloride	ND	3.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
n-Butylbenzene	ND	3.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
n-Propylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
sec-Butylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Styrene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
tert-Butylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
trans-1,2-DCE	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
trans-1,3-Dichloropropene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,1-Trichloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Trichlorofluoromethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2,3-Trichloropropane	ND	2.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Surr: 1,2-Dichloroethane-d4	92.6	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998
Surr: 4-Bromofluorobenzene	107	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998
Surr: Dibromofluoromethane	99.5	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998
Surr: Toluene-d8	101	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998

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

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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-B SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: **B32368** RunNo: 32368 Prep Date: Analysis Date: 2/24/2016 SeqNo: 989628 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-B	Samp	Type: LC	S	Tes	tCode: El	PA Method	hod 200.7: Dissolved Metals				
Client ID: LCSW	Bato	ch ID: B3	2368	F	RunNo: 3	2368					
Prep Date:	Analysis	Date: 2/	24/2016	S	SeqNo: 9	89629	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	105	85	115				
Barium	0.48	0.0020	0.5000	0	96.9	85	115				
Boron	0.51	0.040	0.5000	0	102	85	115				
Cadmium	0.50	0.0020	0.5000	0	99.6	85	115				
Chromium	0.48	0.0060	0.5000	0	96.4	85	115				
Cobalt	0.47	0.0060	0.5000	0	94.3	85	115				
Copper	0.49	0.0060	0.5000	0	98.6	85	115				
Iron	0.49	0.020	0.5000	0	97.7	85	115				
Manganese	0.48	0.0020	0.5000	0	95.9	85	115				
Molybdenum	0.51	0.0080	0.5000	0	101	85	115				
Nickel	0.47	0.010	0.5000	0	94.0	85	115				
Silver	0.10	0.0050	0.1000	0	101	85	115				
Zinc	0.48	0.010	0.5000	0	96.9	85	115				

Sample ID LLLCS-B	SampTy	pe: LC:	SLL	Test	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: B32368 RunNo: 32368									
Prep Date:	Analysis Da	ate: 2/2	24/2016	S	SeqNo: 9	89630	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	95.9	50	150			
Barium	0.0021	0.0020	0.002000	0	105	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID LLLCS-B	SampType: LCSLL TestCode: EPA Method 20				200.7: Disso	lved Metal	Is			
Client ID: BatchQC	Bato	Batch ID: B32368			RunNo: 3	2368				
Prep Date:	Analysis	Date: 2/	24/2016	8	SeqNo: 9	89630	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	100	50	150			
Cadmium	ND	0.0020	0.002000	0	85.0	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	0.0064	0.0060	0.006000	0	107	50	150			
Iron	ND	0.020	0.02000	0	90.8	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			
Molybdenum	0.010	0.0080	0.008000	0	130	50	150			
Nickel	ND	0.010	0.005000	0	101	50	150			
Silver	ND	0.0050	0.005000	0	95.0	50	150			
Zinc	ND	0.010	0.005000	0	90.2	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
- W Sample container temperature is out of limit as specified

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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1602208

24-Feb-16

Project:		onthly Temporary R.O. R	eject							
Sample ID	LCS	SampType: LC	S	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Batch ID: B3	1999	F	RunNo: 3	1999				
Prep Date:		Analysis Date: 2/8	3/2016	S	SeqNo: 9	78440	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	102	85	115			
Selenium		0.026 0.0010	0.02500	0	106	85	115			
Uranium		0.013 0.00050	0.01250	0	101	85	115			
Sample ID	LLLCS	SampType: LC	SLL	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	BatchQC	Batch ID: B3	1999	F	RunNo: 3	1999				
Prep Date:		Analysis Date: 2/8	3/2016	8	SeqNo: 9	78441	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND 0.00050	0.0005000	0	99.7	50	150			
Selenium		ND 0.0010	0.001000	0	88.9	50	150			
Uranium		ND 0.00050	0.0005000	0	98.6	50	150			
Sample ID	МВ	SampType: MB	SampType: MBLK TestCode: EPA 200.8: Dissolved Metals							
Client ID:	PBW	Batch ID: B3	1999	F	RunNo: 3	1999				
Prep Date:		Analysis Date: 2/8	3/2016	8	SeqNo: 9	78442	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND 0.00050								
Selenium		ND 0.0010								
Uranium		ND 0.00050								
Sample ID	LCS	SampType: LC	S	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Batch ID: C32	2026	F	RunNo: 3	2026				
Prep Date:		Analysis Date: 2/9	9/2016	S	SeqNo: 9	79376	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	98.5	85	115			
Sample ID	LLLCS	SampType: LC	SLL	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	BatchQC	Batch ID: C3	2026	F	RunNo: 3	2026				
Prep Date:		Analysis Date: 2/9	9/2016	S	SeqNo: 9	79378	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
									·	· ·

Qualifiers:

Arsenic

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

ND

0.0010

0.001000

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

150

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P
- Page 8 of 23

- Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: C32026 RunNo: 32026

Prep Date: Analysis Date: 2/9/2016 SeqNo: 979380 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB-23640 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979810 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

ND 0.00020 Mercury

Sample ID LCS-23640 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979811 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 102 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Reporting Detection Limit

P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R32200	RunNo: 32200		
Prep Date:	Analysis Date: 2/16/2016	SeqNo: 984262	Units: mg/L	
Analyte	Result PQL SPK value S	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Q)ual

ND 0.50 Sulfate

Sample ID LCS	SampType	SampType: LCS Te			tCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID:	R32200	F	RunNo: 3	2200						
Prep Date:	Analysis Date:	2/16/2016	9	SeqNo: 9	84263	Units: mg/L					
Analyte	Result Po	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Sulfate	10 0	.50 10.00	0	100	90	110					

Sample ID MB	SampT	SampType: MBLK				PA Method	s			
Client ID: PBW	Batch	1D: R3	2210	F	RunNo: 3	2210				
Prep Date:	Analysis D	ate: 2/	16/2016	8	SeqNo: 9	84551	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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampT	ype: LC	s	Tes	tCode: El	s				
Client ID: LCSW	Batch	Batch ID: R32210				2210				
Prep Date:	Analysis D	oate: 2/	16/2016	8	SeqNo: 9	84552	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.4	90	110			
Chloride	5.0	0.50	5.000	0	99.0	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	102	90	110			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

Reporting Detection Limit RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23604 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978001 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-23604 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978002 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 0 129 70 130

Sample ID LCSD-23604 SampType: LCSD TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSS02 Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978003 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 0 123 70 130 4.17 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB-23596 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 23596 RunNo: 31978 Prep Date: 2/5/2016 Analysis Date: 2/8/2016 SeqNo: 977994 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 1.000 70 1.0 100 141

Sample ID LCS-23596 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Client ID: LCSW Batch ID: 23596 RunNo: 31978 Analysis Date: 2/8/2016 Prep Date: 2/5/2016 SeqNo: 977995 Units: mg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 0 102 52.4 5.1 5.000 154 Surr: DNOP 0.49 0.5000 97.8 70 141

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Reporting Detection Limit
- P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977541 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) 0.45 0.050 0.5000 0 90.6 80 120 Surr: BFB 97.9 49.5 20 20.00 130

TestCode: EPA Method 8015D: Gasoline Range Sample ID 5ML RB SampType: MBLK

Client ID: PBW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977542 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 0.050

20.00 83.7 Surr: BFB 17 49.5 130

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

Client: Project:		ijo Refining Company thly Temporary R.O. Reject	
Sample ID ME	3-23676	SampType: MBLK	TestCode: EPA Method 8082: PCB's

Client ID: PBW	Batch	n ID: 236	576	R	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	S	SeqNo: 98	84090	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	3.3		2.500		132	26.1	140			
Surr: Tetrachloro-m-xylene	2.6		2.500		104	15	123			

Sample ID LCS-23676	SampT	ype: LC	s	Tes	tCode: El	PA Method				
Client ID: LCSW	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	8	SeqNo: 9	84091	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	57.3	15	131			
Aroclor 1260	4.7	1.0	5.000	0	94.0	15	162			
Surr: Decachlorobiphenyl	2.3		2.500		92.0	26.1	140			
Surr: Tetrachloro-m-xylene	1.6		2.500		65.2	15	123			

Sample ID LCSD-23676	SampType: LCSD			Tes	tCode: E					
Client ID: LCSS02	Batch	h ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	Date: 2/	/17/2016	9	SeqNo: 9	84092	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.8	1.0	5.000	0	56.4	15	131	1.55	24.4	
Aroclor 1260	4.5	1.0	5.000	0	90.4	15	162	3.99	28	
Surr: Decachlorobiphenyl	2.2		2.500		87.2	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	15	123	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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID rb2 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: **B31998** RunNo: 31998 Prep Date: Analysis Date: 2/9/2016 SeqNo: 978345 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 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 1.0 ND 1.0 1,3-Dichlorobenzene 1.4-Dichlorobenzene ND 1.0 Dichlorodifluoromethane ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 ND 1,2-Dichloropropane 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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID rb2	SampT	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES									
Client ID: PBW	Batch	1D: B3	1998	R	RunNo: 3	1998					
Prep Date:	Analysis D	ate: 2/	9/2016	S	SeqNo: 9	78345	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	9.7		10.00		96.5	70	130				
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130				
Surr: Dibromofluoromethane	10		10.00		101	70	130				
Surr: Toluene-d8	10		10.00		104	70	130				

Sample ID 100ng lcs2	SampT	ype: LC	s	Tes	tCode: El	ATILES				
Client ID: LCSW	Batch	ID: B3	1998	R	RunNo: 31998					
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	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			
Toluene	22	1.0	20.00	0	109	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
- W Sample container temperature is out of limit as specified

Page 17 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID 100ng lcs2 Client ID: LCSW	Batch	ype: LC	1998	F	RunNo: 3	1998	8260B: VOL	ATILES		
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		106	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23677 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: PBW Batch ID: 23677 RunNo: 32189 Prep Date: 2/11/2016 Analysis Date: 2/17/2016 SeqNo: 984104 Units: µg/L Analyte **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 9.8 20.00 48.8 33.4 129

Sample ID LCS-23677	SampT	ype: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 23	677	R	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	oate: 2/	17/2016	S	SeqNo: 9	84239	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	78	2.0	80.00	0	97.6	54.6	110			
1-Methylnaphthalene	79	2.0	80.20	0	98.2	49.1	116			
2-Methylnaphthalene	79	2.0	80.00	0	98.8	52.5	111			
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107			
Surr: Benzo(e)pyrene	10		20.00		50.0	33.4	129			

Sample ID LCSD-23677	SampT	ype: LC	SD	Tes	tCode: E	PA Method				
Client ID: LCSS02	Batch	n ID: 23	677	F	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	Date: 2/	17/2016	8	SeqNo: 9	84240	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	81	2.0	80.00	0	101	54.6	110	3.55	20	
1-Methylnaphthalene	82	2.0	80.20	0	102	49.1	116	3.43	20	
2-Methylnaphthalene	82	2.0	80.00	0	102	52.5	111	3.47	20	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	3.85	20	
Surr: Benzo(e)pyrene	10		20.00		51.4	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

D C 1 HN / I D

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23801 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 23801 RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984921 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-23801 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 23801 RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984922 Units: μg/L

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

Phenolics, Total Recoverable 23 2.5 20.00 0 113 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

Page 20 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-R32129 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982291 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R32129 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982292 Units: mg/L

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

Cyanide 0.485 0.5000 0 97.0 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-R32295 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R32295 RunNo: 32295 SeqNo: 987217 Prep Date: Analysis Date: 2/16/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 -0.078 0.841 Radium-226 ± 0.357 0.841 Radium-228 0.165 0.797 Radium-228 ± 0.36 0.797

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB-23638 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979976 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-23638 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979977 Units: mg/L

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Qual

Total Dissolved Solids 1030 20.0 1000 0 103 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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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

Work Order Number: 1602208 NAVAJO REFINING CO RcptNo: 1 Client Name: Received by/date: **Ashley Gallegos** 2/5/2016 10:05:00 AM Logged By: **Ashley Gallegos** 2/5/2016 11 17:10 AM Completed By: Reviewed By: Chain of Custody No 🗆 Not Present Yes 1. Custody seals intact on sample bottles? Yes 🗸 No 🗀 Not Present 🔲 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier <u>Log In</u> NA 🔲 Yes 🗸 No 🗔 4. Was an attempt made to cool the samples? NA 🗌 No 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 Yes 🗸 No 🗌 Sample(s) in proper container(s)? Yes 🗸 No 🗀 7. Sufficient sample volume for indicated test(s)? No 🗀 Yes 🗸 8. Are samples (except VOA and ONG) properly preserved? NA 🗆 No 🗹 Yes 🗌 9. Was preservative added to bottles? No VOA Vials Yes 🗸 No 🗔 10. VOA vials have zero headspace? Yes \square No 🔽 11. Were any sample containers received broken? # of preserved bottles checked for pH: Yes 🗸 No 🗔 12. Does paperwork match bottle labels? (<2)or(>12 unless noted) (Note discrepancies on chain of custody) Adjusted? Yes 🗸 No 13. Are matrices correctly identified on Chain of Custody? Yes 🗸 No 🗆 14. Is it clear what analyses were requested? Yes 🗸 No 🗌 Checked by 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No 🗆 NA 🔽 16. Was client notified of all discrepancies with this order? Person Notified: Date __ eMail By Whom: Phone Fax ☐ In Person Via: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp ºC Condition | Seal Intact | Seal No Seal Date Signed By 1.0 Good Not Present

<u>ပ</u>	nain-	ot-cu	Chain-of-Custody Record		j					I	AL	Ш	> Z	HALL ENVIRONMENTAL	Z	M		A		
Client:	Navajo Refinery	Refinery		X Standard	□ Rush	sh				4	N N	<u>}</u>	SIS	ANALYSIS LABORATORY	BC	Š	E	K	_	
				Project Name:			_			5	ww.h	allen\	ironr	www.hallenvironmental.com	E00					
Mailing	Address.	P.O. Bo	Mailing Address: P.O. Box 159 Artesia,	Monthly Temporary R.O. Reject	orary R.O.	Reject		4	901 H	4901 Hawkins NE	s NE	- A	enbno	Albuquerque, NM 87109	N N S	7109				
NM 882	NM 88211-0159			Project #: P.O	. # 167796				el. 50	Tel. 505-345-3975	-397		Fax 5	505-345-4107	5-41	27				_
Phone #	Phone #: 575-748-3311	8-3311							×			Anal	/sis F	Analysis Request	st					_
email or Fax#:		575-746-5451	451	Project Manager:	jer:					<u> </u>			(8							
QA/QC	QA/QC Package:												22-e							
X Standard	dard		☐ Level 4 (Full Validation)	gwo	(0)					e	Oac	~	3H+8				s			
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☐ EDD (Type)	(Type)_			On Ice	X Yes	ON I				Cya			(Ra	əpi			S be		Y or	
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Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	e HEALM	c C	8270C: WQ	6010B: WC	335.4: Tot	7470: Mer 8015: GR0	8082: PCE	Radioactivi	Sulfate Chi	Phenols Fluoride	Nitrate/Nitr	Dissi Disso	Hd	504.1:EDB	
2/4/16		9:20 liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres H2SO4	-	100							×	×	×	×	×	>	
2/4/16		9:20 liquid	Temporary R.O. Reject	3-40ml VOA	HCL			×												
2/4/16		9:20 liquid	Temporary R.O. Reject	1-500ml P	HN03						×									
2/4/16		9:20 liquid	Temporary R.O. Reject	1-125ml P	HN03				×						\dashv				_	-
2/4/16		9:20 liquid	Temporary R.O. Reject	1-500ml P	NaOH					×								-		
2/4/16		9:20 liquid	Temporary R.O. Reject	2-1L P	HN03								×							-
2/4/16		9:20 liquid	Temporary R.O. Reject	3-40ml VOA	Na2S203	***************************************								\dashv		_			${\times}$	
2/4/16		9:20 liquid	Temporary R.O. Reject	2 - 1L Glass	unpres						\dashv	<u> </u>		_	\dashv					
2/4/16		9:20 liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			×			_				\dashv					
2/4/16		9:20 liquid	Temporary R.O. Reject	3-40mi VOA	HCI						×					_		1	-	
2/4/16		9:20 liquid	Temporary R.O. Reject	1-250miGlas	nnpres						×									
2/4/16		liguid	Temporary R.O. Reject	1 - 1L Glass	H2SO4										×				\dashv	
2/4/16		9:20 liquid	Trip Blank	2-40ml VOA	HCL	7	72				-	\dashv			_	4			\dashv	
Date:	Time:	Relinquish	Relinquished by: Elizabeth Balsberry	Received by:		Date	Time	Remarks: Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn	; S, Al, Ba	, S,	S S	Cu, Fe,	Pb, Mn,	Hg, Mo	Ri, Se,	Ag, U,	Z			
n 1 + 17	017110 17:00	مكبك	eigoveth Solden		allert (02/02/16	1000	VOCs: 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethylene, 1,1,2- Trichloroethane, 1,1,2-Trichloroethylene, 1,1,Dichloroethane, 1,1-Dichloroethane, 1,2	1,1-Tricl	hioroeth	ane; 1,1	,2,2-Tet	rachloro	ethane;	1,1,2,2 no:11	Tetrach Dichlon	loroeth)	lene; 1	1,2,	
Date:	Time:	Relinquished by	ed by:	Received by:		Ďate	Time	Distributedratians, 1,1,2-tristributedrates, 1,1-brandocultais, 1,1-brandocultais, 1,1-brandocultais, 1,2-tristributedrates, 1,2-brandocultais, 1,2-brandocultais, 1,2-brandocultais, 1,2-brandocultais, 1,1-brandocultais, 1,	thane; 1 ethane:	,2-Dichl	oroethal	iyiciici le; Ben; oliiene	iene; Co	irbon Te	trachlor find Ch	ide; Chi	oroform	- ' - Ī		
	_						10)	orginotoriletrarie; Eutyrberizerie; Toderie; Toda Ayleries; Villyr Orlogoe SVOCs: benzo(a)byrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene	enienie, Jenzo(a	Eury III-	Dhenol.	1-meth	/Inaphth	glene, 2	-methyl	naphtha	lene, n	aphthal	je Lje	

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



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

₽ ₩



Monthly	emporary RO	eject Sample	Details

	R.O. Reject Discarge	Coutally Sample Location
Type of Sampler Directly to sample ja	Parts // Sample Intervals One	Endibare and Trore 2/4/2016 @ 9:30 a.m.
		Start Date and Time 2/4/2016 @ 9:15 a.m.
Sludge	Filow Weighlied: Composite	Samplers Affiliation Navajo Refining Co. LLC
□ Elquid	: Time Weighted Composite □	Sampters Name Elizabeth Salsberry
□ Solid □	Grab 🗵	Rigiech Name Biannual RO Reject
Physical Property	Sample Type	

e (6)	Material	Containers	Negi:		ZH SON	i og	JE O	S (5) (5) (5) (5)	0 6 H G Z	6	6	and the state of t
500ml	Plastic	2	×			×	H WHEN AND AND AND AND AND AND AND AND AND AN	Name and Address of the Owner, where		Control of the contro		pH. CI. F. S04. NO2/NO3. TDS
40ml	VOA	3		×								8015 GRO
500ml	Plastic	-			×							6020 total metals, 7470 Hq
2.4 LT 125ml	Plastic	-			×							6020 Dissolved Metals
5 500ml	Plastic	2				-	×				T	Cvanide
11 1F	Plastic	3			×							Radium 226/228
40ml	VOA	2		×							ļ	8260 see attached list
4	Glass	1	×									8270 see attached list
7	Glass	2	×									8082 PCBs
40ml	VOA	2	×									8015 DRO
40ml	VOA	2		×								Radium 226/228

Field Temp. 18.5C Field pH 7.66 Shipping Wedia:	_	E-112	
Eield pH 7.66	Kadium 226/228	Storage Method? Ice	
Eield pH 7.66	_		 _
EleidiData Weather Observations Ele) 2/4/2016 Tmp. 30.2 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear Date and Time.			
Eleidi Date (Weather Observations Etc) 2/4/2016 Tmp. 30.2 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear Date and Trine. Field Temp. 18.5C Field pH 7.66		1 :	
EleidiDate Mocather Observations Electron 2/4/2016 Tmp. 30.2 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Cle		je j	
EleidiData Weather Observations Ele) 2/4/2016 Tmp. 30.2 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Date and Time Field pH 7.66	4	<u>පි</u>	
EleidiData (Weather Observations, Etc). 2/4/2016 Tmp. 30.2 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Condition of Teled Temp. 18.5C Field pH 7.66	ı	ions	
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March 15, 2016

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

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

RE: Discharge Permit GW-028

Monthly Report - February 2016 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's February 2016 monthly report, for the period of February 1-29, 2016, under the Permit.

Specifically, this report covers the February 2016 reporting period and includes the following data and information as required by Condition 4.B.7:

- Daily discharge flow measurements for each reverse osmosis (RO) unit collected as required by Condition 4.B.4.
- Results of a discharge sample collected on February 4, 2016.

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

To satisfy the requirements of Agreed Compliance Order No. WQA-OCD-CO-2015-002, Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on February 5, 2016. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). For completeness, the analytical lab report for these samples is provided in

Attachment 2 of this report as well as in the final monthly report under the Agreed Order. The sample to satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit was collected on March 3, 2016, and the corresponding analytical results will be provided in the report to be submitted in April 2015.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates and Volumes

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units		Tempor	ary Unit	Daily Discharge Volume
4)	Metere	ed Data		l RO Reject (Calculated)	Total RO Reje (Calculate Da		
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
2/1/2016	91	81	172	5,897	145	4957	10,854
2/2/2016	89	88	177	6,069	154	5271	11,340
2/3/2016	89	88	177	6,069	98	3365	9,434
2/4/2016	94	83	177	6,069	122	4167	10,236
2/5/2016	91	80	171	5,863	133	4546	10,409
2/6/2016	90	88	178	6,103	147	5057	11,160
2/7/2016	97	87	184	6,309	146	4997	11,306
2/8/2016	93	90	183	6,274	151	5163	11,437
2/9/2016	90	85	175	6,000	153	5247	11,247
2/10/2016	94	80	174	5,966	154	5268	11,234
2/11/2016	92	89	181	6,206	156	5350	11,556
2/12/2016	91	85	176	6,034	157	5397	11,431
2/13/2016	91	84	175	6,000	150	5144	11,144
2/14/2016	95	97	192	6,583	148	5086	11,669
2/15/2016	95	82	177	6,069	146	5008	11,077
2/16/2016	88	80	168	5,760	91	3104	8,864
2/17/2016	92	84	176	6,034	146	5018	11,052
2/18/2016	93	89	182	6,240	137	4696	10,936
2/19/2016	90	82	172	5,897	120	4111	10,008
2/20/2016	92	74	166	5,691	126	4331	10,022
2/21/2016	94	91	185	6,343	126	4312	10,655
2/22/2016	91	85	176	6,034	79	2711	8,745
2/23/2016	88	81	169	5,794	103	3529	9,323
2/24/2016	94	78	172	5,897	123	4234	10,131
2/25/2016	93	78	171	5,863	123	4231	10,094
2/26/2016	97	112	209	7,166	122	4198	11,364
2/27/2016	95	117	212	7,269	124	4259	11,528
2/28/2016	93	113	206	7,063	115	3949	11,012
2/29/2016	86	113	199	6,823	63	2176	8,999

Attachment 2 Analytical Lab Report



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

February 24, 2016

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly R.O. Reject OrderNo.: 1602206

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/5/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 22, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

Inlest

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report Lab Order 1602206

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 2/4/2016 9:35:00 AM

 Lab ID:
 1602206-001
 Matrix: AQUEOUS
 Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: JLF
Arsenic	ND	0.0050		mg/L	5	2/9/2016 4:03:42 PM	A32026
Lead	ND	0.00050		mg/L	1	2/8/2016 7:55:24 PM	B31999
Selenium	0.0086	0.0010		mg/L	1	2/8/2016 7:55:24 PM	B31999
Uranium	0.0049	0.00050		mg/L	1	2/8/2016 7:55:24 PM	B31999
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	: SUB
Radium-226	0.537	0.826		pCi/L	1	2/16/2016	R32295
Radium-226 ±	0.546	0.826		pCi/L	1	2/16/2016	R32295
Radium-228	0.595	0.672		pCi/L	1	2/16/2016	R32295
Radium-228 ±	0.361	0.672		pCi/L	1	2/16/2016	R32295
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	2.2	0.10		mg/L	1	2/6/2016 12:10:43 AM	R31977
Chloride	71	10		mg/L	20	2/6/2016 12:23:08 AM	R31977
Nitrogen, Nitrate (As N)	1.3	0.10		mg/L	1	2/6/2016 12:10:43 AM	R31977
Sulfate	900	25		mg/L	50	2/18/2016 7:37:57 PM	R32274
SM2540C MOD: TOTAL DISSOLVED SO	LIDS					Analyst	: KS
Total Dissolved Solids	1940	20.0	*	mg/L	1	2/10/2016 3:47:00 PM	23638
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	: SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH						Analyst	: MRA
рН	7.94	1.68	Н	pH units	1	2/8/2016 3:55:25 PM	R32011
EPA METHOD 200.7: DISSOLVED META	LS					Analyst	: ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Barium	0.059	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Boron	0.094	0.040		mg/L	1	2/24/2016 11:17:05 AM	B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Molybdenum	0.0094	0.0080		mg/L	1	2/24/2016 11:17:05 AM	B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:17:05 AM	B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:17:05 AM	B32368
Zinc	0.023	0.010		mg/L	1	2/24/2016 11:17:05 AM	B32368
EPA METHOD 245.1: MERCURY						Analyst	: pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:05:40 PM	23640

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

Qualifiers: *	Value exceeds Maximum	Con
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- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

taminant Level.

- 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1602206**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 2/4/2016 9:35:00 AM

 Lab ID:
 1602206-001
 Matrix: AQUEOUS
 Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF Date Analyzed Ba	atch
EPA METHOD 8011/504.1: EDB				Analyst: J l	ME
1,2-Dibromoethane	ND	0.010	μg/L	1 2/8/2016 12:55:14 PM 23	3604
EPA METHOD 8082: PCB'S				Analyst: S	CC
Aroclor 1016	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1221	ND	1.0	μg/L		3676
Aroclor 1232	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1242	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1248	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1254	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Aroclor 1260	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM 23	3676
Surr: Decachlorobiphenyl	96.0	26.1-140	%Rec	1 2/17/2016 7:18:10 AM 23	3676
Surr: Tetrachloro-m-xylene	60.8	15-123	%Rec	1 2/17/2016 7:18:10 AM 23	3676
EPA METHOD 8015M/D: DIESEL RAN	IGE			Analyst: T 0	ОМ
Diesel Range Organics (DRO)	ND	1.0	mg/L	1 2/8/2016 1:52:07 PM 23	3596
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1 2/8/2016 1:52:07 PM 23	3596
Surr: DNOP	105	70-141	%Rec	1 2/8/2016 1:52:07 PM 23	3596
EPA METHOD 8015D: GASOLINE RA	NGE			Analyst: R	:AA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1 2/5/2016 4:52:41 PM R	31967
Surr: BFB	86.7	49.5-130	%Rec	1 2/5/2016 4:52:41 PM R	31967
EPA METHOD 8310: PAHS				Analyst: S	CC
Naphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM 23	3677
1-Methylnaphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM 23	3677
2-Methylnaphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM 23	3677
Benzo(a)pyrene	ND	0.070	μg/L	1 2/17/2016 9:51:15 AM 23	3677
Surr: Benzo(e)pyrene	61.3	33.4-129	%Rec	1 2/17/2016 9:51:15 AM 23	3677
EPA METHOD 8260B: VOLATILES				Analyst: D	JF
Benzene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Toluene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Ethylbenzene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B:	31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B:	31998
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B:	31998
Carbon Tetrachloride	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Chloroform	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
1,1-Dichloroethane	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
1,1-Dichloroethene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Methylene Chloride	ND	3.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 2/9/2016 5:47:24 AM B	31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM B	31998

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

Qualifiers:	*	Value
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- * 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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1602206

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject **Collection Date:** 2/4/2016 9:35:00 AM 1602206-001 Lab ID: Matrix: AQUEOUS **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1	2/9/2016 5:47:24 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1	2/9/2016 5:47:24 AM	B31998
Surr: 1,2-Dichloroethane-d4	93.8	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: 4-Bromofluorobenzene	111	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: Dibromofluoromethane	100	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: Toluene-d8	103	70-130	%Rec	1	2/9/2016 5:47:24 AM	B31998
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	2/18/2016	23801

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

Value exceeds Maximum Contaminant Level.

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 23 J
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Qualifiers:

Analytical Report

Lab Order 1602206

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly R.O. Reject Collection Date:

Lab ID: 1602206-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	st: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	2/8/2016 1:10:09 PM	23604
EPA METHOD 8015D: GASOLINE RANG	E				Analys	st: RAA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	2/5/2016 5:17:25 PM	R31967
Surr: BFB	82.9	49.5-130	%Rec	1	2/5/2016 5:17:25 PM	R31967
EPA METHOD 8260B: VOLATILES					Analys	st: DJF
Benzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Toluene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Ethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Methyl tert-butyl ether (MTBE)	ND	1.0		1	2/9/2016 6:15:43 AM	B31998
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0		1	2/9/2016 6:15:43 AM	B31998
Naphthalene	ND	2.0	. 0	1	2/9/2016 6:15:43 AM	B31998
1-Methylnaphthalene	ND	4.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
2-Methylnaphthalene	ND	4.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Acetone	ND	10		1	2/9/2016 6:15:43 AM	B31998
Bromobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Bromodichloromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Bromoform	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Bromomethane	ND	3.0	. •	1	2/9/2016 6:15:43 AM	B31998
2-Butanone	ND	10	1.0	1	2/9/2016 6:15:43 AM	B31998
Carbon disulfide	ND	10	1.0	1	2/9/2016 6:15:43 AM	B31998
Carbon Tetrachloride	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Chlorobenzene	ND	1.0		1	2/9/2016 6:15:43 AM	B31998
Chloroethane	ND	2.0		1	2/9/2016 6:15:43 AM	B31998
Chloroform	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Chloromethane	ND	3.0		1	2/9/2016 6:15:43 AM	B31998
2-Chlorotoluene	ND	1.0	1.0	1	2/9/2016 6:15:43 AM	B31998
4-Chlorotoluene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
cis-1,2-DCE	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dibromo-3-chloropropane	ND	2.0		1	2/9/2016 6:15:43 AM	B31998
Dibromochloromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Dibromomethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,3-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,4-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998

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

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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1602206**

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly R.O. Reject Collection Date:

Lab ID: 1602206-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF I	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Dichlorodifluoromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichloropropane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,3-Dichloropropane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
2,2-Dichloropropane	ND	2.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Hexachlorobutadiene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
2-Hexanone	ND	10	μg/L	1	2/9/2016 6:15:43 AM	B31998
Isopropylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
4-Isopropyltoluene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
4-Methyl-2-pentanone	ND	10	μg/L	1	2/9/2016 6:15:43 AM	B31998
Methylene Chloride	ND	3.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
n-Butylbenzene	ND	3.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
n-Propylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
sec-Butylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Styrene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
tert-Butylbenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
trans-1,2-DCE	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,1-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Trichlorofluoromethane	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,3-Trichloropropane	ND	2.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1	2/9/2016 6:15:43 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1	2/9/2016 6:15:43 AM	B31998
Surr: 1,2-Dichloroethane-d4	94.4	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: 4-Bromofluorobenzene	105	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: Dibromofluoromethane	101	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: Toluene-d8	101	70-130	%Rec	1	2/9/2016 6:15:43 AM	B31998

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

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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB-B SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: **B32368** RunNo: 32368 Prep Date: Analysis Date: 2/24/2016 SeqNo: 989628 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-B	Samp	Type: LC	S	TestCode: EPA Method				ved Metal	s	
Client ID: LCSW	Bato	ch ID: B3	2368	R	RunNo: 32	2368				
Prep Date:	Analysis	Date: 2/	24/2016	S	SeqNo: 98	89629	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	105	85	115	_		
Barium	0.48	0.0020	0.5000	0	96.9	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.6	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.3	85	115			
Copper	0.49	0.0060	0.5000	0	98.6	85	115			
Iron	0.49	0.020	0.5000	0	97.7	85	115			
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			
Nickel	0.47	0.010	0.5000	0	94.0	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.9	85	115			

Sample ID LLLCS-B	SampTyp	pe: LCS	SLL	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: B32368 RunNo: 32368									
Prep Date:	Analysis Dat	te: 2/2	4/2016	SeqNo: 989630 l			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND (0.020	0.01000	0	95.9	50	150			
Barium	0.0021 0.	.0020	0.002000	0	105	50	150			

P

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
 - Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID LLLCS-B	Samp	Type: LC	.CSLL TestCode: EPA Method 2				200.7: Disso	ved Meta	ls	
Client ID: BatchQC	Bato	Batch ID: B32368 RunNo: 32368								
Prep Date:	Analysis	Date: 2/	24/2016	S	SeqNo: 9	89630	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	100	50	150			
Cadmium	ND	0.0020	0.002000	0	85.0	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	0.0064	0.0060	0.006000	0	107	50	150			
Iron	ND	0.020	0.02000	0	90.8	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			
Molybdenum	0.010	0.0080	0.008000	0	130	50	150			
Nickel	ND	0.010	0.005000	0	101	50	150			
Silver	ND	0.0050	0.005000	0	95.0	50	150			
Zinc	ND	0.010	0.005000	0	90.2	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
- W Sample container temperature is out of limit as specified

Page 7 of 23

Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: **1602206**

24-Feb-16

Project:	Mo	nthly R.O. Reject						
Sample ID	LCS	SampType: LCS	TestC	Code: EPA 200.8 :	Dissolved Met	als		
Client ID:	D LCS		Ru	ınNo: 31999				
Prep Date:		Analysis Date: 2/8/2016	Se	eqNo: 978440	Units: mg/L			
Analyte		Result PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.013 0.00050 0.01	250 0	102 85	115			
Selenium			500 0	106 85	115			
Uranium		0.013 0.00050 0.01	250 0	101 85	115			
Sample ID	LLLCS	SampType: LCSLL	TestC	Code: EPA 200.8:	Dissolved Met	als		
Client ID:	BatchQC	Batch ID: B31999	Ru	ınNo: 31999				
Prep Date:		Analysis Date: 2/8/2016	Se	eqNo: 978441	Units: mg/L			
Analyte		Result PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND 0.00050 0.0005	000 0	99.7 50	150			
Selenium	Delic CCS		88.9 50	150				
Uranium		ND 0.00050 0.0005	000 0	98.6 50	150			
Sample ID	МВ	SampType: MBLK	TestC	Code: EPA 200.8:	Dissolved Met	als		
Client ID:			_					
Onone ib.	PBW	Batch ID: B31999	Ru	inNo: 31999				
Prep Date:	PBW				Units: mg/L			
	PBW	Analysis Date: 2/8/2016	Se	eqNo: 978442	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date:	PBW	Analysis Date: 2/8/2016 Result PQL SPK v	Se	eqNo: 978442	_	%RPD	RPDLimit	Qual
Prep Date:	РВМ	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.0010	Se	eqNo: 978442	_	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead	РВЖ	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.0010	Se	eqNo: 978442	_	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead Selenium		Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.0010 ND 0.00050	Se alue SPK Ref Val	eqNo: 978442 %REC LowLimit	HighLimit		RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID	LCS	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.0010 ND 0.00050 SampType: LCS	Se alue SPK Ref Val	eqNo: 978442 %REC LowLimit	HighLimit		RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID	LCS	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.00050 ND 0.00050 SampType: LCS Batch ID: A32026	Se alue SPK Ref Val TestC Ru	eqNo: 978442 %REC LowLimit Code: EPA 200.8: unNo: 32026	HighLimit		RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID:	LCS	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.00050 ND 0.00050 SampType: LCS Batch ID: A32026 Analysis Date: 2/9/2016	Se Alue SPK Ref Val TestC Ru Se	eqNo: 978442 %REC LowLimit Code: EPA 200.8: InNo: 32026 eqNo: 979375	HighLimit Dissolved Met		RPDLimit RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date:	LCS	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.00050 ND 0.00050 SampType: LCS Batch ID: A32026 Analysis Date: 2/9/2016 Result PQL SPK v	Se Alue SPK Ref Val TestC Ru Se Alue SPK Ref Val	eqNo: 978442 %REC LowLimit Code: EPA 200.8: InNo: 32026 eqNo: 979375 %REC LowLimit	HighLimit Dissolved Met Units: mg/L	als		
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte Arsenic	LCS LCSW	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.00050 ND 0.00050 SampType: LCS Batch ID: A32026 Analysis Date: 2/9/2016 Result PQL SPK v 0.025 0.0010 0.02	Se SPK Ref Val TestC Ru Se S	eqNo: 978442 %REC LowLimit Code: EPA 200.8: InNo: 32026 eqNo: 979375 %REC LowLimit 101 85	HighLimit Dissolved Met Units: mg/L HighLimit 115	als %RPD		
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte Arsenic	LCS LCSW	Analysis Date: 2/8/2016 Result PQL SPK v ND 0.00050 ND 0.00050 ND 0.00050 SampType: LCS Batch ID: A32026 Analysis Date: 2/9/2016 Result PQL SPK v 0.025 0.0010 0.02 SampType: LCSLL	TestControl SPK Ref Val	eqNo: 978442 %REC LowLimit Code: EPA 200.8: InNo: 32026 eqNo: 979375 %REC LowLimit 101 85 Code: EPA 200.8:	HighLimit Dissolved Met Units: mg/L HighLimit 115	als %RPD		

SPK value SPK Ref Val

0.001000

Qualifiers:

Analyte

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

Result

0.0010

0.0010

- 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

HighLimit

150

%RPD

E Value above quantitation range

%REC

100

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Page 8 of 23

RPDLimit

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: A32026 RunNo: 32026

Prep Date: Analysis Date: 2/9/2016 SeqNo: 979379 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

W Sample container temperature is out of limit as specified

Page 9 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23640 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979810 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

ND 0.00020 Mercury

Sample ID LCS-23640 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979811 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 102 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 10 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

Client:

Prep Date:

Analyte

Sulfate

Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 2/18/2016

PQL

0.50

Result

ND

Navajo Refining Company

WO#: 1602206

24-Feb-16

Project: Mon	Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RP									
Sample ID MB	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: PBW	Batch	າ ID: R3	1977	F	RunNo: 3	1977				
Prep Date:	Analysis D	ate: 2/	5/2016	S	SeqNo: 9	77910	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	SampT	ype: LC	s	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: LCSW	Batch	າ ID: R3	1977	F	RunNo: 3	1977				
Prep Date:	Analysis D	ate: 2/	5/2016	S	SeqNo: 9	77911	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	109	90	110			
Chloride	4.9	0.50	5.000	0	98.1	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			
Sample ID MB	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: PBW	Batch	າ ID: R3	2274	F	RunNo: 3	2274				

Sample ID LCS	SampType: LCS	Test	Code: EPA Method	300.0: Anions			
Client ID: LCSW	Batch ID: R32274	R	unNo: 32274				
Prep Date:	Analysis Date: 2/18/20)16 S	eqNo: 986554	Units: mg/L			
Analyte	Result PQL SPh	Value SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10 0.50	10.00 0	99.6 90	110			

SPK value SPK Ref Val %REC LowLimit

SeqNo: 986553

Units: mg/L

HighLimit

%RPD

RPDLimit

Qual

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Page 11 of 23

- P Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23604 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 23604 RunNo: 31988

Analysis Date: 2/8/2016 Prep Date: 2/8/2016 SeqNo: 978001 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-23604 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978002 Units: µg/L

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL LowLimit HighLimit Qual

1,2-Dibromoethane 0.13 0.010 0.1000 0 129 70 130

Sample ID LCSD-23604 SampType: LCSD TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSS02 Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978003 Units: µg/L

%REC Result **PQL** SPK value SPK Ref Val HighLimit %RPD **RPDLimit** Qual Analyte LowLimit

1.2-Dibromoethane 0.12 0.010 0.1000 0 123 70 130 4.17

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Η

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RLReporting Detection Limit Sample container temperature is out of limit as specified Page 12 of 23

Hall Environmental Analysis Laboratory, Inc.

5.3

0.50

1.0

5.000

0.5000

WO#: **1602206**

24-Feb-16

Sample ID MB-23596 SampType: MB K TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 23596 RunNo: 31978 Client ID: 275/2016 Analysis Date: 288/2016 SeqNo: 977994 Units: mg/L Analyte Result PQL SPK value SPK Ref Val REC LowLimit HighLimit RPD RPDLimit Qual PRDLimit Qual PRDLimit PRDLImit	Client: Project:	· ·	efining Co R.O. Rejec									
Prep Date: 2/5/2016	Sample ID	MB-23596	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8015M/D: Die	sel Rang	е	
Analyte	Client ID:	PBW	Batch	ID: 23	596	F	RunNo: 3	1978				
Diesel Range Organics (DRO)	Prep Date:	2/5/2016	Analysis D	ate: 2/ 8	8/2016	5	SeqNo: 9	77994	Units: mg/L			
Motor Oil Range Organics (MRO) ND 5.0 1.000 100 70 141	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sum: DNOP 1.0 1.00 1.00 70 141 Sample ID LCS-23596 Sample ID LCSW Batch ID: 23596 RunNo: 31978 Prep Date: 2/5/2016 Analysis Date: 2/8/2016 SeqNo: 977995 Units: mg/L Analyte Result PQL SPK Ref Val %REC LowLimit High Limit %RPD RPDLimit Qual Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Sample ID 1602206-001AMS SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 SeqNo: 978052 Units: mg/L Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Sample ID 1602206-001AMSD SampType: MSD TestCode:	•	•		_								
Client ID: LCSW Batch ID: 23596 RunNo: 31978 RunNo: 31978 RunNo: 215/2016 Analysis Date: 2/8/2016 SeqNo: 977995 Units: mg/L		e Organics (MRO)		5.0	1.000		100	70	141			
Prep Date: 2/5/2016 Analysis Date: 2/8/2016 SeqNo: 977995 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 0.49 0.5000 97.8 70 141 Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52	Sample ID	LCS-23596	SampT	ype: LC	S	Tes	tCode: E	PA Method	8015M/D: Die	sel Range	e	
Analyte	Client ID:	LCSW	Batch	ID: 23	596	F	RunNo: 3	1978				
Diesel Range Organics (DRO) S.1 1.0 5.000 0 102 52.4 154	Prep Date:	2/5/2016	Analysis D	ate: 2/ 8	8/2016	8	SeqNo: 9	77995	Units: mg/L			
Surr: DNOP 0.49 0.5000 97.8 70 141 Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID 1602206-001AMS SampType: MS TestCode: EPA Method 8015M/D: Diesel Range	Diesel Range	Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154			
Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Surr: DNOP		0.49		0.5000		97.8	70	141			
Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978052 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Sample ID	1602206-001AMS	SampT	ype: MS	5	Tes	tCode: E	PA Method	8015M/D: Die	sel Range	е	
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Client ID:	R.O. Reject	Batch	ID: 23	596	F	RunNo: 3	1978				
Diesel Range Organics (DRO) 5.4 1.0 5.000 0 109 41.3 177 Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Prep Date:	2/8/2016	Analysis D	ate: 2/ 3	8/2016	S	SeqNo: 9	78052	Units: mg/L			
Surr: DNOP 0.52 0.5000 104 70 141 Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID 1602206-001AMSD SampType: MSD TestCode: EPA Method 8015M/D: Diesel Range Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Diesel Range	Organics (DRO)	5.4	1.0	5.000	0	109	41.3	177			
Client ID: R.O. Reject Batch ID: 23596 RunNo: 31978 Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Surr: DNOP		0.52		0.5000		104	70	141			
Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978077 Units: mg/L	Sample ID	1602206-001AMS	D SampT	ype: MS	SD	Tes	tCode: E	PA Method	8015M/D: Die	sel Rang	e	
	Client ID:	R.O. Reject	Batch	ID: 23	596	F	RunNo: 3	1978				
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual	Prep Date:	2/8/2016	Analysis D	ate: 2/ 8	8/2016	S	SeqNo: 9	78077	Units: mg/L			
	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Diesel Range Organics (DRO)

Surr: DNOP

- 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

105

99.3

-94.6

70

317

141

3.46

0

22.1

0

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977541 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) 0.45 0.050 0.5000 0 90.6 80 120 Surr: BFB 97.9 49.5 20 20.00 130

TestCode: EPA Method 8015D: Gasoline Range Sample ID 5ML RB SampType: MBLK

Client ID: PBW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977542 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 0.050

20.00 83.7 Surr: BFB 17 49.5 130

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

4.7

2.3

1.6

1.0

WO#: 1602206

24-Feb-16

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

Sample ID MB-23676	SampType: Mi	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Date: 2/	/17/2016	S	SeqNo: 98	84090	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	3.3	2.500		132	26.1	140			
Surr: Tetrachloro-m-xylene	2.6	2.500		104	15	123			
Sample ID LCS-23676	SampType: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Date: 2/	/17/2016	8	SeqNo: 98	84091	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	57.3	15	131	•		

Sample ID LCSD-23676	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	ID: 23	676	R	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	S	SeqNo: 9	84092	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.8	1.0	5.000	0	56.4	15	131	1.55	24.4	
Aroclor 1260	4.5	1.0	5.000	0	90.4	15	162	3.99	28	
Surr: Decachlorobiphenyl	2.2		2.500		87.2	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	15	123	0	0	

0

94.0

92.0

65.2

15

15

26.1

162

140

123

5.000

2.500

2.500

Qualifiers:

Aroclor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

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P Sample pH Not In Range

Reporting Detection Limit RL

Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID rb2 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: **B31998** RunNo: 31998 Prep Date: Analysis Date: 2/9/2016 SeqNo: 978345 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 ND Toluene 1.0 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene Bromodichloromethane ND 1.0 ND Bromoform 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 1.0 ND 1.0 1,3-Dichlorobenzene 1.4-Dichlorobenzene ND 1.0 Dichlorodifluoromethane ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 ND 1,2-Dichloropropane 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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID rb2	SampT	ype: ME	BLK	Test	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: B3	1998	R	tunNo: 3	1998				
Prep Date:	Analysis D	ate: 2/	9/2016	S	SeqNo: 9	78345	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	9.7		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID 100ng lcs2	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: B3	1998	R	RunNo: 3	1998				
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	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			
Toluene	22	1.0	20.00	0	109	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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID 100ng lcs2 Client ID: LCSW	Batch	ype: LC	1998	F	RunNo: 3	1998	8260B: VOL	ATILES		
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		106	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB-23677 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: PBW Batch ID: 23677 RunNo: 32189 Prep Date: 2/11/2016 Analysis Date: 2/17/2016 SeqNo: 984104 Units: µg/L Analyte **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 9.8 20.00 48.8 33.4 129

Sample ID LCS-23677	SampT	ype: LC	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 23	677	R	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	S	SeqNo: 9	84239	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	78	2.0	80.00	0	97.6	54.6	110			
1-Methylnaphthalene	79	2.0	80.20	0	98.2	49.1	116			
2-Methylnaphthalene	79	2.0	80.00	0	98.8	52.5	111			
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107			
Surr: Benzo(e)pyrene	10		20.00		50.0	33.4	129			

Sample ID LCSD-23677	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSS02	Batch	n ID: 23 0	677	F	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	Date: 2/	17/2016	8	SeqNo: 9	84240	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	81	2.0	80.00	0	101	54.6	110	3.55	20	
1-Methylnaphthalene	82	2.0	80.20	0	102	49.1	116	3.43	20	
2-Methylnaphthalene	82	2.0	80.00	0	102	52.5	111	3.47	20	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	3.85	20	
Surr: Benzo(e)pyrene	10		20.00		51.4	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

D C 1 HN (I D

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23801 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 23801 RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984921 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-23801 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Batch ID: 23801 Client ID: LCSW RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984922 Units: µg/L

RPDLimit Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Analyte Qual

Phenolics, Total Recoverable 23 2.5 20.00 0 113 64.4 135

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602206**

24-Feb-16

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

Sample ID MB-R32129 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982291 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R32129 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982292 Units: mg/L

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

Cyanide 0.485 0.5000 0 97.0 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-R32295 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R32295 RunNo: 32295 SeqNo: 987217 Prep Date: Analysis Date: 2/16/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 -0.078 0.841 Radium-226 ± 0.357 0.841 Radium-228 0.165 0.797 Radium-228 ± 0.36 0.797

Qualifiers:

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

Page 22 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

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

Sample ID MB-23638 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979976 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-23638 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979977 Units: mg/L

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Qual

Total Dissolved Solids 1030 20.0 1000 0 103 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 23 of 23

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO** Work Order Number: 1602206 RcptNo: 1 Received by/date:_< Logged By: **Ashley Gallegos** 2/5/2016 10:05:00 AM Completed By: **Ashley Gallegos** 2/5/2016 11:05:04 AM Reviewed By: 02105 Chain of Custody No 🗌 1. Custody seals intact on sample bottles? Yes Not Present ✓ No 🗆 Yes 🗸 Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? Yes 🗸 No 🔲 NA 🗌 No 🗌 NA 🗆 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 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 Yes No 🗸 NA 🗌 9. Was preservative added to bottles? Yes 🗸 No 🗌 No VOA Vials 10. VOA vials have zero headspace? Yes \square No 🔽 11. Were any sample containers received broken? # of preserved bottles checked No 🗔 for pH: 12. Does paperwork match bottle labels? Yes 🔽 or ∤12 uniess noted) (Note discrepancies on chain of custody) Adjusted? Yes 🗹 No 🗌 13. Are matrices correctly identified on Chain of Custody? No 🗌 14. Is it clear what analyses were requested? Yes 🗸 No 🔲 Checked by 15. Were all holding times able to be met? Yes 🗹 (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA 🗹 16. Was client notified of all discrepancies with this order? No 🗌 Person Notified: Date By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp ºC Condition Seal Intact Seal No Seal Date Signed By 1.0 Good Not Present

Chain-of-Custody Record | Turn-Around Time: Vaili Shor Shor X St Sie |

FNVTBONMENTAL	ANALYSIS LABORATORY	ı i i											PH 504,1:EDB Air Bubbles	×						×								VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethane; 1,2-Trichloroethylene; 1,3-Trichloroethylene; 1,3-Trichlor	::::::::::::::::::::::::::::::::::::::
2 1	5	 	9					-		 sbild	PS P		Nitrate/Nitri	×	_				_	_			\dashv			Н	U, Zn	chloroe	Dibromoethane; 1,1,2-Titolioroethane; Benzene; Carbon Tetrachloride; Chloroform
Σ	08	; 	4901 Hawkins NE - Albuquerque, NM 87109	107	5								Fluoride	×						-	\dashv					Н	Remarks: Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn	2-Tetra	oride; C
Č	AB	www.hallenvironmental.com	Σ. Σ	Fax 505-345-4107		est							Phenols												×	П	o, Ni, S	3; 1,1,2,	errachl
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ë	□ Rush		Reject	# 167796			er:			Elizabeth Salsberry	X Yes	eraturė: $/\!\!/\zeta$	Preservative Type	1-unpres 1- H2SO4	HCL	HNO3	HN03	NaOH	HNO3	Na2S2O3	npres	unpres	HCI	npres	12SO4	HCL		suft c	
i urn-Around Time	X Standard	Project Name:	Monthly R.O. F	Project #: P.O. # 167796			Project Manager:		Robert Combs	Sampler.	On Ice:	Sample Temperature.	Container Type and #	2 - 500ml P	3-40ml VOA	1-500ml P	1-125ml P	1-500ml P	2- 1L P	3-40ml VOA	2 - 1L Glass unpres	1 - 1L Glass	3-40ml VOA	1-250mlGlastunpres	1 - 1L Glass	ا≿ا	Received by:	Smeile	Received by:
									□ Level 4 (Full Validation)				Sample Request ID	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject		bastan		2
Chain-of-Custody Record			Mailing Address: P.O. Box 159 Artesia,				151		□ Level 4 (Fi				Sample F	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	R.O.	Trip	d by Elizat	K:00 Elisabeth Solder	d by:
of-Cu	Refinery		P.O. Box			575-748-3311	email or Fax#: 575-746-5451						Matrix	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	9:35 liquid	liquid	9:35 liquid	Relinquishe	305312	Relinquished by:
hain-	Navajo Refinery		Address	VM 88211-0159	0010	#: 575-74	r Fax#: 5	2A/QC Package:	dard	7.	EDD (Type)_		Time														-		Time:
ပ ်	Client:		Mailing	MM 882	41M 000	2hone #:	email o	JA/QC I	X Standard	□ Other			Date	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	2/4/16	Date:	ا ا	Date:



Navajo Refining Company, 1LC 501 E. Main 8210 (Tel) 575.748.3311 (Fax) 575.746.5451

Monthly RO Reject Sample Deta Attachr

	HOLLYFRONTIER	The HollyFrontier Companies
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Sample	sils	ment

	n Field R.O. Reject Discarge ☑ South Field R.O. Reject Discarge	Outrally Sample Location U north Field R.
	Tatis Carigo Transais Ore	Frid Date and Time 2/4/2016 @ 9:45 a.m.
Type of Sampler Directly to sa		e
	Elow Weighted Composite	Samplers Affiliation Navajo Refining Co. LLC
Shidoe	Time Weighted Composite U	Samplers Name Elizabeth Salsberry
∑ piriori	Grap	Project Name Biannual RO Reject
Physical Property	Sample Type	

Directly to sample jars

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Mayossandio Wemodf-equested pH. C. F. S04, NO2NO3, 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		
Beservatives Lesson Marszool Marssou	X				×							
HOT HAVE	<u> </u>	×	×	×		×	×				×	
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Table	7	3	-	1	2	3	2	-	2	2	2	
Waterfall	Plastic	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA	
Size.	500ml	40ml	500ml	125ml	500ml	1	1	l _		40ml	40ml	
A STATE OF THE STA			S			Q			10	01	T	

Retrigerated	Saipping Media	lee ☑
siengregations de la company d	Field Temp. 19.7C Field pH 7.34	



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

OrderNo.: 1602208

February 24, 2016

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

FAX

RE: Monthly Temporary R.O. Reject

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/5/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 22, 2016.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman

Laboratory Manager

Inlest

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report Lab Order 1602208

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 2/4/2016 9:20:00 AM

Lab ID: 1602208-001 **Matrix:** AQUEOUS **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	JLF
Arsenic	ND	0.0050		mg/L	5	2/9/2016 7:05:53 PM	C32026
Lead	ND	0.00050		mg/L	1	2/8/2016 8:10:53 PM	B31999
Selenium	0.0055	0.0010		mg/L	1	2/8/2016 8:10:53 PM	B31999
Uranium	0.0031	0.00050		mg/L	1	2/8/2016 8:10:53 PM	B31999
EPA 903.1: RA 226 AND EPA 904.0: RA 2	228-SUBBE	D				Analyst	SUB
Radium-226	0.755	0.989		pCi/L	1	2/16/2016	R32295
Radium-226 ±	0.667	0.989		pCi/L	1	2/16/2016	R32295
Radium-228	0.583	0.726		pCi/L	1	2/16/2016	R32295
Radium-228 ±	0.38	0.726		pCi/L	1	2/16/2016	R32295
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	2.3	0.10		mg/L	1	2/16/2016 9:14:11 PM	R32210
Chloride	62	10		mg/L	20	2/16/2016 9:26:36 PM	R32210
Sulfate	1000	25		mg/L	50	2/16/2016 11:12:24 AM	R32200
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/16/2016 8:49:22 PM	R32210
SM2540C MOD: TOTAL DISSOLVED SO	LIDS					Analyst	KS
Total Dissolved Solids	2040	20.0	*	mg/L	1	2/10/2016 3:47:00 PM	23638
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH						Analyst	MRA
рН	8.05	1.68	Н	pH units	1	2/8/2016 3:59:56 PM	R32011
EPA METHOD 200.7: DISSOLVED META	LS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Barium	0.039	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Boron	0.064	0.040		mg/L	1	2/24/2016 11:26:24 AM	B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Molybdenum	ND	0.0080		mg/L	1	2/24/2016 11:26:24 AM	B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:26:24 AM	B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:26:24 AM	B32368
Zinc	0.036	0.010		mg/L	1	2/24/2016 11:26:24 AM	B32368
EPA METHOD 245.1: MERCURY						Analyst	pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:07:57 PM	23640

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

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
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1602208**Date Reported: **2/24/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 2/4/2016 9:20:00 AMLab ID:1602208-001Matrix: AQUEOUSReceived Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analysi	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	2/8/2016 1:25:12 PM	23604
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1221	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1232	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1242	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1248	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1254	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1260	ND	1.0	μg/L	1	2/17/2016 7:54:09 AM	23676
Surr: Decachlorobiphenyl	54.8	26.1-140	%Rec	1	2/17/2016 7:54:09 AM	23676
Surr: Tetrachloro-m-xylene	33.2	15-123	%Rec	1	2/17/2016 7:54:09 AM	23676
EPA METHOD 8015M/D: DIESEL RAI	NGE				Analyst	: TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	2/8/2016 2:56:32 PM	23596
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	2/8/2016 2:56:32 PM	23596
Surr: DNOP	104	70-141	%Rec	1	2/8/2016 2:56:32 PM	23596
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	: RAA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	2/5/2016 5:42:13 PM	R31967
Surr: BFB	85.4	49.5-130	%Rec	1	2/5/2016 5:42:13 PM	R31967
EPA METHOD 8310: PAHS					Analyst	: SCC
Naphthalene	ND	2.0	μg/L	1	2/17/2016 10:20:33 AM	1 23677
1-Methylnaphthalene	ND	2.0	μg/L	1	2/17/2016 10:20:33 AM	23677
2-Methylnaphthalene	ND	2.0	μg/L	1	2/17/2016 10:20:33 AM	23677
Benzo(a)pyrene	ND	0.070	μg/L	1	2/17/2016 10:20:33 AM	23677
Surr: Benzo(e)pyrene	51.0	33.4-129	%Rec	1	2/17/2016 10:20:33 AM	1 23677
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
Benzene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Toluene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Ethylbenzene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Carbon Tetrachloride	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Chloroform	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Methylene Chloride	ND	3.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	2/9/2016 6:44:04 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	2/9/2016 6:44:04 AM	B31998

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

Qualifiers:	
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- * 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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1602208

Date Reported: 2/24/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject **Project:** Monthly Temporary R.O. Reject **Collection Date:** 2/4/2016 9:20:00 AM

1602208-001 Lab ID: Matrix: AQUEOUS **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Anal	/st: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1 2/9/2016 6:44:04 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1 2/9/2016 6:44:04 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1 2/9/2016 6:44:04 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1 2/9/2016 6:44:04 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1 2/9/2016 6:44:04 AM	B31998
Surr: 1,2-Dichloroethane-d4	90.4	70-130	%Rec	1 2/9/2016 6:44:04 AM	B31998
Surr: 4-Bromofluorobenzene	106	70-130	%Rec	1 2/9/2016 6:44:04 AM	B31998
Surr: Dibromofluoromethane	97.5	70-130	%Rec	1 2/9/2016 6:44:04 AM	B31998
Surr: Toluene-d8	102	70-130	%Rec	1 2/9/2016 6:44:04 AM	B31998
TOTAL PHENOLICS BY SW-846 9067				Anal	yst: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1 2/18/2016	23801

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

Qualifiers: Value exceeds Maximum Contaminant Level. Analyte detected in the associated Method Blank D Sample Diluted Due to Matrix Е Value above quantitation range Analyte detected below quantitation limits Page 3 of 23 Н Holding times for preparation or analysis exceeded J ND Not Detected at the Reporting Limit P Sample pH Not In Range R RPD outside accepted recovery limits RL Reporting Detection Limit Sample container temperature is out of limit as specified

% Recovery outside of range due to dilution or matrix

Analytical Report

Lab Order **1602208**Date Reported: **2/24/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1602208-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	2/8/2016 1:40:14 PM	23604
EPA METHOD 8015D: GASOLINE RAN	IGE				Analys	t: RAA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	2/5/2016 6:06:58 PM	R31967
Surr: BFB	88.4	49.5-130	%Rec	1	2/5/2016 6:06:58 PM	R31967
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Toluene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Ethylbenzene	ND	1.0		1	2/9/2016 7:12:24 AM	B31998
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
1,2,4-Trimethylbenzene	ND	1.0		1	2/9/2016 7:12:24 AM	B31998
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0		1	2/9/2016 7:12:24 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Naphthalene	ND	2.0		1	2/9/2016 7:12:24 AM	B31998
1-Methylnaphthalene	ND	4.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
2-Methylnaphthalene	ND	4.0		1	2/9/2016 7:12:24 AM	B31998
Acetone	ND	10		1	2/9/2016 7:12:24 AM	B31998
Bromobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Bromodichloromethane	ND ND	1.0		1	2/9/2016 7:12:24 AM	B31998
Bromoform	ND	1.0		1	2/9/2016 7:12:24 AM	B31998
Bromomethane	ND	3.0	1.0	1	2/9/2016 7:12:24 AM	B31998
2-Butanone	ND ND	3.0 10		1	2/9/2016 7:12:24 AM	B31998
Carbon disulfide	ND ND	10	1.3	1	2/9/2016 7:12:24 AM	B31998
Carbon Tetrachloride	ND ND	1.0		1	2/9/2016 7:12:24 AM	B31998
Chlorobenzene			1 0	1		
***************************************	ND	1.0	μg/L	· · · · · · · · · · · · · · · · · · ·	2/9/2016 7:12:24 AM	B31998
Chloroethane	ND	2.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Chloroform	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Chloromethane	ND	3.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
2-Chlorotoluene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
4-Chlorotoluene	ND	1.0	μg/L "	1	2/9/2016 7:12:24 AM	B31998
cis-1,2-DCE	ND	1.0	1 0	1	2/9/2016 7:12:24 AM	B31998
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dibromo-3-chloropropane	ND	2.0	1.0	1	2/9/2016 7:12:24 AM	B31998
Dibromochloromethane	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Dibromomethane	ND	1.0	1.3	1	2/9/2016 7:12:24 AM	B31998
1,2-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
1,3-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
1,4-Dichlorobenzene	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998

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

- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1602208

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1602208-002 **Matrix:** TRIP BLANK **Received Date:** 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF Da	ate Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Dichlorodifluoromethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2-Dichloropropane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,3-Dichloropropane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
2,2-Dichloropropane	ND	2.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1-Dichloropropene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Hexachlorobutadiene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
2-Hexanone	ND	10	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Isopropylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
4-Isopropyltoluene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
4-Methyl-2-pentanone	ND	10	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Methylene Chloride	ND	3.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
n-Butylbenzene	ND	3.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
n-Propylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
sec-Butylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Styrene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
tert-Butylbenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
trans-1,2-DCE	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
trans-1,3-Dichloropropene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,1-Trichloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,1,2-Trichloroethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Trichloroethene (TCE)	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Trichlorofluoromethane	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
1,2,3-Trichloropropane	ND	2.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Vinyl chloride	ND	1.0	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Xylenes, Total	ND	1.5	μg/L	1 2/	/9/2016 7:12:24 AM	B31998
Surr: 1,2-Dichloroethane-d4	92.6	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998
Surr: 4-Bromofluorobenzene	107	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998
Surr: Dibromofluoromethane	99.5	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998
Surr: Toluene-d8	101	70-130	%Rec	1 2/	/9/2016 7:12:24 AM	B31998

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

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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-B SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: PBW Batch ID: **B32368** RunNo: 32368 Prep Date: Analysis Date: 2/24/2016 SeqNo: 989628 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-B	Samp	SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals							ls	
Client ID: LCSW	Bato	ch ID: B3	2368	F	RunNo: 3	2368				
Prep Date:	Analysis	Date: 2/	24/2016	S	SeqNo: 9	89629	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	105	85	115			
Barium	0.48	0.0020	0.5000	0	96.9	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.6	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.3	85	115			
Copper	0.49	0.0060	0.5000	0	98.6	85	115			
Iron	0.49	0.020	0.5000	0	97.7	85	115			
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			
Nickel	0.47	0.010	0.5000	0	94.0	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.9	85	115			

Sample ID LLLCS-B	SampTy	pe: LC:	SLL	Test	s					
Client ID: BatchQC	Batch ID: B32368 RunNo: 32368									
Prep Date:	Analysis Da	ate: 2/2	2/24/2016 SeqNo: 989				Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	95.9	50	150			
Barium	0.0021	0.0020	0.002000	0	105	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID LLLCS-B	SampType: LCSLL TestCode: EPA Method 20					200.7: Disso	lved Metal	ls		
Client ID: BatchQC	Bato	Batch ID: B32368 RunNo: 32368				2368				
Prep Date:	Analysis Date: 2/24/2016			8	SeqNo: 9	89630	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	100	50	150			
Cadmium	ND	0.0020	0.002000	0	85.0	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	0.0064	0.0060	0.006000	0	107	50	150			
Iron	ND	0.020	0.02000	0	90.8	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			
Molybdenum	0.010	0.0080	0.008000	0	130	50	150			
Nickel	ND	0.010	0.005000	0	101	50	150			
Silver	ND	0.0050	0.005000	0	95.0	50	150			
Zinc	ND	0.010	0.005000	0	90.2	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

Client: Project:		Navajo Refining C Monthly Temporar		Reject							
Sample ID	LCS	Samp	Type: LC	s	Tes	TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Bato	ch ID: B3	1999	RunNo: 31999						
Prep Date:		Analysis	Date: 2/	8/2016	S	SeqNo: 9	78440	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead			0.00050	0.01250	0	102	85	115			
Selenium		0.026	0.0010	0.02500	0	106	85 85	115			
Uranium		0.013	0.00050	0.01250	0	101	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	BatchQ	C Bato	ch ID: B3	1999	R	RunNo: 3	1999				
Prep Date:		Analysis	Date: 2/	8/2016	S	SeqNo: 9	78441	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.00050	0.0005000	0	99.7	50	150			
Selenium		ND	0.0010	0.001000	0	88.9	50	150			
Uranium		ND	0.00050	0.0005000	0	98.6	50	150			
Sample ID	MR	Samo	Туре: МЕ	11.17	-	O					
		Samp	Type. WE	SLK	Tes	(Code: El	PA 200.8: [Dissolved Me	tals		
Client ID:	PBW	•	ch ID: B3			RunNo: 3		Dissolved Me	tals		
Client ID: Prep Date:		Bato	•	1999	F		1999	Units: mg/L			
		Bato	ch ID: B3	1999 8/2016	F	RunNo: 3 GeqNo: 9	1999			RPDLimit	Qual
Prep Date: Analyte Lead		Bato Analysis Result ND	PQL 0.00050	1999 8/2016	R S	RunNo: 3 GeqNo: 9	1999 78442	Units: mg/L		RPDLimit	Qual
Prep Date: Analyte Lead Selenium		Batc Analysis Result ND ND	PQL 0.00050 0.0010	1999 8/2016	R S	RunNo: 3 GeqNo: 9	1999 78442	Units: mg/L		RPDLimit	Qual
Prep Date: Analyte Lead		Batc Analysis Result ND ND	PQL 0.00050	1999 8/2016	R S	RunNo: 3 GeqNo: 9	1999 78442	Units: mg/L		RPDLimit	Qual
Prep Date: Analyte Lead Selenium	PBW	Batc Analysis Result ND ND ND	PQL 0.00050 0.0010	1999 8/2016 SPK value	SPK Ref Val	RunNo: 3: SeqNo: 9: %REC	1999 78442 LowLimit	Units: mg/L	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium	PBW	Bato Analysis Result ND ND ND ND Samp	PQL 0.00050 0.00050	1999 8/2016 SPK value	SPK Ref Val	RunNo: 3: SeqNo: 9: %REC	1999 78442 LowLimit	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID	PBW LCS LCSW	Bato Analysis Result ND ND ND Samp	PQL 0.00050 0.00050 Type: LC	1999 8/2016 SPK value S 2026	SPK Ref Val Tes	RunNo: 3: SeqNo: 9: %REC	1999 78442 LowLimit PA 200.8: [Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID:	PBW LCS LCSW	Bato Analysis Result ND ND ND Samp	PQL 0.00050 0.0010 0.00050 Type: LC	1999 8/2016 SPK value S 2026 9/2016	SPK Ref Val Tes	RunNo: 3: SeqNo: 9: %REC tCode: EF	1999 78442 LowLimit PA 200.8: [Units: mg/L HighLimit Dissolved Me	%RPD	RPDLimit RPDLimit	Qual
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date:	PBW LCS LCSW	Bato Analysis Result ND ND ND Samp Bato Analysis	PQL 0.00050 0.0010 0.00050 Type: LC ch ID: C3 Date: 2/5	1999 8/2016 SPK value S 2026 9/2016	SPK Ref Val Tes:	RunNo: 3: SeqNo: 9: %REC tCode: EF RunNo: 3: SeqNo: 9:	1999 78442 LowLimit PA 200.8: [2026 79376	Units: mg/L HighLimit Dissolved Me Units: mg/L	%RPD		
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte	LCS LCSW	Bato Analysis Result ND ND ND Samp Bato Analysis Result 0.025	PQL 0.00050 0.0010 0.00050 Type: LC ch ID: C3 Date: 2/2	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500	SPK Ref Val Tes: SPK Ref Val O	RunNo: 3: GeqNo: 9: **REC **Code: Ele RunNo: 3: GeqNo: 9: **REC 98.5	1999 78442 LowLimit PA 200.8: [2026 79376 LowLimit 85	Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit	%RPD tals %RPD		
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte Arsenic	LCS LCSW	Bato Analysis Result ND ND ND Samp Bato Analysis Result 0.025	PQL 0.00050 0.00050 Type: LC ch ID: C3 Date: 2/9	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500	Tes: SPK Ref Val O Tes:	RunNo: 3: GeqNo: 9: **REC **Code: Ele RunNo: 3: GeqNo: 9: **REC 98.5	1999 78442 LowLimit PA 200.8: [2026 79376 LowLimit 85 PA 200.8: [Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit 115	%RPD tals %RPD		
Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte Arsenic Sample ID	LCS LCSW	Result ND ND ND Samp Batc Analysis Result 0.025 Samp	PQL 0.00050 Type: LC 0.0010 Type: LC 0.0010 Type: LC 0.0010	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500 SLL 2026	SPK Ref Val Tes: SPK Ref Val 0 Tes: R	tCode: EF	1999 78442 LowLimit PA 200.8: [2026 79376 LowLimit 85 PA 200.8: [2026	Units: mg/L HighLimit Dissolved Me Units: mg/L HighLimit 115	%RPD tals %RPD		

Qualifiers:

Arsenic

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

ND

0.0010

0.001000

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

150

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P
- Sample pH Not In Range
- Reporting Detection Limit RL
- Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: C32026 RunNo: 32026

Prep Date: Analysis Date: 2/9/2016 SeqNo: 979380 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

W Sample container temperature is out of limit as specified

Page 9 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB-23640 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979810 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

ND 0.00020 Mercury

Sample ID LCS-23640 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 23640 RunNo: 32041

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979811 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 102 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Reporting Detection Limit

P Sample pH Not In Range

RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB	SampType: MBLK	TestCode: EPA Method	300.0: Anions	
Client ID: PBW	Batch ID: R32200	RunNo: 32200		
Prep Date:	Analysis Date: 2/16/2016	SeqNo: 984262	Units: mg/L	
Analyte	Result PQL SPK value S	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Q)ual

ND 0.50 Sulfate

Sample ID LCS	SampType	SampType: LCS T				estCode: EPA Method 300.0: Anions				
Client ID: LCSW	Batch ID:	R32200	F	RunNo: 3	2200					
Prep Date:	Analysis Date:	Analysis Date: 2/16/2016			84263	Units: mg/L				
Analyte	Result Po	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sulfate	10 0	.50 10.00	0	100	90	110				

Sample ID MB	SampType: MBLK TestCode: EPA Me					PA Method	300.0: Anion	s		
Client ID: PBW	Batch	1D: R3	2210	F	RunNo: 3	2210				
Prep Date:	Analysis D	ate: 2/	16/2016	8	SeqNo: 9	84551	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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS TestCode: EPA Method						300.0: Anion	s		
Client ID: LCSW	Batch	Batch ID: R32210 RunNo: 32210								
Prep Date:	Analysis D	oate: 2/	16/2016	8	SeqNo: 9	84552	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.4	90	110			
Chloride	5.0	0.50	5.000	0	99.0	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	102	90	110			

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

Reporting Detection Limit RL

Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23604 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978001 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-23604 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978002 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 0 129 70 130

Sample ID LCSD-23604 SampType: LCSD TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSS02 Batch ID: 23604 RunNo: 31988

Prep Date: 2/8/2016 Analysis Date: 2/8/2016 SeqNo: 978003 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 0 123 70 130 4.17 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

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB-23596	Samp1	ype: M	BLK	Test	tCode: El	PA Method	8015M/D: Die	sel Range	е	
Client ID: PBW	Batcl	n ID: 23	596	R	tunNo: 3	1978				
Prep Date: 2/5/2016	Analysis D	oate: 2/	8/2016	S	seqNo: 9	77994	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		100	70	141			
Sample ID LCS-23596	Samp1	ype: LC	s	Test	Code: El	PA Method	8015M/D: Die	sel Range	e	

Sample ID LCS-23596	SampT	ype: LC	s	Tes	tCode: E	PA Method	8015M/D: Die	esel Rang	е	
Client ID: LCSW	Batcl	n ID: 23	596	F	RunNo: 3	1978				
Prep Date: 2/5/2016	Analysis D	Date: 2/	/8/2016	S	SeqNo: 9	77995	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	0.49		0.5000		97.8	70	141			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977541 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) 0.45 0.050 0.5000 0 90.6 80 120 Surr: BFB 97.9 49.5 20 20.00 130

TestCode: EPA Method 8015D: Gasoline Range Sample ID 5ML RB SampType: MBLK

Client ID: PBW Batch ID: R31967 RunNo: 31967

Prep Date: Analysis Date: 2/5/2016 SeqNo: 977542 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 0.050

20.00 83.7 Surr: BFB 17 49.5 130

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η 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
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

2.3

1.6

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23676	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: PBW	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	5	SeqNo: 9	84090	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	3.3		2.500		132	26.1	140			
Surr: Tetrachloro-m-xylene	2.6		2.500		104	15	123			
Sample ID LCS-23676	SampT	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	5	SeqNo: 9	84091	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	57.3	15	131			
Aroclor 1260	4.7	1.0	5.000	0	94.0	15	162			

Sample ID LCSD-23676	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2/	17/2016	8	SeqNo: 9	84092	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.8	1.0	5.000	0	56.4	15	131	1.55	24.4	
Aroclor 1260	4.5	1.0	5.000	0	90.4	15	162	3.99	28	
Surr: Decachlorobiphenyl	2.2		2.500		87.2	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	15	123	0	0	

92.0

65.2

26.1

15

140

123

2.500

2.500

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID rb2 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: **B31998** RunNo: 31998 Prep Date: Analysis Date: 2/9/2016 SeqNo: 978345 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 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 1.0 ND 1.0 1,3-Dichlorobenzene 1.4-Dichlorobenzene ND 1.0 Dichlorodifluoromethane ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 ND 1,2-Dichloropropane 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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID rb2	SampT	ype: ME	BLK	Test	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: B3	1998	R	RunNo: 3	1998				
Prep Date:	Analysis D	ate: 2/	9/2016	S	SeqNo: 9	78345	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	9.7		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID 100ng lcs2	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: B3	1998	R	RunNo: 3	1998				
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	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			
Toluene	22	1.0	20.00	0	109	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID 100ng lcs2 Client ID: LCSW	Batch	ype: LC	1998	F	RunNo: 3	1998	8260B: VOL	ATILES		
Prep Date:	Analysis D	ate: 2/	8/2016	S	SeqNo: 9	78346	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		106	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
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23677 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: PBW Batch ID: 23677 RunNo: 32189 Prep Date: 2/11/2016 Analysis Date: 2/17/2016 SeqNo: 984104 Units: µg/L Analyte **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 9.8 20.00 48.8 33.4 129

Sample ID LCS-23677	SampT	ype: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 23	677	R	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	oate: 2/	17/2016	S	SeqNo: 9	84239	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	78	2.0	80.00	0	97.6	54.6	110			
1-Methylnaphthalene	79	2.0	80.20	0	98.2	49.1	116			
2-Methylnaphthalene	79	2.0	80.00	0	98.8	52.5	111			
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107			
Surr: Benzo(e)pyrene	10		20.00		50.0	33.4	129			

Sample ID LCSD-23677	SampT	ype: LC	SD	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSS02	Batch	n ID: 23	677	F	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	Date: 2/	17/2016	8	SeqNo: 9	84240	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	81	2.0	80.00	0	101	54.6	110	3.55	20	
1-Methylnaphthalene	82	2.0	80.20	0	102	49.1	116	3.43	20	
2-Methylnaphthalene	82	2.0	80.00	0	102	52.5	111	3.47	20	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	3.85	20	
Surr: Benzo(e)pyrene	10		20.00		51.4	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

D. C. J. H.N. J. D.

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-23801 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 23801 RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984921 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-23801 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 23801 RunNo: 32220

Prep Date: 2/18/2016 Analysis Date: 2/18/2016 SeqNo: 984922 Units: μg/L

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

Phenolics, Total Recoverable 23 2.5 20.00 0 113 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

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P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-R32129 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982291 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R32129 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R32129 RunNo: 32129

Prep Date: Analysis Date: 2/11/2016 SeqNo: 982292 Units: mg/L

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

Cyanide 0.485 0.5000 0 97.0 90 110

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1602208**

24-Feb-16

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

Sample ID MB-R32295 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R32295 RunNo: 32295 SeqNo: 987217 Prep Date: Analysis Date: 2/16/2016 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 -0.078 0.841 Radium-226 ± 0.357 0.841 Radium-228 0.165 0.797 Radium-228 ± 0.36 0.797

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

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

Sample ID MB-23638 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979976 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-23638 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 23638 RunNo: 32048

Prep Date: 2/9/2016 Analysis Date: 2/10/2016 SeqNo: 979977 Units: mg/L

Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Analyte Qual

Total Dissolved Solids 1030 20.0 1000 0 103 120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Η 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 В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

Sample container temperature is out of limit as specified

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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

Work Order Number: 1602208 NAVAJO REFINING CO RcptNo: 1 Client Name: Received by/date: **Ashley Gallegos** 2/5/2016 10:05:00 AM Logged By: **Ashley Gallegos** 2/5/2016 11 17:10 AM Completed By: Reviewed By: Chain of Custody No 🗆 Not Present Yes 1. Custody seals intact on sample bottles? Yes 🗸 No 🗀 Not Present 🔲 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier <u>Log In</u> NA 🔲 Yes 🗸 No 🗔 4. Was an attempt made to cool the samples? NA 🗌 No 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 Yes 🗸 No 🗌 Sample(s) in proper container(s)? Yes 🗸 No 🗀 7. Sufficient sample volume for indicated test(s)? No 🗀 Yes 🗸 8. Are samples (except VOA and ONG) properly preserved? NA 🗆 No 🗹 Yes 🗌 9. Was preservative added to bottles? No VOA Vials Yes 🗸 No 🗔 10. VOA vials have zero headspace? Yes \square No 🔽 11. Were any sample containers received broken? # of preserved bottles checked for pH: Yes 🗸 No 🗔 12. Does paperwork match bottle labels? (<2)or(>12 unless noted) (Note discrepancies on chain of custody) Adjusted? Yes 🗸 No 13. Are matrices correctly identified on Chain of Custody? Yes 🗸 No 🗆 14. Is it clear what analyses were requested? Yes 🗸 No 🗌 Checked by 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No 🗆 NA 🔽 16. Was client notified of all discrepancies with this order? Person Notified: Date __ eMail By Whom: Phone Fax ☐ In Person Via: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp ºC Condition | Seal Intact | Seal No Seal Date Signed By 1.0 Good Not Present

ပ	nain-	ot-cu	Chain-of-Custody Record		j					I	AL	Ш	>	HALL ENVIRONMENTAL	Ž	A M		A	
Client	Navajo Refinery	Refinery		X Standard	□ Rush	sh				4	A	>	SI	ANALYSIS LABORATORY	BO	S	P	Ā	
				Project Name:						3	ww.h	allenv	ironm	www.hallenvironmental.com	E00				
Mailing	Address.	P.O. Bo	Mailing Address: P.O. Box 159 Artesia,	Monthly Temporary R.O. Reject	orary R.O.	Reject		4	301 H	4901 Hawkins NE	s NE	- AR	ndne	Albuquerque, NM 87109	.8 M	7109			
NM 882	NM 88211-0159			Project #: P.O	. # 167796				el. 50	Tel. 505-345-3975	-397		Fax 5	505-345-4107	5-410	17			
Phone #	Phone #: 575-748-3311	8-3311							,			Analy	sis R	Analysis Request	st				
email or Fax#:		575-746-5451	451	Project Manager:	jer:								(8						
QA/QCF	QA/QC Package:												ZZ-€						
X Standard	dard		☐ Level 4 (Full Validation)	quo	(0)					e	Oac		3+6				s		
□ Other					Elizabeth Salsberry	alsberry				pin			-22				oilo		(N
☐ EDD (Type)	(Type)_			On Ice	X Yes	ON II							(Ra	əpi			S be		Y or
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Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	PEALL	© Z	8270C: WQ	6010B: WC	335.4: Tot	7470: Mer 8015: GR0	8082: PCE	Radioactivi	Sulfate Chi	Fluoride	Nitrate/Nitr	Total Disso	204∵4:EDB	Air Bubble
2/4/16		9:20 liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres H2SO4	-1	100				•			×	×	×	×	×	>
2/4/16		9:20 liquid	Temporary R.O. Reject	3-40ml VOA	HCL			×											
2/4/16		9:20 liquid	Temporary R.O. Reject	1-500ml P	HN03						×	-							_
2/4/16		9:20 liquid	Temporary R.O. Reject	1-125ml P	HN03				×		_		-						_
2/4/16		9:20 liquid	Temporary R.O. Reject	1-500ml P	NaOH					×								_	4
2/4/16		9:20 liquid	Temporary R.O. Reject	2- 1L P	HN03								×						
2/4/16		9:20 liquid	Temporary R.O. Reject	3-40ml VOA	Na2S203													<u> </u>	
2/4/16		9:20 liquid	Temporary R.O. Reject	2 - 1L Glass	unpres			-			\dashv	×		\dashv	.			_	_
2/4/16		9:20 liquid	Temporary R.O. Reject	1 - 1L Glass	unpres			×						\dashv	\dashv		\dashv	\dashv	-
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2/4/16		9:20 liquid	Temporary R.O. Reject	1-250miGlas	nnpres						×								
2/4/16		liguid	Temporary R.O. Reject	1 - 1L Glass	H2SO4									×					\dashv
2/4/16		9:20 liquid	Trip Blank	2-40ml VOA	HCL	7	72			\dashv	\dashv	_			_				4
Date:	Time:	Relinquish	Relinquished by: Elizabeth Balsberry	Received by:		Date	Time	Remarks: Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn	; , Al, Ba	B, Cd,	တ <u>ိ</u> င်	Su, Fe,	Pb, Mn,	Hg, Mo,	ž. Se,	Ag, U, 2	5		
5 L + 17	017110 17:00	مكبك	eigoveth Solden		allert (02/02/16	500	VOCs: 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethylene, 1,1,2- Trichloroethane, 1,1,2-Trichloroethylene, 1,1,Dichloroethane, 1,1-Dichloroethane, 1,2	1,1-Tricl	iforoeth:	ane; 1,1	2,2-Tet	achtoro	sthane; 1	1,2,2-1	Tetrachi Dichlom	proethyl	ene; 1, 1.2-	4,
Date:	Time:	Relinquished by	ed by:	Received by:		Ďate	Time	District Centrals, 1,12-throughout, 1,12	thane; 1 ethane:	2-Dichle	oroethai	e; Benz	ene; Ca	thon Tet	rachlorii invl Chi	de; Chk	roform;	ī	
							<u>, 0)</u>	Drallotornetrialie, Eutylberizerie, Tolderie, Tolderes, Villy Ciliotoe SVOCs: benzo(a)byrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene	eulanc, senzo(a)	Dyrene.	phenol,	J-meth	Inaphth	alene, 2-	methyln	aphthal	ene, na	phthale	စ္

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



Navajo Refining Company, LLC 501 E. Main

Monthly Temporary RO Reject Sample Details

HOLLYFRONTIER The HollyFrontier Companies
--

- Ľ		emil .	Flow		
Artesia, NM 88210 (Tel) 575.748.3311 (Fax) 575.746.5451	- Project Name Biannual RO Reject	Samplers Name Elizabeth Salsberry	路為filiation Navajo Refining Co. LLC	art Date and time 2/4/2016 @ 9:15 a.m.	d/Date and Time 2/4/2016 @ 9:30 a.m.
MA	-	San	amplers	art De	d Da

Hnysical Property Solia □		Sludge		Type of Sampler Directly to sample jars	School Andreas Control and the				DH. CLE 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
Safine 1ype Grah	Time Weighted Composite	Flow Weighted Composite		Parts // Sample intervals One		☑ South Field R.O. Reject Discarge	No all dans set 6:		200000000000000000000000000000000000000				×						
	MIT.	Flo				O. Reject Discarge		Nesus	×	×	×	×		×	×	×	×	×	×
		TC				☐ North Field R.		# 01 Elice	2	3	-	1	2	3	2	1	2	2	2
Project Name Biannual RO Reject	Samplers Name Elizabeth Salsberry	Samplers Affiliation Navajo Refining Co. LLC	Start Date and Time 2/4/2016 @ 9:15 a.m.	End/Date and Time 2/4/2016 @ 9:30 a.m		ation		- Waterell	HOCKE THE PARTY OF	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA
Project Name	mplers Name	lers Affiliation	ate and Time	ate and Time		Outfall/Semple Location		ezisk signalini	500ml	40ml	500ml	125ml	\$00ml	1L	40ml	影 1L	11	40ml	40ml
	Sa	Samp	Start	End Di		. Outfal		. Content			3.5			9.5	7.5	4.0	6	, 10° F	. 11

sample jars

40ml	VOA	2		×						Radium 226/228
Eleidi Data (Weather Obser Date and Time	Veatner: Observations Etc. / 2/4/2016 Tmp. 30.2 °F	2/4/2016 Tmp.	30.2°F, Hui	midity 51	%, Wind Di	r. Calm, Wir	F, Humidity, 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear	m, Condition	:	Storage Method
Field Temp. 18.5C	Field pH 7.66	4								Refrigerated □
										Shipping Media
										Other

Energy Minerals & Natural Resources Department Cash Remittance Report (CRR) Header

Location:

Santa Fe - OCD

CRR Number:

Created By:

CRR0039280

DeVargas, Lorraine

Creation Date and Time:

2/29/2016 8:31:58 AM

Collection Period:

2/29/2016 through 2/29/2016

Cash Remitta	nce Report	Lines in this	CRR bundle	:	1 1111	<u> </u>	
Department	RevCode	FundCode	RptCat	BudRef	ClassCode	Receipt Amount	Collect
0710000000	461402	40110	0710	116	50000	\$2,700.00	\$2,700.00
Summary Tot	al Amounts	:					
CRR Totals							
Receipts:		\$2,700.00					
Collected:		\$2,700.00					
OUAmount:		\$0.00					

Comments:

Civil Penalties WQA-OCD-CO-2015-002 Please change RevCode to 292900

Remember: Please print a copy of this CRR Transfer Header and mail it with the accompanying receipts to Santa Fe.

Print Name: DeVargas, Lorraine

Signature: Lorano De Vanya

Print Name:

Signature:

Return to the Managers section

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Check Date Check Amount Vendor No Payment Document Company Code

02/19/2016 2,700.00 5126527 2000021259 1020

Invoice Date	Invoice Number	Description		Invoic	e Amount	Discount Amount	Net Amount
02/17/2016	021716	STIPULATED 1	PENALTY FOR JANUA	RY 2016	5 2,700.0	0.00	2,700.00
Payment d 2000021259	ocument	Check number	Date 02/19/2016		Currency	/	Payment amount ********2,700.00*

STATE OF NEW MEXICO

EEE0006508

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OFFICIAL RECEIPT

Date: 02/29/2016 OFFICIAL REC Received From: Holly Fronties Navajo Refinery

_Dollars

Center Code	Revenue Code	Amount	Work Order No.
07100000000	461902	2,700.00	

Center Code	Revenue Code	Amount	Work Order No.
<u> </u>			
1			

State Treasurer Deposit Number	Total \$ 2,700.00
Description: <u>Civil Fenalthes</u> WOA-OCO-CO-2015-002	→
	Signed: Lorraine DeVarya



February 23, 2016

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail 7014 3490 0000 6269 5833

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order - RO Reject January 2015 ACO - Civil Penalty Payment HollyFrontier Navajo LLC Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$2,700 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for January 2016 submitted electronically on February 11, 2016. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc:

OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC:

Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

160223 RO Reject ACO - Civil Penalty Payment

Chavez, Carl J, EMNRD

SMD

Scott M. Denton

From: Chavez, Carl J, EMNRD Sent: Tuesday, February 16, 2016 10:51 AM To: 'Denton, Scott'; Griswold, Jim, EMNRD Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert Cc: (Bob) K.; Holder, Mike; Combs, Robert Subject: RE: WQA-OCD-C0-2015-002 ACO RO Reject Water Discharge Monthly Report for January 2016 Scott, et al.: The New Mexico Oil Conservation Division (OCD) has completed its review of the above subject report and concurs with the Permittee's calculated penalty amount of \$2,700. Please contact me if you have questions. Thank you. Carl J. Chavez, CHMM **Environmental Engineer** Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505 Phone: (505) 476-3490 Main Phone: (505) 476-3440 Fax: (505) 476-3462 E-mail: CarlJ.Chavez@state.nm.us Website: www.emnrd.state.nm.us/ocd Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website. **From:** Denton, Scott [mailto:Scott.Denton@HollyFrontier.com] **Sent:** Friday, February 12, 2016 12:35 PM To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us> Cc: Marks, Allison, EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD <bill.brancard@state.nm.us>; McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K. <Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Combs, Robert <Robert.Combs@HollyFrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com> Subject: ACO Monthly Report for January 2016 Jim & Carl, Attached it the monthly report for January concerning the RO Reject. Please let me know if you have any questions. Thanks,

Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential. If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.



February 11, 2016

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report – January 2016 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's January 2016 monthly report, for the period of January 1-31, 2016, under the Order.

Specifically, this report covers the January 2016 reporting period and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a-c:

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from January 1 through January 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from January 1 through January 31.

Navajo has calculated a penalty of \$2,700 for January 2016. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 27 days in January. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on January 5, 2016. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a notification to submit to OCD for Discharge Permit GW-028 authorization regarding installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced. Navajo is also evaluating options for the underground injection, or other options for discharge, of RO reject fluid.

OCD February 11, 2016 Page 3 of 3

On January 12, 2016, Navajo submitted formal comments to OCD regarding the draft modified conditions to Discharge Permit GW-028 that were posted for public comment. OCD issued the final modified permit conditions on February 4, 2016.

Navajo is currently preparing an early submittal of the Renewal Application for Discharge Permit GW-028. The Renewal Application will include a permit application for construction and operation of water management ponds for evaporation of RO reject fluid and additional potential fluid streams.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units		Tempor	ary Unit	Daily Discharge Volume
	Metere	ed Data		RO Reject Calculated)	(Calculate	ect Discharge ed from Log eta)	
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
1/1/2016	124	107	231	7,920	100	3443	11,363
1/2/2016	132	106	238	8,160	100	3440	11,600
1/3/2016	133	108	241	8,263	103	3537	11,800
1/4/2016	136	106	242	8,297	108	3692	11,989
1/5/2016	128	106	234	8,023	105	3593	11,616
1/6/2016	128	105	233	7,989	105	3606	11,595
1/7/2016	129	99	228	7,817	108	3696	11,513
1/8/2016	130	81	211	7,234	113	3873	11,107
1/9/2016	132	72	204	6,994	118	4046	11,040
1/10/2016	129	75	204	6,994	121	4137	11,131
1/11/2016	129	79	208	7,131	117	4016	11,147
1/12/2016	131	83	214	7,337	117	3996	11,333
1/13/2016	131	87	218	7,474	118	4044	11,518
1/14/2016	131	80	211	7,234	121	4146	11,380
1/15/2016	130	75	205	7,029	121	4149	11,178
1/16/2016	130	85	215	7,371	117	4010	11,381
1/17/2016	129	89	218	7,474	117	4021	11,495
1/18/2016	128	81	209	7,166	114	3913	11,079
1/19/2016	131	86	217	7,440	125	4284	11,724
1/20/2016	129	82	211	7,234	119	4090	11,324
1/21/2016	129	85	214	7,337	100	3423	10,760
1/22/2016	127	75	202	6,926	124	4244	11,170
1/23/2016	130	83	213	7,303	125	4285	11,588
1/24/2016	89	82	171	5,863	107	3684	9,547
1/25/2016	95	86	181	6,206	126	4332	10,538
1/26/2016	90	82	172	5,897	129	4406	10,303
1/27/2016	91	79	170	5,829	100	3439	9,268
1/28/2016	90	83	173	5,931	96	3280	9,211
1/29/2016	92	78	170	5,829	79	2717	8,546
1/30/2016	88	92	180	6,171	130	4447	10,618
1/31/2016	94	85	179	6,137	137	4709	10,846

Attachment 2 Stipulated Penalty Calculation

Calculation of Stipulated Penalties – January 2016

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	27	\$2,700
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
,	•	Total A	mount:	\$2,700

Attachment 3 Analytical Lab Report



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

January 28, 2016

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly RO Reject OrderNo.: 1601099

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/6/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly RO Reject
 Collection Date: 1/5/2016 9:30:00 AM

 Lab ID:
 1601099-001
 Matrix: AQUEOUS
 Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL (Qual 1	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	t: JLF
Arsenic	ND	0.0050		mg/L	5	1/6/2016 1:32:23 PM	A31277
Lead	ND	0.0025		mg/L	5	1/6/2016 1:32:23 PM	A31277
Selenium	0.010	0.0050		mg/L	5	1/6/2016 1:32:23 PM	A31277
Uranium	0.0060	0.0025		mg/L	5	1/6/2016 1:32:23 PM	A31277
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE)				Analyst	t: SUB
Radium-226	1.66	0.702		pCi/L	1	1/18/2016	R31549
Radium-226 ±	0.756	0.702		pCi/L	1	1/18/2016	R31549
Radium-228	0.359	0.727		pCi/L	1	1/18/2016	R31549
Radium-228 ±	0.347	0.727		pCi/L	1	1/18/2016	R31549
EPA METHOD 300.0: ANIONS						Analyst	t: SRM
Fluoride	3.5	2.0		mg/L	20	1/6/2016 7:19:06 PM	R31305
Chloride	490	50		mg/L	100	1/8/2016 2:52:36 PM	R31350
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	1/6/2016 7:19:06 PM	R31305
Nitrogen, Nitrate (As N)	2.0	0.10		mg/L	1	1/6/2016 7:06:41 PM	R31305
Sulfate	2100	50		mg/L	100	1/8/2016 2:52:36 PM	R31350
SM2540C MOD: TOTAL DISSOLVED S	OLIDS					Analyst	t: KS
Total Dissolved Solids	4000	200	*D	mg/L	1	1/9/2016 1:12:00 PM	23119
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	t: SUB
Cyanide	ND	0.0100		mg/L	1	1/12/2016	R31534
SM4500-H+B: PH						Analyst	t: JRR
рН	7.90	1.68	Н	pH units	1	1/8/2016 6:09:48 PM	R31363
EPA METHOD 200.7: DISSOLVED MET	ALS					Analyst	t: ELS
Aluminum	ND	0.020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Barium	0.062	0.0020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Boron	0.11	0.040		mg/L	1	1/7/2016 2:02:10 PM	B31306
Cadmium	ND	0.0020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Chromium	ND	0.0060		mg/L	1	1/7/2016 2:02:10 PM	B31306
Cobalt	0.0081	0.0060		mg/L	1	1/7/2016 2:02:10 PM	B31306
Copper	ND	0.0060		mg/L	1	1/7/2016 2:02:10 PM	B31306
Iron	ND	0.020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Manganese	ND	0.0020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Molybdenum	ND	0.0080		mg/L	1	1/7/2016 2:02:10 PM	B31306
Nickel	ND	0.010		mg/L	1	1/7/2016 2:02:10 PM	B31306
Silver	ND	0.0050		mg/L	1	1/7/2016 2:02:10 PM	B31306
Zinc	0.028	0.010		mg/L	1	1/7/2016 2:02:10 PM	B31306
EDA METUOD SAF A MEDOUDY						ام دام ما ۸	i

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

EPA METHOD 245.1: MERCURY

- 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 Page 1 of 22

Analyst: pmf

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject
 Collection Date: 1/5/2016 9:30:00 AM

 Lab ID: 1601099-001
 Matrix: AQUEOUS
 Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY					Analyst	: pmf
Mercury	ND	0.00020	mg/L	1	1/7/2016 5:06:46 PM	23109
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/11/2016 1:44:54 PM	23126
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1221	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1232	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1242	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1248	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1254	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1260	ND	1.0	μg/L	1	1/18/2016 1:31:00 PM	23160
Surr: Decachlorobiphenyl	84.0	17.7-151	%REC	1	1/18/2016 1:31:00 PM	23160
Surr: Tetrachloro-m-xylene	53.2	20.6-151	%REC	1	1/18/2016 1:31:00 PM	23160
EPA METHOD 8015M/D: DIESEL RANG	E				Analyst	: KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	1/11/2016 11:03:11 AM	23110
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	1/11/2016 11:03:11 AM	23110
Surr: DNOP	104	70-141	%REC	1	1/11/2016 11:03:11 AM	23110
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/7/2016 11:23:15 AM	A31304
Surr: BFB	89.1	49.5-130	%REC	1	1/7/2016 11:23:15 AM	A31304
EPA METHOD 8310: PAHS					Analyst	: SCC
Naphthalene	ND	2.0	μg/L	1	1/27/2016 7:55:12 PM	23161
1-Methylnaphthalene	ND	2.0	μg/L	1	1/27/2016 7:55:12 PM	23161
2-Methylnaphthalene	ND	2.0	μg/L	1	1/27/2016 7:55:12 PM	23161
Benzo(a)pyrene	ND	0.070	μg/L	1	1/27/2016 7:55:12 PM	23161
Surr: Benzo(e)pyrene	63.4	33.4-129	%REC	1	1/27/2016 7:55:12 PM	23161
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Benzene	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
Toluene	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
Ethylbenzene	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
Carbon Tetrachloride	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
Chloroform	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
1,1-Dichloroethane	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318
1,1-Dichloroethene	ND	1.0	μg/L	1	1/7/2016 12:30:43 PM	R31318

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

- * 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 Page 2 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly RO Reject
 Collection Date: 1/5/2016 9:30:00 AM

 Lab ID:
 1601099-001
 Matrix: AQUEOUS
 Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL Qu	al Units	DF Date Analyzed Bar	tch
EPA METHOD 8260B: VOLATILES				Analyst: AG	;
Methylene Chloride	ND	3.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
1,1,1-Trichloroethane	ND	1.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
1,1,2-Trichloroethane	ND	1.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
Trichloroethene (TCE)	ND	1.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
Vinyl chloride	ND	1.0	μg/L	1 1/7/2016 12:30:43 PM R3	1318
Xylenes, Total	ND	1.5	μg/L	1 1/7/2016 12:30:43 PM R3	1318
Surr: 1,2-Dichloroethane-d4	98.5	70-130	%REC	1 1/7/2016 12:30:43 PM R3	1318
Surr: 4-Bromofluorobenzene	95.5	70-130	%REC	1 1/7/2016 12:30:43 PM R3	1318
Surr: Dibromofluoromethane	94.9	70-130	%REC	1 1/7/2016 12:30:43 PM R3	1318
Surr: Toluene-d8	97.7	70-130	%REC	1 1/7/2016 12:30:43 PM R3	1318
TOTAL PHENOLICS BY SW-846 9067				Analyst: SC	C
Phenolics, Total Recoverable	ND	2.5	μg/L	1 1/14/2016 232	205

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

- * 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 Page 3 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly RO Reject Collection Date:

Lab ID: 1601099-002 **Matrix:** TRIP BLANK **Received Date:** 1/6/2016 9:56:00 AM

Analyses	Result	RL Qu	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/11/2016 2:05:35 PM	23126
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/7/2016 12:06:11 PM	A31304
Surr: BFB	92.8	49.5-130	%REC	1	1/7/2016 12:06:11 PM	A31304
EPA METHOD 8260B: VOLATILES			,,,,_,		Analys	
Benzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Toluene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Ethylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Naphthalene	ND	2.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1-Methylnaphthalene	ND	4.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
2-Methylnaphthalene	ND	4.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Acetone	ND	10	μg/L	1	1/7/2016 12:59:40 PM	R31318
Bromobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Bromodichloromethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Bromoform	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Bromomethane	ND	3.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
2-Butanone	ND	10	μg/L	1	1/7/2016 12:59:40 PM	R31318
Carbon disulfide	ND	10	μg/L	1	1/7/2016 12:59:40 PM	R31318
Carbon Tetrachloride	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Chlorobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Chloroethane	ND	2.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Chloroform	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Chloromethane	ND	3.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
2-Chlorotoluene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
4-Chlorotoluene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
cis-1,2-DCE	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Dibromochloromethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Dibromomethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dichlorobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,3-Dichlorobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,4-Dichlorobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318

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

- * 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 Page 4 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly RO Reject Collection Date:

Lab ID: 1601099-002 **Matrix:** TRIP BLANK **Received Date:** 1/6/2016 9:56:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Dichlorodifluoromethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1-Dichloroethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1-Dichloroethene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dichloropropane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,3-Dichloropropane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
2,2-Dichloropropane	ND	2.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1-Dichloropropene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Hexachlorobutadiene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
2-Hexanone	ND	10	μg/L	1	1/7/2016 12:59:40 PM	R31318
Isopropylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
4-Isopropyltoluene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
4-Methyl-2-pentanone	ND	10	μg/L	1	1/7/2016 12:59:40 PM	R31318
Methylene Chloride	ND	3.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
n-Butylbenzene	ND	3.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
n-Propylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
sec-Butylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Styrene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
tert-Butylbenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
trans-1,2-DCE	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Trichlorofluoromethane	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,3-Trichloropropane	ND	2.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Vinyl chloride	ND	1.0	μg/L	1	1/7/2016 12:59:40 PM	R31318
Xylenes, Total	ND	1.5	μg/L	1	1/7/2016 12:59:40 PM	R31318
Surr: 1,2-Dichloroethane-d4	96.2	70-130	%REC	1	1/7/2016 12:59:40 PM	R31318
Surr: 4-Bromofluorobenzene	97.1	70-130	%REC	1	1/7/2016 12:59:40 PM	R31318
Surr: Dibromofluoromethane	95.3	70-130	%REC	1	1/7/2016 12:59:40 PM	R31318
Surr: Toluene-d8	97.0	70-130	%REC	1	1/7/2016 12:59:40 PM	R31318

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

- * 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 Page 5 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-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: **B31306** RunNo: 31306

Prep Date: Analysis Date: 1/7/2016 SeqNo: 958208 Units: mg/L

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

Sample ID LCS-B	SampType: LCS TestCode: EPA Meti					DA Mathad	200 7: Discol	vod Moto	lo.	
Sample ID LC3-B	·			res	icoue. E	ra wemoa	200.7: DISSOI	veu weta	15	
Client ID: LCSW	Bato	ch ID: B3	1306	F	RunNo: 3	1306				
Prep Date:	Analysis	Date: 1/	7/2016	8	SeqNo: 9	58209	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	109	85	115			
Barium	0.50	0.0020	0.5000	0	99.6	85	115			
Boron	0.50	0.040	0.5000	0	99.3	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.3	85	115			
Chromium	0.49	0.0060	0.5000	0	97.8	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115			
Copper	0.48	0.0060	0.5000	0	97.0	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.48	0.0020	0.5000	0	96.3	85	115			
Molybdenum	0.50	0.0080	0.5000	0	101	85	115			
Nickel	0.48	0.010	0.5000	0	95.0	85	115			
Silver	0.092	0.0050	0.1000	0	91.8	85	115			
Zinc	0.48	0.010	0.5000	0	95.5	85	115			

Sample ID LLLCS-B	SampType: LCSLL			Test	:Code: El	Code: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch	1D: B3	1306	R	unNo: 3	1306					
Prep Date:	Analysis D	ate: 1/	7/2016	S	eqNo: 9	58210	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020	0.01000	0	100	50	150				
Barium	0.0020	0.0020	0.002000	0	101	50	150				

Qualifiers:

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

- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

Page 6 of 22

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID LLLCS-B	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Disso	lved Meta	ls	
Client ID: BatchQC	Bato	h ID: B3	1306	F	RunNo: 3	1306				
Prep Date:	Analysis	Date: 1/	7/2016	5	SeqNo: 9	58210	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	99.6	50	150			
Cadmium	0.0021	0.0020	0.002000	0	103	50	150			
Chromium	0.0067	0.0060	0.006000	0	112	50	150			
Cobalt	ND	0.0060	0.006000	0	94.7	50	150			
Copper	0.0062	0.0060	0.006000	0	103	50	150			
Manganese	0.0020	0.0020	0.002000	0	100	50	150			
Molybdenum	ND	0.0080	0.008000	0	78.8	50	150			
Nickel	ND	0.010	0.005000	0	143	50	150			
Silver	ND	0.0050	0.005000	0	67.4	50	150			
Zinc	ND	0.010	0.005000	0	144	50	150			
Sample ID LLLCS-B	Samp	Type: LC	SLL	TestCode: EPA Method			200.7: Disso	lved Meta	ls	

Sample ID LLLCS-B	SampType: I	rpe: LCSLL TestCode: EPA Method			200.7: Disso	lved Meta	ls		
Client ID: BatchQC	Batch ID:	331306	R	RunNo: 3	1306				
Prep Date:	Analysis Date:	1/7/2016	S	SeqNo: 9	58215	Units: mg/L			
Analyte	Result PQL	. SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.023 0.02	0 02000	0	114	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID LCS	SampType: L 0	s	Tes	tCode: El	PA 200.8:	Dissolved Me	als		
Client ID: LCSW	Batch ID: A3	31277	F	RunNo: 3	1277				
Prep Date:	Analysis Date: 1	/6/2016	8	SeqNo: 9	57740	Units: mg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026 0.0010	0.02500	0	104	85	115			
Lead	0.012 0.00050	0.01250	0	97.9	85	115			
Selenium	0.028 0.0010	0.02500	0	112	85	115			
Uranium	0.012 0.00050	0.01250	0	97.7	85	115			

Sample ID LLLCS	SampType: LC	SLL	TestCode: EPA 200.8:			Dissolved Met	als		
Client ID: BatchQC	Batch ID: A3	1277	R	RunNo: 3	1277				
Prep Date:	Analysis Date: 1/	6/2016	S	SeqNo: 9	57742	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	103	50	150			
Lead	ND 0.00050	0.0005000	0	99.1	50	150			
Selenium	0.0011 0.0010	0.001000	0	114	50	150			
Uranium	ND 0.00050	0.0005000	0	98.0	50	150			

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8:	Dissolved Metals		
Client ID: PBW	Batch ID: A31277	RunNo: 31277			
Prep Date:	Analysis Date: 1/6/2016	SeqNo: 957743	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-23109 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 23109 RunNo: 31316

Prep Date: 1/7/2016 Analysis Date: 1/7/2016 SeqNo: 958535 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-23109 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 23109 RunNo: 31316

Prep Date: 1/7/2016 Analysis Date: 1/7/2016 SeqNo: 958536 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 101 80 120

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

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Hall Environmental Analysis Laboratory, Inc.

SampType: mblk

WO#: **1601099**

28-Jan-16

Client:	Navajo Refining Company
Project:	Monthly RO Reject

Sample ID MB

· · ·		71								
Client ID: PBW	Batcl	n ID: R3	1305	F	RunNo: 3	1305				
Prep Date:	Analysis D	Date: 1/	6/2016	5	SeqNo: 9	58138	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sample ID LCS	SampT	ype: Ics	<u> </u>	Tes	tCode: El	PA Method	300.0: Anions	3		
Client ID: LCSW	Batcl	n ID: R3	1305	F	RunNo: 3	1305				
Prep Date:	Analysis D	Date: 1/	6/2016	9	SeqNo: 9	58139	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	96.5	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Sample ID MB	Samp1	уре: МЕ	BLK	Tes	tCode: El	PA Method	300.0: Anions	5		

TestCode: EPA Method 300.0: Anions

Sample ID MB	SampT	SampType: MBLK TestCode: EPA Method						S		
Client ID: PBW	Batch	ID: R3	1350	R	RunNo: 3	1350				
Prep Date:	Analysis Da	ate: 1/	/8/2016	SeqNo: 959773			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	SampT	ype: LC	s	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID: LCSW	Batch	Batch ID: R31350 RunNo: 31350								
Prep Date:	Analysis D	vsis Date: 1/8/2016 SeqNo				59774	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	96.6	90	110			
Sulfate	9.8	0.50	10.00	0	98.2	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-23126 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 23126 RunNo: 31378

Prep Date: 1/8/2016 Analysis Date: 1/12/2016 SeqNo: 960604 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-23126 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 23126 RunNo: 31378

Prep Date: 1/8/2016 Analysis Date: 1/12/2016 SeqNo: 960605 Units: μg/L

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

1,2-Dibromoethane 0.096 0.010 0.1000 0 95.6 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-23110	SampT	SampType: MBLK TestCode: EPA Method 8					8015M/D: Die	esel Rang	е	
Client ID: PBW	Batch	ID: 23	110	F	RunNo: 3	1293				
Prep Date: 1/7/2016	Analysis D	ate: 1/	7/2016	5	SeqNo: 9	58706	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		100	70	141			
Sample ID LCS-23110	SampT	ype: LC	:S	Tes	tCode: EI	PA Method	8015M/D: Die	esel Rang	e	
Sample ID LCS-23110 Client ID: LCSW	·	ype: LC			tCode: EI		8015M/D: Die	esel Rang	e	
· .	·	ID: 23	110	F		1354	8015M/D: Die	J	e	
Client ID: LCSW	Batch	ID: 23	110 11/2016	F	RunNo: 3	1354		J	e RPDLimit	Qual
Client ID: LCSW Prep Date: 1/7/2016	Batch Analysis D	ID: 23 ate: 1/	110 11/2016	F	RunNo: 3: SeqNo: 9:	1354 59930	Units: mg/L	J		Qual

Sample ID LCSD-23110	SampType: LCSD TestCode: EPA Method 8015M/D: Diesel Range										
Client ID: LCSS02	Batch	ch ID: 23110 RunNo: 31354									
Prep Date: 1/7/2016	Analysis Da	ate: 1/	11/2016	S	SeqNo: 9	60009	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.9	52.4	154	17.6	28.3		
Surr: DNOP	0.47		0.5000		93.8	70	141	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-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: A31304 RunNo: 31304

Prep Date: Analysis Date: 1/7/2016 SeqNo: 958494 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 90.6 49.5 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: A31304 RunNo: 31304

Prep Date: Analysis Date: 1/7/2016 SeqNo: 958495 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 98.1 80 120 20 97.7 Surr: BFB 20.00 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-23160	SampT	ype: ME	BLK	Tes	tCode: E l	PA Method				
Client ID: PBW	Batch	n ID: 23	160	F	RunNo: 31486					
Prep Date: 1/12/2016	Analysis D	ate: 1/	18/2016	S	SeqNo: 9	63636	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	2.8		2.500		112	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		83.2	20.6	151			
Sample ID I CS-23160	SamnT	vne: LC	:s	Tes	tCode: F l	PA Method	8082: PCB's			

Sample ID LCS-23160	SampT	ype: LC	S	TestCode: EPA Method 8082: PCB's						
Client ID: LCSW	Batch	ID: 23	160	R	RunNo: 3	1486				
Prep Date: 1/12/2016	Analysis D	ate: 1/	18/2016	S	SeqNo: 9	63637	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	43.7	15	131			
Aroclor 1260	4.3	1.0	5.000	0	85.8	15	162			
Surr: Decachlorobiphenyl	2.6		2.500		104	17.7	151			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.8	20.6	151			

Sample ID LCSD-23160	SampType: LCSD			Tes	tCode: E	PA Method				
Client ID: LCSS02	Batch	n ID: 23	160	F	RunNo: 3	1486				
Prep Date: 1/12/2016	Analysis Date: 1/18/2016			S	SeqNo: 9	63638	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.4	1.0	5.000	0	47.5	15	131	8.33	24.4	
Aroclor 1260	4.4	1.0	5.000	0	87.9	15	162	2.49	28	
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID 100ng Ics	SampType: LCS TestCode: EPA Method 8260B: VOLATILES									
Client ID: LCSW	Batch	n ID: R3	1318	F	RunNo: 3	1318				
Prep Date:	Analysis D	ate: 1/	7/2016	8	SeqNo: 9	58568	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.3	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	95.6	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Client ID: PBW	Batch	ID: R3	31318	F	RunNo: 3	1318				
Prep Date:	Analysis D	ate: 1/	7/2016	5	SeqNo: 9	58569	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:

Sample ID rb

- * 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

TestCode: EPA Method 8260B: VOLATILES

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-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: R31318 RunNo: 31318 Analysis Date: 1/7/2016 Prep Date: SeqNo: 958569 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R3	1318	F	RunNo: 3	1318				
Prep Date:	Analysis D	Date: 1/	7/2016	5	SeqNo: 9	58569	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		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.3	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.6		10.00		96.1	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-23161 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: **PBW** Batch ID: 23161 RunNo: 31727 Prep Date: 1/12/2016 Analysis Date: 1/27/2016 SeqNo: 970959 Units: µg/L Analyte **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 65.7 33.4 129

Sample ID LCS-23161 SampType: LCS TestCode: EPA Method 8310: PAHs Client ID: LCSW Batch ID: 23161 RunNo: 31727 Prep Date: Analysis Date: 1/27/2016 SeqNo: 970960 1/12/2016 Units: µg/L **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 29 2.0 40.00 O 72.2 54.6 110 Naphthalene 1-Methylnaphthalene 29 2.0 40.10 0 72.1 49.1 116 2-Methylnaphthalene 29 2.0 40.00 0 73.0 52.5 111 0.070 Benzo(a)pyrene 0.18 0.2510 0 71.7 62 107 20.00 71.0 Surr: Benzo(e)pyrene 14 33.4 129

Sample ID LCSD-23161 SampType: LCSD TestCode: EPA Method 8310: PAHs Client ID: LCSS02 Batch ID: 23161 RunNo: 31727 Prep Date: 1/12/2016 Analysis Date: 1/27/2016 SeqNo: 970961 Units: µg/L Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene 31 2.0 40.00 0 77.0 54.6 110 6.37 20 1-Methylnaphthalene 31 2.0 40.10 0 77.0 49.1 116 6.56 20 2.0 77.4 52.5 2-Methylnaphthalene 31 40.00 0 5.85 20 111 Benzo(a)pyrene 0.19 0.070 0.2510 0 75.7 62 107 5.41 20 Surr: Benzo(e)pyrene 20.00 71.4 33.4 129 14 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-23205 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 23205 RunNo: 31418

Prep Date: 1/14/2016 Analysis Date: 1/14/2016 SeqNo: 961552 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-23205 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 23205 RunNo: 31418

Prep Date: 1/14/2016 Analysis Date: 1/14/2016 SeqNo: 961553 Units: μg/L

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

Phenolics, Total Recoverable 24 2.5 20.00 0 119 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R31534 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R31534 RunNo: 31534

Prep Date: Analysis Date: 1/12/2016 SeqNo: 965188 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R31534 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R31534 RunNo: 31534

Prep Date: Analysis Date: 1/12/2016 SeqNo: 965189 Units: mg/L

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

Cyanide 0.515 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R31549	SampT	уре: МЕ	BLK	Tes	tCode: El	PA 903.1: F	a 226 and EP	A 904.0: F	Ra 228-Subbe	d
Client ID: PBW	Batch	n ID: R3	1549	F	RunNo: 3	1549				
Prep Date:	Analysis D	Date: 1/	18/2016	S	SeqNo: 9	65696	Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.468	0.573								
Radium-226 ±	0.435	0.573								
Radium-228	0.175	0.698								
Radium-228 ±	0.319	0.698								

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601099**

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-23119 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 23119 RunNo: 31342

Prep Date: 1/7/2016 Analysis Date: 1/9/2016 SeqNo: 959480 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-23119 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 23119 RunNo: 31342

Prep Date: 1/7/2016 Analysis Date: 1/9/2016 SeqNo: 959481 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

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Numbe	r: 1601099		RcptNo: 1	
Ment Name, NAVAJO REFINING CO VVORK Order Numbe	1. 1001088		rupiteo. 1	
Received by/date: Old/110				
ogged By: Lindsay Mangin 1/6/2016 9:56:00 AM		of the so		
Completed By: Lindsay Mangin 1/6/2016 9:56:20 AM		of 4th go		
Reviewed By: 9 01/06/16				
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				
Was an attempt made to cool the samples?	Yes 🗸	No 🗆	na 🗆	
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes 🗹	No 🗆	NA 🗆	
6. Sample(s) in proper container(s)?	Yes 🗸	No 🗆		
7. Sufficient sample volume for indicated test(s)?	Yes 🗸	No 🗆		
8. Are samples (except VOA and ONG) properly preserved?	Yes 🗸	No 🗆		
9. Was preservative added to bottles?	Yes 🗌	No 🗸	NA 🗆	
10.VOA vials have zero headspace?	Yes 🗸	No 🗆	No VOA Vials	
11, Were any sample containers received broken?	Yes	No 🗹	# of preserved bottles checked	10,
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗹	No 🗆	1 /1	2)unless n
13. Are matrices correctly identified on Chain of Custody?	Yes 🗸	No 🗆	Adjusted 2	NO
14. Is it clear what analyses were requested?	Yes 🗸	No 🗆	0	K
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗸	No 🗆	Checked by:	30
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	ĺ	
1 3.1 Good Yes				

VIN AC VI SONARIO 41A VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene 803:1:FD8 × **ANALYSIS LABORATORY** HALL ENVIRONMENTAL Trichtoroethane; 1,1,2-Trichtoroethylene; 1,1-Dichtoroethane; 1,1-Dichtoroethene; 1,2-НЪ × Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Fotal Dissolved Solids × Metals: As, At, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Vitrate/Nitrite × Dichloromethane: Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** Phenols × Sulfate Chloride Radioactivity (Ra-226+Ra-228) × **bCB**2 :2808 × Tel. 505-345-3975 ево, вво, ово :9108 × × **Wercury** 10272 × Total Cyanide :4:368 × 8010B: WOCC Metals Remarks: 8270C: WQCC list SVOCs × 8260B: WQCC List VOCs × 8186 60000 Time HEAL No. 700- \leq Date 2 Elizabeth Salsberry 'n □ Rush Preservative Project #: P.O. # 167796 3-40ml VOA | Na2S2O3 Type Sample Temperature: H2S04 2 - 1L Glass |unpres 1 - 1L Glass |unpres 1-250mlGlassunpres X Yes -unpres HN03 NaOH HN03 HN03 Monthly R.O. Reject H2S04 FIUITI-Around IIIIE 3-40m! VOA HCL 3-40ml VOA HCI 덛 Project Manager. Robert Combs Project Name: 1 - 1L Glass 2-40mHVOA X Standard Type and # 2 - 500ml P Container 1-500ml P Received by: n 1-125ml P 1-500ml P Received by: Sampler: 2-1LP On Ice: □ Level 4 (Full Validation) Sample Request ID Chain-of-Custody Record R.O. Reject Trip Blank Mailing Address: P.O. Box 159 Artesia, Relinquished by: Relinquished by: email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 9:30 liquid NM 88211-0159 QA/QC Package: Time □ EDD (Type) Time Time: X Standard □ Other 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 Date Date:



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

Monthly RO Reject Sample Attachment **Details**



Physical Property	□ Solid	∠ Ciquid <	Sludge	Type of Sampler Directly to sar
Sample Type	See and the Grab See	Fime Weighted Composite	Flow Weighted Composite	Parts / Sample Intervals One

Start Date and Time 1/5/2016 @ 9:25 a.m. End Date and Time 1/5/2016 @ 9:40 a.m.

Project Name Biannual RO Reject Samplers Name Elizabeth Salsberry

iquid		
	S	

ipler Directly to sample jars

Outfall / S	Outfall / Sample Location:		☑ North Field R.O. Reject Discarge	R.O. Reject	Discarge		, 	South Field	South Field R.O. Reject Discarge	Discarge		
						100	40000	Preservatives	/es			
Container	Size	Material	# of Containers	Neat (None)	Neat HCL HNO3 H2SO4	- CON		NaOH	NaOH Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
÷	500ml	Plastic	2	×			×					pH, Cl, F, S04, NOZ/NO3, TDS
2	40ml	VOA	3		×							8015 GRO
9	500ml	Plastic	1			×						6020 total metals, 7470 Hg
4	125ml	Plastic	1			×						6020 Dissolved Metals
2	500ml	Plastic	2					×				Cyanide
9	11	Plastic	3			×						Radium 226/228
7	40ml	VOA	2		×							8260 see attached list
8	1	Glass	1	×				-				8270 see attached list
6	11	Glass	2	×				-				8082 PCBs
10	40ml	VOA	2	×								8015 DRO
11	40ml	VOA	2		×							Radium 226/228

Field Data (Weather, Observations, Etc):	1/5/2016 Tmp.33.8 °F, Humidity 100%, Wind Dir. Calm, Wind Speed Calm, Condition	lity 100%,	Wind Dir. Caln	1, Wind Speed Call	n, Conditions Overcast
Date and Time:					

Field Temp. 19.5C

Field pH 7.23

Shipping Media		
niggin	2	
S	8	Other

Storage Method

Refrigerated Other



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

January 28, 2016

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.: 1601101

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/6/2016 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 1/5/2016 10:10:00 AMLab ID:1601101-001Matrix: AQUEOUSReceived Date: 1/6/2016 9:56:00 AM

EPA 200.8: DISSOLVED METALS Analyst: JLF Arsenic ND 0.0050 mg/L 5 1/6/2016 1:42:40 PM A3127 Lead ND 0.0050 mg/L 1 1 /6/2016 1:42:40 PM A3127 Selenium 0.0083 0.0050 mg/L 5 1/6/2016 1:42:40 PM A3127 Uranium 0.0055 0.00050 mg/L 1 1 /6/2016 1:42:40 PM A3127 EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED FOID TAIL 1 /6/2016 1:37:32 PM A3127 EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED FOID TAIL 1 /6/2016 1:37:32 PM A3127 FEA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED FOID TAIL 1/8/2016 1:37:32 PM A3127 FIVE ARREL 26 1.58 0.850 pCi/L 1 1/18/2016 R3154 Radium-226 1.58 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 0.546 0.826 pCi/L 1 1/18/2016 R3154 REPA METHOD 300.0: ANIONS
Lead ND 0.00050 mg/L 1 1/6/2016 1:37:32 PM A31277 Selenium 0.0083 0.0050 mg/L 5 1/6/2016 1:42:40 PM A31277 Uranium 0.0055 0.00050 mg/L 1 1/6/2016 1:37:32 PM A31277 EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED FA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED FA 90.850 pCi/L 1 1/18/2016 R3154 Radium-226 1.58 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/16/2016 7:31:30 PM R3154 Robiumide
Selenium 0.0083 0.0050 mg/L 5 1/6/2016 1:42:40 PM A3127 Uranium 0.0055 0.00050 mg/L 1 1/6/2016 1:37:32 PM A3127 EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED Fadium-226 1.58 0.850 pCi/L 1 1/18/2016 R3154 Radium-226 ± 0.79 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/16/2016 7:31:30 PM R3154 EPA METHOD 300.0: Alloris
Uranium 0.0055 0.00050 mg/L 1 1/6/2016 1:37:32 PM A3127 EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED Fanalyst: SUBBED Radium-226 ± 1.58 0.850 pCi/L 1 1/18/2016 R3154 Radium-226 ± 0.79 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/18/2016 R3154 PLOTICLE STAND STAN
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED Analyst: SUBBED Radium-226 ± 0.79 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/18/2016 R3154 EPA METHOD 300.0: ANIONS Fluoride 2.3 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130 Chloride 400 10 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitrite (As N) ND 2.0 mg/L 20 1/6/2016 7:43:54 PM R3130 Sulfate 1600 25 mg/L 1 1/6/2016 7:31:30 PM R3130 SM2540C MOD: TOTAL DISSOLVED SOLIDS Fanalyst: KS Total Dissolved Solids 3470 20.0 mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Fanalyst: SUB Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153
Radium-226 1.58 0.850 pCi/L 1 1/18/2016 R3154 Radium-226 ± 0.79 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/18/2016 R3154 EPA METHOD 300.0: ANIONS Analyst: SRM Fluoride 2.3 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130 Chloride 400 10 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitrite (As N) ND 2.0 mg/L 20 1/6/2016 7:43:54 PM R3130 Sulfate 1600 25 mg/L 1 1/6/2016 7:31:30 PM R3130 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Analyst: SUB
Radium-226 ± 0.79 0.850 pCi/L 1 1/18/2016 R3154 Radium-228 0.546 0.826 pCi/L 1 1/18/2016 R3154 Radium-228 ± 0.407 0.826 pCi/L 1 1/18/2016 R3154 EPA METHOD 300.0: ANIONS "Fluoride 2.3 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130 Chloride 400 10 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitrite (As N) ND 2.0 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitritate (As N) 1.6 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130 SM2540C MOD: TOTAL DISSOLVED SOLIDS "Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED "Total Dissolved Solids 3470 20.0 * mg/L 1 1/12/2016 R3153 SM4500-H+B: PH "Analyst: Subsolved MeT
Radium-228 Radium-228 ± 0.546 0.826 pCi/L 1 1/18/2016 R3154/R3154
Radium-228 ± 0.407 0.826 pCi/L 1 /1/8/2016 R3154 EPA METHOD 300.0: ANIONS Fluoride 2.3 0.10 mg/L 1 /1/8/2016 7:31:30 PM R3130 Chloride 400 10 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitrite (As N) N D 2.0 mg/L 20 1/8/2016 7:43:54 PM R3130 SM2540C MOD: TOTAL DISSOLVED SOLIDS Flags Subset Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Subset Subset ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH 8.04 1.68 H pH units 1 1/8/2016 6:14:2
Page
Fluoride 2.3 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130 Chloride 400 10 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitrite (As N) ND 2.0 mg/L 20 1/6/2016 7:43:54 PM R3130 Nitrogen, Nitrite (As N) 1.6 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130 Sulfate 1600 25 mg/L 50 1/8/2016 3:05:00 PM R3130 SM2540C MOD: TOTAL DISSOLVED SOLIDS Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Analyst: SUB Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH Analyst: JRR pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS Analyst: ELS Aluminum ND
Chloride 400 10 mg/L 20 1/6/2016 7:43:54 PM R31300 Nitrogen, Nitrite (As N) ND 2.0 mg/L 20 1/6/2016 7:43:54 PM R31300 Nitrogen, Nitrate (As N) 1.6 0.10 mg/L 1 1/6/2016 7:31:30 PM R31300 Nitrogen, Nitrate (As N) 1.6 0.10 mg/L 1 1/6/2016 7:31:30 PM R31300 NITROGEN, Nitrate (As N) 1.60 25 mg/L 50 1/8/2016 3:05:00 PM R31300 NITROGEN, NITR
Nitrogen, Nitrite (As N) ND 2.0 mg/L 20 1/6/2016 7:43:54 PM R3130:130 PM R
Nitrogen, Nitrate (As N) 1.6 0.10 mg/L 1 1/6/2016 7:31:30 PM R3130. Sulfate 1600 25 mg/L 50 1/8/2016 3:05:00 PM R3135. SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090. EPA 335.4: TOTAL CYANIDE SUBBED Analyst: SUBCyanide ND 0.0100 mg/L 1 1/12/2016 R3153. SM4500-H+B: PH PH 8.04 1.68 H PH units 1 1/8/2016 6:14:20 PM R3136. EPA METHOD 200.7: DISSOLVED METALS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130.
Sulfate 1600 25 mg/L 50 1/8/2016 3:05:00 PM R3135 SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Fanalyst: SUB Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH Analyst: JRR pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS Analyst: ELS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130
SM2540C MOD: TOTAL DISSOLVED SOLIDS Analyst: KS Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Fanalyst: SUB Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH Analyst: JRR pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS Fanalyst: ELS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130
Total Dissolved Solids 3470 20.0 * mg/L 1 1/7/2016 7:22:00 PM 23090 EPA 335.4: TOTAL CYANIDE SUBBED Fanalyst: SUB Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH Fanalyst: JRR pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130
EPA 335.4: TOTAL CYANIDE SUBBED Analyst: SUB Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH Analyst: JRR pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS Analyst: ELS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130
Cyanide ND 0.0100 mg/L 1 1/12/2016 R3153 SM4500-H+B: PH pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS LS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130
SM4500-H+B: PH Analyst: JRR pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136 EPA METHOD 200.7: DISSOLVED METALS Analyst: ELS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B31300
pH 8.04 1.68 H pH units 1 1/8/2016 6:14:20 PM R3136. EPA METHOD 200.7: DISSOLVED METALS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B3130.
EPA METHOD 200.7: DISSOLVED METALS Analyst: ELS Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B31300
Aluminum ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B31300
G
Barium 0.051 0.0020 mg/L 1 1/7/2016 2:04:13 PM B3130
Boron 0.090 0.040 mg/L 1 1/7/2016 2:04:13 PM B31300
Cadmium ND 0.0020 mg/L 1 1/7/2016 2:04:13 PM B31300
Chromium ND 0.0060 mg/L 1 1/7/2016 2:04:13 PM B31300
Cobalt 0.0085 0.0060 mg/L 1 1/7/2016 2:04:13 PM B31300
Copper ND 0.0060 mg/L 1 1/7/2016 2:04:13 PM B31300
Iron ND 0.020 mg/L 1 1/7/2016 2:04:13 PM B31300
Manganese ND 0.0020 mg/L 1 1/7/2016 2:04:13 PM B31300
Molybdenum ND 0.0080 mg/L 1 1/7/2016 2:04:13 PM B31300
Nickel ND 0.010 mg/L 1 1/7/2016 2:04:13 PM B31300
Silver ND 0.0050 mg/L 1 1/7/2016 2:04:13 PM B31300
Zinc 0.031 0.010 mg/L 1 1/7/2016 2:04:13 PM B31300

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

EPA METHOD 245.1: MERCURY

- 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 Page 1 of 23

Analyst: pmf

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 1/5/2016 10:10:00 AMLab ID:1601101-001Matrix: AQUEOUSReceived Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY					Analysi	: pmf
Mercury	ND	0.00020	mg/L	1	1/7/2016 5:08:51 PM	23109
EPA METHOD 8011/504.1: EDB					Analyst	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/11/2016 2:26:15 PM	23126
EPA METHOD 8082: PCB'S					Analyst	: SCC
Aroclor 1016	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1221	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1232	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1242	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1248	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1254	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1260	ND	1.0	μg/L	1	1/18/2016 2:07:07 PM	23160
Surr: Decachlorobiphenyl	96.0	17.7-151	%REC	1	1/18/2016 2:07:07 PM	23160
Surr: Tetrachloro-m-xylene	64.8	20.6-151	%REC	1	1/18/2016 2:07:07 PM	23160
EPA METHOD 8015M/D: DIESEL RAN	IGE				Analyst	: KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	1/11/2016 11:24:38 AM	1 23110
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	1/11/2016 11:24:38 AM	1 23110
Surr: DNOP	102	70-141	%REC	1	1/11/2016 11:24:38 AM	1 23110
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/7/2016 12:29:54 PM	A31304
Surr: BFB	90.3	49.5-130	%REC	1	1/7/2016 12:29:54 PM	A31304
EPA METHOD 8310: PAHS					Analyst	: SCC
Naphthalene	ND	2.0	μg/L	1	1/27/2016 8:24:29 PM	23161
1-Methylnaphthalene	ND	2.0	μg/L	1	1/27/2016 8:24:29 PM	23161
2-Methylnaphthalene	ND	2.0	μg/L	1	1/27/2016 8:24:29 PM	23161
Benzo(a)pyrene	ND	0.070	μg/L	1	1/27/2016 8:24:29 PM	23161
Surr: Benzo(e)pyrene	61.0	33.4-129	%REC	1	1/27/2016 8:24:29 PM	23161
EPA METHOD 8260B: VOLATILES					Analyst	: AG
Benzene	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Toluene	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Ethylbenzene	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Carbon Tetrachloride	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Chloroform	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,1-Dichloroethane	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,1-Dichloroethene	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318

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

- * 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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 1/5/2016 10:10:00 AMLab ID:1601101-001Matrix: AQUEOUSReceived Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: AG
Methylene Chloride	ND	3.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Vinyl chloride	ND	1.0	μg/L	1	1/7/2016 1:28:37 PM	R31318
Xylenes, Total	ND	1.5	μg/L	1	1/7/2016 1:28:37 PM	R31318
Surr: 1,2-Dichloroethane-d4	95.1	70-130	%REC	1	1/7/2016 1:28:37 PM	R31318
Surr: 4-Bromofluorobenzene	97.4	70-130	%REC	1	1/7/2016 1:28:37 PM	R31318
Surr: Dibromofluoromethane	101	70-130	%REC	1	1/7/2016 1:28:37 PM	R31318
Surr: Toluene-d8	94.3	70-130	%REC	1	1/7/2016 1:28:37 PM	R31318
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	1/14/2016	23205

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

- * Value exceeds Maximum Contaminant Level.
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- 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 Page 3 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1601101-002 **Matrix:** TRIP BLANK **Received Date:** 1/6/2016 9:56:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	1/11/2016 3:27:54 PM	23126
EPA METHOD 8015D: GASOLINE RAN	IGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/7/2016 12:53:36 PM	A31304
Surr: BFB	91.9	49.5-130	%REC	1	1/7/2016 12:53:36 PM	A31304
EPA METHOD 8260B: VOLATILES			,,,,		Analys	
Benzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Toluene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Ethylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Naphthalene	ND	2.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1-Methylnaphthalene	ND	4.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
2-Methylnaphthalene	ND	4.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Acetone	ND	10	μg/L	1	1/7/2016 1:57:34 PM	R31318
Bromobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Bromodichloromethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Bromoform	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Bromomethane	ND	3.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
2-Butanone	ND	10	μg/L	1	1/7/2016 1:57:34 PM	R31318
Carbon disulfide	ND	10	μg/L	1	1/7/2016 1:57:34 PM	R31318
Carbon Tetrachloride	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Chlorobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Chloroethane	ND	2.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Chloroform	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Chloromethane	ND	3.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
2-Chlorotoluene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
4-Chlorotoluene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
cis-1,2-DCE	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Dibromochloromethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
Dibromomethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dichlorobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,3-Dichlorobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318
1,4-Dichlorobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318

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

- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject **Collection Date:**

Lab ID: 1601101-002 **Matrix:** TRIP BLANK **Received Date:** 1/6/2016 9:56:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch	
EPA METHOD 8260B: VOLATILES					Analys	st: AG	
Dichlorodifluoromethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1-Dichloroethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1-Dichloroethene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,2-Dichloropropane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,3-Dichloropropane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
2,2-Dichloropropane	ND	2.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1-Dichloropropene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Hexachlorobutadiene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
2-Hexanone	ND	10	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Isopropylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
4-Isopropyltoluene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
4-Methyl-2-pentanone	ND	10	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Methylene Chloride	ND	3.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
n-Butylbenzene	ND	3.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
n-Propylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
sec-Butylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Styrene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
tert-Butylbenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
trans-1,2-DCE	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,1,2-Trichloroethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Trichloroethene (TCE)	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Trichlorofluoromethane	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
1,2,3-Trichloropropane	ND	2.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Vinyl chloride	ND	1.0	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Xylenes, Total	ND	1.5	μg/L	1	1/7/2016 1:57:34 PM	R31318	
Surr: 1,2-Dichloroethane-d4	95.0	70-130	%REC	1	1/7/2016 1:57:34 PM	R31318	
Surr: 4-Bromofluorobenzene	101	70-130	%REC	1	1/7/2016 1:57:34 PM	R31318	
Surr: Dibromofluoromethane	98.8	70-130	%REC	1	1/7/2016 1:57:34 PM	R31318	
Surr: Toluene-d8	93.1	70-130	%REC	1	1/7/2016 1:57:34 PM	R31318	

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

- * 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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-B SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: **B31306** RunNo: 31306 Prep Date: Analysis Date: 1/7/2016 SeqNo: 958208 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS-B	SampType: LCS			Test	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: B31306			R							
Prep Date:	Analysis	Date: 1/	7/2016	S	SeqNo: 9	58209	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.55	0.020	0.5000	0	109	85	115				
Barium	0.50	0.0020	0.5000	0	99.6	85	115				
Boron	0.50	0.040	0.5000	0	99.3	85	115				
Cadmium	0.49	0.0020	0.5000	0	97.3	85	115				
Chromium	0.49	0.0060	0.5000	0	97.8	85	115				
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115				
Copper	0.48	0.0060	0.5000	0	97.0	85	115				
Iron	0.51	0.020	0.5000	0	102	85	115				
Manganese	0.48	0.0020	0.5000	0	96.3	85	115				
Molybdenum	0.50	0.0080	0.5000	0	101	85	115				
Nickel	0.48	0.010	0.5000	0	95.0	85	115				
Silver	0.092	0.0050	0.1000	0	91.8	85	115				
Zinc	0.48	0.010	0.5000	0	95.5	85	115				

Sample ID LLLCS-B	SampType: L	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID:	RunNo: 31306							
Prep Date:	Analysis Date:	S	seqNo: 9	58210	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND 0.02	0.01000	0	100	50	150			
Barium	0.0020 0.002	0.002000	0	101	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

Page 6 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID LLLCS-B	Samp	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Bato	Batch ID: B31306			RunNo: 31306					
Prep Date:	Analysis I	Date: 1/	7/2016	9	SeqNo: 9	58210	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	99.6	50	150			
Cadmium	0.0021	0.0020	0.002000	0	103	50	150			
Chromium	0.0067	0.0060	0.006000	0	112	50	150			
Cobalt	ND	0.0060	0.006000	0	94.7	50	150			
Copper	0.0062	0.0060	0.006000	0	103	50	150			
Manganese	0.0020	0.0020	0.002000	0	100	50	150			
Molybdenum	ND	0.0080	0.008000	0	78.8	50	150			
Nickel	ND	0.010	0.005000	0	143	50	150			
Silver	ND	0.0050	0.005000	0	67.4	50	150			
Zinc	ND	0.010	0.005000	0	144	50	150			
Sample ID LLLCS-B	SampType: LCSLL			Tes	TestCode: EPA Method 200.7: Dissolved Metals					

Sample ID LLLCS-B	SampTyp	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: B31306			R	RunNo: 31306					
Prep Date:	Analysis Date	Analysis Date: 1/7/2016			eqNo: 9	58215				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.023	0.020	0.02000	0	114	50	150			

Sample ID	1601101-001IMS	01101-001IMS SampType: MS					TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	Temporary R.O. Rej	nporary R.O. Rej Batch ID: B31306					1306					
Prep Date:	A	nalysis [Date: 1/	7/2016	S	SeqNo: 9	58432	Units: mg/L				
Analyte	1	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		0.60	0.020	0.5000	0.009780	118	70	130				
Barium		0.52	0.0020	0.5000	0.05058	93.3	70	130				
Boron		0.62	0.040	0.5000	0.08985	106	70	130				
Cadmium		0.48	0.0020	0.5000	0	95.8	70	130				
Chromium		0.47	0.0060	0.5000	0.005280	93.6	70	130				
Cobalt		0.44	0.0060	0.5000	0.008500	86.5	70	130				
Copper		0.51	0.0060	0.5000	0	101	70	130				
Iron		0.40	0.020	0.5000	0.01090	78.1	70	130				
Manganese		0.46	0.0020	0.5000	0.0005000	91.8	70	130				
Molybdenum		0.44	0.0080	0.5000	0	88.8	70	130				
Nickel		0.44	0.010	0.5000	0	88.0	70	130				
Silver		0.074	0.0050	0.1000	0	73.7	70	130				
Zinc		0.47	0.010	0.5000	0.03096	87.6	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID 1601101-001IMSD SampType: MSD TestCode: EPA Method 200.7: Dissolved Metals

Client ID: Temporary R.O. Rej Batch ID: B31306 RunNo: 31306

Prep Date: Analysis Date: 1/7/2016 SeqNo: 958433 Units: mg/L

Prep Date:	Analysis Date	1/7/2010	6	S	SeqNo: 9	58433	Units: mg/L				
Analyte	Result P	QL SPK	value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.60 0.	020 0	.5000	0.009780	118	70	130	0.352	20		
Barium	0.53 0.0	020 0	.5000	0.05058	95.1	70	130	1.73	20		
Boron	0.63 0.	040 0	.5000	0.08985	108	70	130	1.23	20		
Cadmium	0.49 0.0	020 0	.5000	0	97.4	70	130	1.66	20		
Chromium	0.48 0.0	060 0	.5000	0.005280	94.4	70	130	0.791	20		
Cobalt	0.45 0.0	060 0	.5000	0.008500	88.0	70	130	1.66	20		
Copper	0.51 0.0	060 0	.5000	0	102	70	130	0.313	20		
Iron	0.44 0.	020 0	.5000	0.01090	86.1	70	130	9.50	20		
Manganese	0.47 0.0	020 0	.5000	0.0005000	93.0	70	130	1.28	20		
Molybdenum	0.46 0.0	080 0	.5000	0	92.8	70	130	4.42	20		
Nickel	0.45 0.	010 0	.5000	0	89.7	70	130	2.02	20		
Silver	0.074 0.0	050 0	.1000	0	73.9	70	130	0.298	20		
Zinc	0.48 0.	010 0	.5000	0.03096	90.2	70	130	2.75	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID	LCS	SampType: LCS			Test	tCode: El	als				
Client ID:	LCSW	Batch ID: A31277			R	RunNo: 31277					
Prep Date:		Analysis	Date: 1/	6/2016	S	SeqNo: 9	57740	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.026	0.0010	0.02500	0	104	85	115			
Lead		0.012	0.00050	0.01250	0	97.9	85	115			
Selenium		0.028	0.0010	0.02500	0	112	85	115			
Uranium		0.012	0.00050	0.01250	0	97.7	85	115			
Sample ID	LLLCS	Samp	Туре: LC	SLL	Test	tCode: El	PA 200.8: [Dissolved Met	als		
		Batch ID: A31277									
Client ID:	BatchQC	Bat	ch ID: A3	1277	R	RunNo: 3	1277				
Client ID: Prep Date:			ch ID: A3 Date: 1/			RunNo: 3: SeqNo: 9:		Units: mg/L			
				6/2016				Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date:		Analysis	Date: 1/	6/2016	S	SeqNo: 9	57742	•	%RPD	RPDLimit	Qual
Prep Date: Analyte		Analysis Result	Date: 1/	6/2016 SPK value	SPK Ref Val	SeqNo: 99	57742 LowLimit	HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic		Analysis Result 0.0010	Date: 1/ PQL 0.0010	6/2016 SPK value 0.001000	SPK Ref Val	%REC 103	57742 LowLimit 50	HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic Lead		Analysis Result 0.0010 ND	PQL 0.0010 0.00050	6/2016 SPK value 0.001000 0.0005000	SPK Ref Val 0 0	%REC 103 99.1	57742 LowLimit 50 50	HighLimit 150 150	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic Lead Selenium		Analysis Result 0.0010 ND 0.0011 ND	Date: 1/ PQL 0.0010 0.00050 0.0010	6/2016 SPK value 0.001000 0.0005000 0.001000 0.0005000	SPK Ref Val 0 0 0 0	%REC 103 99.1 114 98.0	57742 LowLimit 50 50 50 50 50	HighLimit 150 150 150		RPDLimit	Qual

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8:	Dissolved Metals
Client ID: PBW	Batch ID: A31277	RunNo: 31277	
Prep Date:	Analysis Date: 1/6/2016	SeqNo: 957743	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-23109 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 23109 RunNo: 31316

Prep Date: 1/7/2016 Analysis Date: 1/7/2016 SeqNo: 958535 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-23109 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 23109 RunNo: 31316

Prep Date: 1/7/2016 Analysis Date: 1/7/2016 SeqNo: 958536 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 101 80 120

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

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Hall Environmental Analysis Laboratory, Inc.

PQL

0.50

Analysis Date: 1/8/2016

Result

WO#: 1601101

28-Jan-16

Client: Project:	Navajo Refining Compan Monthly Temporary R.O.	•								
Sample ID MB	SampType: r	nblk	Tes	tCode: El	EPA Method 300.0: Anions					
Client ID: PBW	Batch ID: I	31305	F	RunNo: 3	1305					
Prep Date:	Analysis Date:	1/6/2016	5	SeqNo: 9	58138	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	ND 0.1)								
Chloride	ND 0.5									
Nitrogen, Nitrite (As N)	ND 0.1									
Nitrogen, Nitrate (As N)	ND 0.1)								
Sample ID LCS	SampType: I	cs	Tes	tCode: El	PA Method	300.0: Anions	6			
Client ID: LCSW	Batch ID: I	31305	F	RunNo: 3	1305					
Prep Date:	Analysis Date:	Analysis Date: 1/6/2016			SeqNo: 958139					
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	0.48 0.1	0.5000	0	96.5	90	110				
Chloride	4.9 0.5	5.000	0	97.8	90	110				
Nitrogen, Nitrite (As N)	0.94 0.1	1.000	0	94.4	90	110				
Nitrogen, Nitrate (As N)	2.5 0.1	2.500	0	101	90	110				
Sample ID MB	SampType: I	/IBLK	Tes	tCode: El	PA Method	300.0: Anions	6			
Client ID: PBW	Batch ID: I	31350	F	RunNo: 3	1350					
Prep Date:	Analysis Date:	1/8/2016	5	SeqNo: 9	59773	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sulfate	ND 0.5)								
Sample ID LCS	SampType: I	.cs	Tes	tCode: El	PA Method	300.0: Anions	3			
Client ID: LCSW	Batch ID: I	Batch ID: R31350			RunNo: 31350					

Qualifiers:

Prep Date:

Analyte

Sulfate

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

SeqNo: 959774

LowLimit

SPK value SPK Ref Val %REC

10.00

Units: mg/L

HighLimit

110

%RPD

RPDLimit

Qual

- P Sample pH Not In Range
- Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID 1601101-001DMS SampType: MS TestCode: EPA Method 8011/504.1: EDB

Client ID: Temporary R.O. Rej Batch ID: 23126 RunNo: 31371

Prep Date: 1/8/2016 Analysis Date: 1/11/2016 SeqNo: 960526 Units: μg/L

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

1,2-Dibromoethane 0.086 0.010 0.1000 0 85.8 40.3 153

Sample ID 1601101-001DMSD SampType: MSD TestCode: EPA Method 8011/504.1: EDB

Client ID: Temporary R.O. Rej Batch ID: 23126 RunNo: 31371

Prep Date: 1/8/2016 Analysis Date: 1/11/2016 SeqNo: 960527 Units: μg/L

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

1,2-Dibromoethane 0.086 0.010 0.1000 0 86.2 40.3 153 0.568 29.5

Sample ID MB-23126 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 23126 RunNo: 31378

Prep Date: 1/8/2016 Analysis Date: 1/12/2016 SeqNo: 960604 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-23126 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 23126 RunNo: 31378

Prep Date: 1/8/2016 Analysis Date: 1/12/2016 SeqNo: 960605 Units: μg/L

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

1,2-Dibromoethane 0.096 0.010 0.1000 0 95.6 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
- P Sample pH Not In RangeRL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Project: Monthly	y Temporary R.O. Reject			
Sample ID MB-23110	SampType: MBLK	TestCode: EPA Metho	d 8015M/D: Diesel Range	e
Client ID: PBW	Batch ID: 23110	RunNo: 31293		
Prep Date: 1/7/2016	Analysis Date: 1/7/2016	SeqNo: 958706	Units: mg/L	
Analyte	Result PQL SPK va	lue SPK Ref Val %REC LowLimi	t HighLimit %RPD	RPDLimit Qual
Diesel Range Organics (DRO)	ND 1.0			
Motor Oil Range Organics (MRO)	ND 5.0			
Surr: DNOP	1.0 1.0	000 100 70) 141	
Sample ID LCS-23110	SampType: LCS	TestCode: EPA Metho	d 8015M/D: Diesel Range	e
Client ID: LCSW	Batch ID: 23110	RunNo: 31354		
Prep Date: 1/7/2016	Analysis Date: 1/11/2016	SeqNo: 959930	Units: mg/L	
Analyte	Result PQL SPK va	lue SPK Ref Val %REC LowLimi	t HighLimit %RPD	RPDLimit Qual
Diesel Range Organics (DRO)	6.0 1.0 5.0	00 0 119 52.4	154	
Surr: DNOP	0.60 0.50	000 119 70) 141	
Sample ID LCSD-23110	SampType: LCSD	TestCode: EPA Metho	d 8015M/D: Diesel Range	e
Client ID: LCSS02	Batch ID: 23110	RunNo: 31354		
Prep Date: 1/7/2016	Analysis Date: 1/11/2016	SeqNo: 960009	Units: mg/L	
Analyte	Result PQL SPK va	lue SPK Ref Val %REC LowLimi	t HighLimit %RPD	RPDLimit Qual
Diesel Range Organics (DRO)	5.0 1.0 5.0	00 0 99.9 52.4	154 17.6	28.3
Surr: DNOP	0.47 0.50	93.8 70) 141 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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: A31304 RunNo: 31304

Prep Date: Analysis Date: 1/7/2016 SeqNo: 958494 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 90.6 49.5 130

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: A31304 RunNo: 31304

20

Prep Date: Analysis Date: 1/7/2016 SeqNo: 958495 Units: mg/L

20.00

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.49 0.050 0.5000 98.1 80 120

97.7

49.5

130

Qualifiers:

Surr: BFB

- * 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-23160	SampType: MBLK TestCode: EPA Method 8082: PCB's									
Client ID: PBW	Batcl	n ID: 23	160	F	RunNo: 3	1486				
Prep Date: 1/12/2016	Analysis D	Date: 1/	18/2016	S	SeqNo: 9	63636	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	2.8		2.500		112	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		83.2	20.6	151			
Sample ID LCS-23160	SampT	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSW	Batcl	n ID: 23	160	F	RunNo: 3	1486				
Prep Date: 1/12/2016	Analysis D	Date: 1/	18/2016	5	SeqNo: 9	63637	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	43.7	15	131			
Aroclor 1260	4.3	1.0	5.000	0	85.8	15	162			
Surr: Decachlorobiphenyl	2.6		2.500		104	17.7	151			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.8	20.6	151			
Sample ID I CSD-23160	Sampl	Typo: LC	en	Tos	tCodo: E	DA Mothod	9092: DCB's			

Sample ID LCSD-23160	SampT	ype: LC	SD	Tes	tCode: El	PA Method				
Client ID: LCSS02	Batch	ID: 23	160	R	1486					
Prep Date: 1/12/2016	Analysis D	ate: 1/	18/2016	S	SeqNo: 9	63638	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.4	1.0	5.000	0	47.5	15	131	8.33	24.4	
Aroclor 1260	4.4	1.0	5.000	0	87.9	15	162	2.49	28	
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

Batch ID: R31318

WO#: **1601101**

28-Jan-16

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

Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: El	ATILES				
Client ID: LCSW	Batch	1D: R3	1318	R	RunNo: 3	1318				
Prep Date:	Analysis D	ate: 1/	7/2016	S	SeqNo: 9	58568	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.3	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	95.6	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Prep Date:	Analysis D	Date: 1/	7/2016	8	SeqNo: 9	58569	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:

Sample ID rb

Client ID: PBW

- * 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

TestCode: EPA Method 8260B: VOLATILES

RunNo: 31318

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

TestCode: EPA Method 8260B: VOLATILES Sample ID rb SampType: MBLK Client ID: **PBW** Batch ID: R31318 RunNo: 31318 Analysis Date: 1/7/2016 Prep Date: SeqNo: 958569 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID rb	SampT	SampType: MBLK			tCode: El	PA Method				
Client ID: PBW	Batch	n ID: R3	1318	F	RunNo: 3					
Prep Date:	Analysis D	ate: 1/	7/2016	8	SeqNo: 958569 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		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.3	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.6		10.00		96.1	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
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- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-23161	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batch	Batch ID: 23161			unNo: 3	1727				
Prep Date: 1/12/2016	Analysis D	Date: 1/	27/2016	S	eqNo: 9	70959	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		65.7	33.4	129			

Sample ID LCS-23161	SampT	ype: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 23	161	R	RunNo: 3	1727				
Prep Date: 1/12/2016	Analysis D	oate: 1/	27/2016	S	SeqNo: 9	70960				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	29	2.0	40.00	0	72.2	54.6	110			
1-Methylnaphthalene	29	2.0	40.10	0	72.1	49.1	116			
2-Methylnaphthalene	29	2.0	40.00	0	73.0	52.5	111			
Benzo(a)pyrene	0.18	0.070	0.2510	0	71.7	62	107			
Surr: Benzo(e)pyrene	14		20.00		71.0	33.4	129			

Sample ID LCSD-23161	SampT	Type: LC	SD	Tes	8310: PAHs					
Client ID: LCSS02	Batcl	h ID: 23	161	F	RunNo: 3	1727				
Prep Date: 1/12/2016	Analysis D	Date: 1/	27/2016	5	SeqNo: 970961 Units: μg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	31	2.0	40.00	0	77.0	54.6	110	6.37	20	
1-Methylnaphthalene	31	2.0	40.10	0	77.0	49.1	116	6.56	20	
2-Methylnaphthalene	31	2.0	40.00	0	77.4	52.5	111	5.85	20	
Benzo(a)pyrene	0.19	0.070	0.2510	0	75.7	62	107	5.41	20	
Surr: Benzo(e)pyrene	14		20.00		71.4	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-23205 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 23205 RunNo: 31418

Prep Date: 1/14/2016 Analysis Date: 1/14/2016 SeqNo: 961552 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-23205 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 23205 RunNo: 31418

Prep Date: 1/14/2016 Analysis Date: 1/14/2016 SeqNo: 961553 Units: μg/L

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

Phenolics, Total Recoverable 24 2.5 20.00 0 119 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-R31534 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R31534 RunNo: 31534

Prep Date: Analysis Date: 1/12/2016 SeqNo: 965188 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R31534 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R31534 RunNo: 31534

Prep Date: Analysis Date: 1/12/2016 SeqNo: 965189 Units: mg/L

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

Cyanide 0.515 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-R31549 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R31549 RunNo: 31549 Analysis Date: 1/18/2016 Prep Date: SeqNo: 965696 Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 0.468 0.573 Radium-226 ± 0.435 0.573 Radium-228 0.175 0.698 Radium-228 ± 0.319 0.698

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1601101**

28-Jan-16

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

Sample ID MB-23090 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 23090 RunNo: 31315

Prep Date: 1/6/2016 Analysis Date: 1/7/2016 SeqNo: 958376 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-23090 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 23090 RunNo: 31315

Prep Date: 1/6/2016 Analysis Date: 1/7/2016 SeqNo: 958377 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

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Hall Environmental Analysis Laboratory 4901 Huwkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Website: www.hallenvironmental.com Work Order Number: 1601101 RcptNo: 1 NAVAJO REFINING CO Client Name: Received by/date: 1/6/2016 9:56:00 AM Logged By: Lindsay Mangin 1/6/2016 9:58:40 AM Completed By: Lindsay Mangin Reviewed By: Chain of Custody Not Present No L 1 Custody seals intact on sample bottles? No 🗌 Not Present 2. Is Chain of Custody complete? 3 How was the sample delivered? Courier Log In No 🗌 Yes 🗸 NA . 4. Was an attempt made to cool the samples? No 🗌 NA . Yes V Were all samples received at a temperature of >0° C to 6.0°C No 🗌 Yes 🗸 Sample(s) in proper container(s)? Yes V No . Sufficient sample volume for indicated test(s)? No . Yes V 8. Are samples (except VOA and ONG) properly preserved? No V NA Yes 9. Was preservative added to bottles? Yes V No VOA Vials No L 10. VOA vials have zero headspace? No 🗸 Yes 11. Were any sample containers received broken? # of preserved bottles checked Yes V No 🗌 for pH: 12. Does paperwork match bottle labels? nless noted) (Note discrepancies on chain of custody) Adjusted2 No 13. Are matrices correctly identified on Chain of Custody? Yes V No 🗌 Yes V 14. Is it clear what analyses were requested? Checked by: No 🗌 Yes 🗸 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA V Yes No L 16. Was client notified of all discrepancies with this order? Date Person Notified: Via: eMail Phone Fax By Whom: Regarding: Client Instructions: 17. Additional remarks:

Seal Date

Signed By

18. Cooler Information

Cooler No

3.1

Temp °C | Condition | Seal Intact | Seal No

Yes

Good

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene **ANALYSIS LABORATORY** × 20411EDB HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Ηd × Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Mitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request Phenols × Sulfate Chloride Fax Radioactivity (Ra-226+Ra-228) **bcB**2 :2808 × Tel. 505-345-3975 еко, рко, око 3108 × × Mercury :0747 × Total Cyanide :4.35.6 × 8010B: WQCC Metals 8270C: WQCC list SVOCs × Remarks 8260B:WQCC List VOCs × 199V Time <u>n</u>e HEAL No. <u>ک</u> **8**□ Elizabeth Salsberry Monthly Temporary R.O. Reject Rush Preservative Project #: P.O. # 167796 3-40ml VOA | Na2S2O3 Type Sample Temperature: 1-unpres H2SO4 H2S04 X Yes HN03 unpres unpres 1-250mlGlas unpres HN03 HNO3 NaOH I I UITI-AIOUITA I IITIE 3-40ml VOA HCL TOH 3-40ml VOA HCI Project Manager: Robert Combs Project Name: X Standard 2 - 1L Glass 1 - 1L Glass 1 - 1L Glass 2-40ml VOA Type and # 2 - 500ml P Container 1-500ml P 1-500ml P 1-125mi P Received by: Received by: Sampler: On <u>Ice</u>. 2-1LP ☐ Level 4 (Full Validation) Sample Request ID Temporary R.O. Reject Chain-of-Custody Record Trip Blank Mailing Address: P.O. Box 159 Artesia, Relinquished by Relinquished by email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 10:10 liquid NM 88211-0159 QA/QC Package: Time EDD (Type) Time: <u>Time:</u> X Standard □ Other 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 1/5/15 Date 1/5/15 Date:



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

#	OLLYFRONTIER
	H

The HollyFrontier Companies

	Sample Type	⊡ Grab ⊡	Time Weighted Composite	Flow Weighted Composite		Parts / Sample Intervals One
-	<u></u>				<u>-</u> T	_, _

	Cook 2	Solid			Type of Sampler Directly to sample jars	South Field R.O. Reject Discome	
Sample Type	Project Name Biannual RO Reject	Time Weighted Comp	, LLC	End Date and Time 1/5/2016 10:20 a.m.		Outfall / Sample Location: North Field R.O. Reject Discarge	,

			•									
								Prosperior	NO.			
			* \#	Noot		ŀ		2000	3			
Container	Size	Material	Containers	(None)	<u> </u>	S N I	HOSON	2	HNO3 H2SO4			
	500ml	Plastic	2	×			>	LI PAGE	Nazozus	Namo 4	Cher	Analysis and/or Method Requested
2	40m	VOA	1 (*)		 	+	<					pH, Cl, F, S04, NO2/NO3, TDS
er,	500ml	Plastic	, ,	1	1	† }						8015 GRO
		Onco.				×						6020 total metals 7470 La
4	125ml	Plastic	<u>_</u>			×						Coro lotal metals, 7470 rig
Ŋ	500ml	Plastic	2					>				6020 Dissolved Metals
ď	1	Disctio	1 <		1	1;		<u> </u>				Cyanide
>	י	LIASIIC	3			×		_				Dod oct
7	40ml	VOA	2		×							Radium 226/228
8	7	Glass	-		1	+	1					8260 see attached list
o	Ę	sacle	,	;	1	1						8270 see attached list
	<u>'</u>	SSEC	7	<								8082 PCBs
10	40ml	VOA	7	×								500 1700
7	40m	VOA	2		>	\dagger						SUIS DRO
			1		\ \	1	1					Radium 226/228

Radium 226/228	Storage Method	Refrigerated □ Other □	Shipping Media
	Field Data (Weather, Observations, Etc): 1/5/2015 Tmp.33.8 °F, Humidity 100%, Wind Dir. Calm, Wind Speed Calm, Conditions Overcast Date and Time:		
	servations, Etc):	Field pH 7.79	
	/eather, Ob	19.8	
	Field Data (Wea Date and Time:	Field Temp. 19.8	

SucCRRCreation Page 1 of 1

Energy Minerals & Natural Resources Department Cash Remittance Report (CRR) Header

Location: Santa Fe - OCD CRR Number: CRR0039213 Created By:

DeVargas, Lorraine

Creation Date and Time:

Collection Period:

2/16/2016 3:34:06 PM 2/16/2016 through 2/16/2016

Cash Remitta		Lines in this	CRR bundle:				
Department	RevCode	FundCode	RptCat	BudRef	ClassCode	Receipt Amount	Collect
0710000000	461402	40110	0710	116	50000	\$3,100.00	\$3,100.00
Summary Tot	al Amounts	•					
CRR Totals							
Receipts:		\$3,100.00					
Collected:		\$3,100.00					
OUAmount:		\$0.00					

Comments:

Civil Penalties WQA-OCD-CO-2015-002 Please change RevCode to 292900

Remember: Please print a copy of this CRR Transfer Header and mail it with the accompanying receipts to Santa Fe.

Print Name: DeVargas, Lorraine	Signature:
Print Name:	Signature:

Return to the Managers section



February 11, 2016

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail 7014 3490 0000 6269 5796

Re: WQA-OCD-CO-2015-002

> NRC Agreed Compliance Order - RO Reject December 2015 ACO - Civil Penalty Payment HollyFrontier Navajo LLC

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$3,100 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for December 2015 submitted electronically on January 15, 2015. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton Environmental Manager

Enclosure

Electronic cc:

OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC: Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

160211 RO Reject ACO - Civil Penalty Payment

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND
DIRECTOR OIL CONSERVATION DIV
NM EMNR
1220 S ST FRANCIS DR
SANTA FE NM 87505-4225

Check Date
Check Amount
Vendor No
Payment Document
Company Code

02/10/2016 3,100.00 5126527 2000014350 1020

Invoice Date	Invoice Number	Description		Invoice Amount Discour	t Amount	Net Amount
01/29/2016	012916	STIPULATED	PENALTIES DEC 2015	3,100.00	0.00	3,100.00
Payment (2000014350		Check number 1000319990	Date 02/10/2016	Currency USD	7016 F23 16 P 2: 27	g 116 d

STATE OF NEW MEXICO

EEE0006506

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Date: 02/16/2016

OFFICIAL RECEIPT

Received From: Holly Frontier Navajo Refining

* E E E O O O 6 5 O 6 *

____Dollars

Center Code	Revenue Code	Amount	Work Order No.
071060000	461402		

Center Code	Revenue Code	Amount	Work Order No.

State Treasurer Deposit Number	Total \$ 3,100.00
Description: <u>Civil Penalties</u> WOA-OCD-CO-2015-002	Total \$
	Signed: Lorraine DeVary



RECEIVED OCD

2016 JAN 19 P-2:16

January 14, 2016

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

FEDEX

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order - RO Reject November 2015 ACO - Civil Penalty Payment

HollyFrontier Navajo LLC

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$2,900 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for November 2015 submitted electronically on December 15, 2015. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc:

OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

160114 RO Reject ACO - Civil Penalty Payment

HollyFrontier Navajo Refining LLC 501 East Main • Artesia, NM 88210 (575) 748-3311 • http://www.hollyfrontier.com HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR

1220 S ST FRANCIS DR SANTA FE NM 87505-4225 RECEIVED OCD

Check Date Check Amount Vendor No Payment Document Company Code

01/15/2016 2,900.00 5126527 2000003857 1020

2016 JAN 19 P 2: 16

Invoice Date	Invoice Number	Description		Invoice Amount	Discount Amount	Net Amount
01/14/2016	011416	REIMBURSING	G ASSETNATION	2,900.00	0.00	2,900.00
Payment (Check number	Date 01/15/2016	Currency usp	,	Payment amount

♣ PLEASE FOLD ON PERFORATION AND DETACH HERE ♣

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT.

CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dállas TX 75201-1507

1000318026

01/15/2016

PAY EXACTLY ****2,900.00*USD VOID AFTER 180 DAYS

PAY

*** TWO THOUSAND NINE HUNDRED and 00 /100 USD***

TO THE

ORDER OF STATE OF N M GENERAL FUND

DIRECTOR OIL CONSERVATION DIV

NM EMNR

1220 S ST FRANCIS DR

SANTA FE NM 87505-4225

Bank of America N.A.

AUTHORIZED SIGNATURE

Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Friday, January 15, 2016 10:28 AM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Combs, Robert; Denton, Scott

Subject: ACO Monthly Report for December 2015

Attachments: 160115 ACO Monthly Report for December 2015.pdf

Jim & Carl,

Attached it the monthly report for December concerning the RO Reject.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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January 15, 2016

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report - December 2015 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's January 2016 monthly report, for the period of December 1-31, 2015, under the Order.

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from December 1 through December 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from December 1 through December 31.

Navajo has calculated a penalty of \$3,100 for December 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 31 days in December. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

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

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a notification to submit to OCD for Discharge Permit GW-028 authorization regarding installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced. Navajo is also evaluating options for the underground injection, or other options for discharge, of RO reject fluid.

In December, Navajo and OCD continued discussion of the conditions of the May 2015 permit modification request to increase the discharge volume. Navajo provided informal comments to draft permit conditions in anticipation of OCD's publication of formal public notice of the proposed permit modification and conditions and opportunity to comment, which was issued in mid-December.

On December 17, Navajo met with OCD to discuss the possible construction of water management ponds for evaporation, to include RO reject fluids and other waters. Permitting approaches were also discussed, and Navajo is in the process of preparing a permit renewal application for GW-028, of which, evaporation pond construction details will be included per OCD guidance.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units	Tempoi	Daily Discharge Volume		
	Metered Data		The second secon	RO Reject Calculated)	Total RO Reject Discharge (Calculated from Log Data)		•
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
12/1/2015	137	146	283	9,703	61	2106	11,809
12/2/2015	140	151	291	9,977	62	2119	12,096
12/3/2015	135	150	285	9,771	68	2316	12,087
12/4/2015	138	150	288	9,874	70	2384	12,258
12/5/2015	137	147	284	9,737	70	2386	12,123
12/6/2015	139	155	294	10,080	70	2400	12,480
12/7/2015	136	148	284	9,737	70	2400	12,137
12/8/2015	140	152	292	10,011	70	2390	12,401
12/9/2015	134	107	241	8,263	71	2422	10,685
12/10/2015	138	112	250	8,571	90	3086	11,657
12/11/2015	127	120	247	8,469	66	2264	10,733
12/12/2015	126	122	248	8,503	66	2256	10,759
12/13/2015	126	121	247	8,469	66	2274	10,743
12/14/2015	129	131	260	8,914	69	2372	11,286
12/15/2015	129	129	258	8,846	79	2724	11,570
12/16/2015	133	133	266	9,120	72	2453	11,573
12/17/2015	131	129	260	8,914	54	1848	10,762
12/18/2015	130	130	260	8,914	57	1939	10,853
12/19/2015	129	127	256	8,777	59	2021	10,798
12/20/2015	127	127	254	8,709	61	2090	10,799
12/21/2015	134	130	264	9,051	62	2126	11,177
12/22/2015	126	126	252	8,640	95	3244	11,884
12/23/2015	135	129	264	9,051	66	2251	11,302
12/24/2015	128	104	232	7,954	65	2217	10,171
12/25/2015	130	102	232	7,954	66	2253	10,207
12/26/2015	126	105	231	7,920	76	2590	10,510
12/27/2015	126	105	231	7,920	118	4033	11,953
12/28/2015	130	108	238	8,160	117	4020	12,180
12/29/2015	129	108	237	8,126	100	3440	11,566
12/30/2015	134	98	232	7,954	105	3617	11,571
12/31/2015	136	105	241	8,263	103	3536	11,799

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - December 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	31	\$3,100
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	mount:	\$3,100

Attachment 3 Analytical Lab Report



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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1512236**

Date Reported: 1/6/2016

Hall Environmental Analysis Laboratory, Inc.

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-SUBBE	D				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 SC	DLIDS					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
рН	7.86	1.68	Н	pH units	1	12/7/2015 1:38:04 PM	R30658
EPA METHOD 200.7: DISSOLVED META	ALS					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	1 22710

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

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 Page 1 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order **1512236**Date Reported: **1/6/2016**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF Date Analyzed Batc
EPA METHOD 8011/504.1: EDB				Analyst: JME
1,2-Dibromoethane	ND	0.010	μg/L	1 12/9/2015 2266
EPA METHOD 8082: PCB'S				Analyst: SCC
Aroclor 1016	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Aroclor 1221	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Aroclor 1232	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Aroclor 1242	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Aroclor 1248	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Aroclor 1254	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Aroclor 1260	ND	1.0	μg/L	1 12/11/2015 1:29:36 PM 2269
Surr: Decachlorobiphenyl	75.6	17.7-151	%REC	1 12/11/2015 1:29:36 PM 2269
Surr: Tetrachloro-m-xylene	55.6	20.6-151	%REC	1 12/11/2015 1:29:36 PM 2269
EPA METHOD 8015M/D: DIESEL RA	NGE			Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1 12/7/2015 1:23:00 PM 2264
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1 12/7/2015 1:23:00 PM 2264
Surr: DNOP	96.8	72-136	%REC	1 12/7/2015 1:23:00 PM 2264
EPA METHOD 8015D: GASOLINE RA	ANGE			Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1 12/10/2015 12:52:34 AM A307
Surr: BFB	86.5	49.5-130	%REC	1 12/10/2015 12:52:34 AM A307
EPA METHOD 8310: PAHS				Analyst: SCC
Naphthalene	ND	2.0	μg/L	1 12/11/2015 7:13:46 AM 2270
1-Methylnaphthalene	ND	2.0	μg/L	1 12/11/2015 7:13:46 AM 2270
2-Methylnaphthalene	ND	2.0	μg/L	1 12/11/2015 7:13:46 AM 2270
Benzo(a)pyrene	ND	0.070	μg/L	1 12/11/2015 7:13:46 AM 2270
Surr: Benzo(e)pyrene	67.8	33.4-129	%REC	1 12/11/2015 7:13:46 AM 2270
EPA METHOD 8260B: VOLATILES				Analyst: DJF
Benzene	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
Toluene	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
Ethylbenzene	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
Carbon Tetrachloride	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
Chloroform	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
1,1-Dichloroethane	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
1,1-Dichloroethene	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307
Methylene Chloride	ND	3.0	μg/L	1 12/8/2015 11:07:53 PM A307
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 12/8/2015 11:07:53 PM A307
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 12/8/2015 11:07:53 PM A307

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

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 Page 2 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1512236**Date Reported: **1/6/2016**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analy	st: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	12/8/2015 11:07:53 P	M A30709
1,1,2-Trichloroethane	ND	1.0	μg/L	1	12/8/2015 11:07:53 P	M A30709
Trichloroethene (TCE)	ND	1.0	μg/L	1	12/8/2015 11:07:53 P	M A30709
Vinyl chloride	ND	1.0	μg/L	1	12/8/2015 11:07:53 P	M A30709
Xylenes, Total	ND	1.5	μg/L	1	12/8/2015 11:07:53 P	M A30709
Surr: 1,2-Dichloroethane-d4	107	70-130	%REC	1	12/8/2015 11:07:53 P	M A30709
Surr: 4-Bromofluorobenzene	104	70-130	%REC	1	12/8/2015 11:07:53 P	M A30709
Surr: Dibromofluoromethane	107	70-130	%REC	1	12/8/2015 11:07:53 P	M A30709
Surr: Toluene-d8	99.7	70-130	%REC	1	12/8/2015 11:07:53 P	M A30709
TOTAL PHENOLICS BY SW-846 9067					Analy	st: 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:

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- E Value above quantitation range
- J Analyte detected below quantitation limits Page 3 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

ND

ND

0.010 0.0050 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 Analysis Date: 12/8/2015 Prep Date: SeqNo: 937145 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Cobalt ND 0.0060 ND 0.0060 Copper Iron ND 0.020 ND 0.0020 Manganese

Sample ID LCS-B	Samp	Type: LC	S	Test	tCode: El	PA Method	200.7: Dissol	ved Metal	ls	
Client ID: LCSW	Bato	h ID: B3	0690	R	tunNo: 3	0690				
Prep Date:	Analysis	Date: 12	2/8/2015	S	SeqNo: 9	37146	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 LLLCS-B	Samp	Type: LC	SLL	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	chQC Batch ID: B30690				RunNo: 30690					
Prep Date:	Analysis	Date: 12	2/8/2015	S	SeqNo: 9	37147	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:

Nickel

Silver

- * 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

Page 4 of 22

Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1512236

06-Jan-16

Project:		onthly 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	МВ-В	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		

Qualifiers:

Sample ID LCS-B

Client ID: LCSW

Prep Date:

Analyte

Zinc

Molybdenum

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

SampType: LCS

Result

0.49

0.46

Batch ID: **B30929**

Analysis Date: 12/17/2015

PQL

0.0080

0.010

SPK value SPK Ref Val

0.5000

0.5000

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

LowLimit

85

85

TestCode: EPA Method 200.7: Dissolved Metals

Units: mg/L

HighLimit

115

115

%RPD

E Value above quantitation range

RunNo: 30929

SeqNo: 945586

%REC

98.3

92.3

0

0

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

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RPDLimit

Qual

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 50 0.008000 122 150 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: SeqNo: 945614 Units: mg/L Analysis Date: 12/17/2015 Qual Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Molybdenum 0.49 0.0080 0.5000 0.006130 96.0 70 130 0.47 0.01974 70 0.010 0.5000 89.6 130 Zinc

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

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

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Client:

Project:

Analyte

Selenium

Uranium

Lead

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

Result

ND

ND

PQL

0.00050

0.0010

ND 0.00050 0.0005000

Monthly RO Reject

WO#: **1512236**

06-Jan-16

Sample ID	1512236-001GMSL	001GMSLL SampType: MS TestCode: EPA 200.8: Dissolved Metals									
Client ID:	R.O. Reject	Bat	ch ID: B3	0746	R	RunNo: 3	0746				
Prep Date:		Analysis	Date: 12	2/9/2015	S	SeqNo: 9	39236	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	Samp	Type: LC	s	Tes	tCode: El	PA 200.8: I	Dissolved Met	als		
Client ID:	LCSW	Bat	ch ID: B3	0746	R	RunNo: 3	0746				
Prep Date:		Analysis	Date: 12	2/9/2015	S	SeqNo: 9	39237	Units: mg/L			
Prep Date: Analyte		Analysis Result	Date: 12 PQL		SPK Ref Val	SeqNo: 9 : %REC	39237 LowLimit	Units: mg/L HighLimit	%RPD	RPDLimit	Qual
· ·		•				•		J	%RPD	RPDLimit	Qual
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Lead		Result 0.012 0.024	PQL 0.00050	SPK value 0.01250	SPK Ref Val	%REC 97.3	LowLimit 85	HighLimit	%RPD	RPDLimit	Qual
Analyte Lead Selenium	LLLCS	Result 0.012 0.024 0.012	PQL 0.00050 0.0010	SPK value 0.01250 0.02500 0.01250	SPK Ref Val 0 0 0	%REC 97.3 96.0 98.1	LowLimit 85 85 85	HighLimit 115 115		RPDLimit	Qual
Analyte Lead Selenium Uranium Sample ID		Result 0.012 0.024 0.012 Samp	PQL 0.00050 0.0010 0.00050	SPK value 0.01250 0.02500 0.01250	SPK Ref Val 0 0 0 0	%REC 97.3 96.0 98.1	LowLimit 85 85 85 PA 200.8: I	HighLimit 115 115 115		RPDLimit	Qual

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			

0

0

0

%REC

99.9

97.8

97.3

LowLimit

50

50

50

HighLimit

150

150

150

%RPD

RPDLimit

Qual

SPK value SPK Ref Val

0.0005000

0.001000

Sample ID	1512236-001GMSLL	SampTyp	e: MS	3	Tes	tCode: E	PA 200.8:	Dissolved Met	tals			
Client ID:	R.O. Reject	Batch II): A3	0798	R	RunNo: 3	30798					
Prep Date:	Date: Analysis Date: 12/11/2015				S	SeqNo: 941037 Units: mg/L						
Analyte	F	Result I	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

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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

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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

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Client:

Project:

Hall Environmental Analysis Laboratory, Inc.

Analysis Date: 12/22/2015

PQL

0.20

Result

3.4

Navajo Refining Company

Monthly RO Reject

WO#: **1512236**

06-Jan-16

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 Units: mg/L Prep Date: Analysis Date: 12/5/2015 SeqNo: 936398 SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL LowLimit HighLimit Qual Fluoride 0.51 0.10 0.5000 0 102 110 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 Result **PQL** SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte HighLimit Qual Nitrate+Nitrite as N ND 0.20 Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: Batch ID: R31049 RunNo: 31049 LCSW

Sample ID MB	SampT	уре: МВ	LK	Tes	tCode: El	S				
Client ID: PBW	Batch ID: A31049				RunNo: 31049					
Prep Date:	Analysis D	ate: 12/	/23/2015	S	SeqNo: 9	49774	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								

0

SPK value SPK Ref Val

3.500

SeqNo: 949719

I owl imit

90

%REC

95.9

Units: mg/L

HighLimit

110

%RPD

RPDLimit

Qual

Sample ID LCS	SampT	ype: LC	s	Tes	tCode: E	PA Method	300.0: Anion	s					
Client ID: LCSW	Batch	1D: A3	1049	R	RunNo: 3	1049							
Prep Date:	Analysis D	ate: 12	2/23/2015	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:

Prep Date:

Nitrate+Nitrite as N

Analyte

- * 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

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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

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Hall Environmental Analysis Laboratory, Inc.

0.44

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 SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 97.6 52.4 4.9 5.000 154

87.9

72

136

0.5000

Ona	lifiers:

Surr: DNOP

- * 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

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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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-22699	Samply	/pe: MB	LK	TestCode: EPA Method 8082: PCB's						
Client ID: PBW	Batch ID: 22699			R	RunNo: 3	0771				
Prep Date: 12/9/2015	Analysis Da	ate: 12	/11/2015	S	SeqNo: 9	39925	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	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 226	699	R	RunNo: 3	0771				

Sample 10 LC3-22099	Sampi	ype. LC	.3	residude. EFA Metriou 6062. FCB 5							
Client ID: LCSW	Batch	ID: 22	699	F	RunNo: 3	0771					
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	8	SeqNo: 9	40026					
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	SampT	уре: МS	6	Tes	tCode: E	PA Method				
Client ID: R.O. Reject	Batch	ID: 22 0	699	RunNo: 30771						
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	S	SeqNo: 9	40884	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 1512236-001DMSI	Tes	TestCode: EPA Method 8082: PCB's								
Client ID: R.O. Reject	F	RunNo: 3	0771							
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	8	SeqNo: 9	40885	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

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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 RunNo: 30709 Client ID: **PBW** Batch ID: A30709 Analysis Date: 12/8/2015 Prep Date: SeqNo: 937841 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 ND Toluene 1.0 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 1.0 ND 1.0 1,3-Dichlorobenzene 1.4-Dichlorobenzene ND 1.0 Dichlorodifluoromethane ND 1.0 1,1-Dichloroethane ND 1.0 1,1-Dichloroethene ND 1.0 ND 1,2-Dichloropropane 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

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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 M					PA Method	Method 8260B: VOLATILES				
Client ID: PBW	Batch	1D: A3	0709	R	RunNo: 3	0709					
Prep Date:	Analysis D	ate: 12	2/8/2015	S	SeqNo: 9	37841	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,1-Dichloropropene	ND	1.0					·g	,,,,,,			
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 Ics	SampT	ype: LC	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: A3	0709	R	RunNo: 30	0709				
Prep Date:	Analysis D	ate: 12	2/8/2015	S	SeqNo: 9	37842	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
					70.120		J			
Benzene	23	1.0	20.00	0	114	70	130			
Benzene Toluene	23 22	1.0 1.0	20.00 20.00	0			130 130			

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID 100ng Ics Client ID: LCSW	•	ype: LC			tCode: El		8260B: VOL	ATILES		
Prep Date:	Analysis D		2/8/2015	-	SeqNo: 9		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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-22700 Client ID: PBW	·	ype: ME			tCode: El		8310: PAHs			
Prep Date: 12/9/2015	Analysis D			-	SeqNo: 9		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	SampT	ype: LC	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	1D: 22	700	R	tunNo: 3	0775				
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	S	SeqNo: 9	40030	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	SampT	ype: M \$	3	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: R.O. Reject	Batch	n ID: 22	700	F	RunNo: 3	0775				
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	S	SeqNo: 9	40035	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 1512236-001DMS	D SampT	уре: М	SD	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: R.O. Reject	Batch	n ID: 22	700	R	RunNo: 3	0775				
Prep Date: 12/9/2015	Analysis D	oate: 12	2/11/2015	S	SeqNo: 9	40036	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

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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

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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

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Hall Environmental Analysis Laboratory, Inc.

0.268

0.609

WO#: 1512236

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Radium-228 ±

Sample ID MB-R31278 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: 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

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

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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

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Hall Environmental Analysis Laboratory 4901 Howkins NE Albuquerque, NM 87169

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

RcptNo: 1 Client Name: NAVAJO REFINING CO Work Order Number: 1512236 12/04/15 Received by/date: alin Som 12/4/2015 9:20:00 AM Logged By: Celina Sessa alin Som 12/4/2015,2:30:37 PM Celina Sessa Completed By: Reviewed By: Chain of Custody Not Present V Custody seals intact on sample bottles? Yes No 🗌 Not Present Yes 🗸 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In No 🗌 NA 🗌 Yes V 4. Was an attempt made to cool the samples? No 🗌 NA . Yes V Were all samples received at a temperature of >0° C to 6.0°C Yes 🗸 No . Sample(s) in proper container(s)? No 🗌 7. Sufficient sample volume for indicated test(s)? ~ No 🗌 8. Are samples (except VOA and ONG) properly preserved? NA 🗌 No V Yes 9. Was preservative added to bottles? No VOA Vials Yes V No 🗆 10. VOA vials have zero headspace? Yes No V 11. Were any sample containers received broken? # of preserved bottles checked Yes V No 🗌 for pH: 12. Does paperwork match bottle labels? unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 Yes V 13. Are matrices correctly identified on Chain of Custody? Yes 🗸 No L 14. Is it clear what analyses were requested? Checked by No 🗌 Yes V 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA V 16. Was client notified of all discrepancies with this order? No _ Date Person Notified: eMail Phone Fax In Person By Whom: Via: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No Seal Date 1.3 Good Yes

HALL ENVIDONMENTAL	ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107		Analysis Kequest	(8	Cs) s	t S/	Well Name	th (E	8270C: WC 6010B: WC 335.4: Tota 8082: PCB 8082: PCB Radioactivii Sulfate Chil	×		×	×	×	×		×	×	×	×			Remarks: Metals: As, AJ, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn
	Rush			60				S	300		oN 🗆	20	HEAL No. (5/2236 8260B:WO	1-00	×										→	200	Date Time Re
Turn-Around Time:	X Standard	Project Name:	Monthly R.O. Reject				Project Manager:	of section 1	Kopert Comps	er. Eliz	On Ice: X Yes	Sample Temperature: /	Container Preservative Type and # Type	2 - 500ml P H2SO4	3-40ml VOA HCL	1-500ml P HNO3	1-125ml P HNO3	1-500ml P NaOH	2-1L P HNO3	3-40ml VOA Na2S2O3	2 - 1L Glass unpres	1 - 1L Glass unpres	3-40ml VOA HCI	1-250mlGlastunpres	1 - 1L Glass H2SO4	2-40ml VOA HCL	Received by:
Chain-of-Custody Record				ш.				A section of the section of	☐ Level 4 (Full Validation)				Sample Request ID	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject	R.O. Reject			Relinquished by: Elizabeth Salsbary F
ain-of-Cus	Navajo Refinery		Mailing Address: P.O. Box 159 Artesia	-0159	-0.109	575-748-3311	email or Fax#: 575-746-5451	ckage:			ype)		Time Matrix	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	9:00 liquid	Time: Relinquishe
ဌ	Client: N		Mailing Ad	VM 88211-0159	700 MIN	Phone #: 5	email or F.	DA/QC Package:	x standard		□ EDD (Type)		Date	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	12/3/15	/15	7/s/-

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

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

Dichloromethane, Ethylbenzene, Toluene, Total Xylenes, Vinyl Chloride



Nava jo Refining Co 501 E. Main Artesia, NM 88210 (Tel) 575.748.3311 (Fax) 575.746.5451

Monthly RO

#	LLYFRONTIER The HollyFronter Companies
, (HOLLY

Reject Sample Details Attachment	Sample Type	Grab	Time Weighted Composite	Flow Weighted Composite	Parts / Sample Intervals One
Company, L					

2	Ilyandal Floberty
Solid	0
Liquid	
Sludge	

South Field R.O. Reject Discarge

North Field R.O. Reject Discarge

Outfall / Sample Location:

Samplers Name Eizabeth Salsberry
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.

Project Name Biannual RO Reject

						200000000000000000000000000000000000000		Preservatives	ves			
Confainer	Size	Material	# of Containers	(None)	HCL	HNO3	H2SO4	NaOH	HCL HNO3 H2SO4 NaOH Na2S2O3 NaHSO4	NaHSO4	Other	Analysis and/or Method Requested
San Tolkier	500ml	Plastic	2	×			×					pH, CI, F, S04, NOZ/NO3, TDS
2	40ml	VOA	3		×							8015 GRO
3	500ml	Plastic				×						6020 total metals, 7470 Hg
4	125ml	Plastic	7			×						6020 Dissolved Metals
5	500ml	Plastic	2					×		1835		Cyanide
9	11	Plastic	3			×						Radium 226/228
7	40ml	VOA	2		×							8260 see attached list
80	11	Glass	-	×								8270 see attached list
6	11	Glass	2	×								8082 PCBs
10	40ml	VOA	2	×								8015 DRO
11	40ml	VOA	2		×							Radium 226/228

Nagigili zzorzzo	Storage Method	loe 🖸	Refrigerated	Other	Shipping Media	loe 🗵	Other
YOR	is, Etc): 12/3/2015 Tmp.35.6 °F, Humidity 70%. Wind Dir. North, Wind Speed 6.9 mph., Conditions Clear			Field pH 7,46			
71 40ml v	Field Data (Weather, Observations, Etc):	Date and Time		Field Temp. 62.5F Field			



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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order **1512238**

Collection Date: 12/3/2015 9:30:00 AM

Date Reported: 1/6/2016

Hall Environmental Analysis Laboratory, Inc.

Monthly Temporary RO Reject

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject

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-SUBBE	D				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 S	OLIDS					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
рН	7.92	1.68	Н	pH units	1	12/7/2015 1:42:27 PM	R30658
EPA METHOD 200.7: DISSOLVED MET	ALS					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	M 22710
D 6 1 000				1001			

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

Qualifiers:

Project:

- * 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 Page 1 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1512238**

Date Reported: 1/6/2016

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	12/9/2015	22664
EPA METHOD 8082: PCB'S					Analys	t: SCC
Aroclor 1016	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Aroclor 1221	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Aroclor 1232	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Aroclor 1242	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Aroclor 1248	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Aroclor 1254	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Aroclor 1260	ND	1.0	μg/L	1	12/11/2015 4:36:04 PM	1 22699
Surr: Decachlorobiphenyl	73.2	17.7-151	%REC	1	12/11/2015 4:36:04 PM	1 22699
Surr: Tetrachloro-m-xylene	53.2	20.6-151	%REC	1	12/11/2015 4:36:04 PM	1 22699
EPA METHOD 8015M/D: DIESEL RAN	IGE				Analys	t: 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 RA	NGE				Analys	t: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	12/10/2015 1:17:04 AM	1 A30727
Surr: BFB	85.9	49.5-130	%REC	1	12/10/2015 1:17:04 AM	1 A30727
EPA METHOD 8310: PAHS					Analys	: SCC
Naphthalene	ND	2.0	μg/L	1	12/11/2015 8:41:32 AM	1 22700
1-Methylnaphthalene	ND	2.0	μg/L	1	12/11/2015 8:41:32 AM	1 22700
2-Methylnaphthalene	ND	2.0	μg/L	1	12/11/2015 8:41:32 AM	1 22700
Benzo(a)pyrene	ND	0.070	μg/L	1	12/11/2015 8:41:32 AM	1 22700
Surr: Benzo(e)pyrene	56.1	33.4-129	%REC	1	12/11/2015 8:41:32 AM	1 22700
EPA METHOD 8260B: VOLATILES					Analys	t: AG
Benzene	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
Toluene	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
Ethylbenzene	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
Carbon Tetrachloride	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
Chloroform	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
1,1-Dichloroethane	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
1,1-Dichloroethene	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
Methylene Chloride	ND	3.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	12/10/2015 11:52:43 A	M R30770
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	12/10/2015 11:52:43 A	M R30770

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

- * 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 Page 2 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1512238**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 1/6/2016

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject

Project:Monthly Temporary RO RejectCollection Date: 12/3/2015 9:30:00 AMLab ID:1512238-001Matrix: AQUEOUSReceived Date: 12/4/2015 9:20:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Ana	lyst: AG
1,1,1-Trichloroethane	ND	1.0	μg/L	1	12/10/2015 11:52:4	3 AM R30770
1,1,2-Trichloroethane	ND	1.0	μg/L	1	12/10/2015 11:52:4	3 AM R30770
Trichloroethene (TCE)	ND	1.0	μg/L	1	12/10/2015 11:52:4	3 AM R30770
Vinyl chloride	ND	1.0	μg/L	1	12/10/2015 11:52:4	3 AM R30770
Xylenes, Total	ND	1.5	μg/L	1	12/10/2015 11:52:4	3 AM R30770
Surr: 1,2-Dichloroethane-d4	108	70-130	%REC	1	12/10/2015 11:52:4	3 AM R30770
Surr: 4-Bromofluorobenzene	93.4	70-130	%REC	1	12/10/2015 11:52:4	3 AM R30770
Surr: Dibromofluoromethane	93.9	70-130	%REC	1	12/10/2015 11:52:4	3 AM R30770
Surr: Toluene-d8	96.6	70-130	%REC	1	12/10/2015 11:52:4	3 AM R30770
TOTAL PHENOLICS BY SW-846 9067					Ana	lyst: 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.

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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 Page 3 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1512238**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analy	/st: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	12/9/2015	22664
EPA METHOD 8260B: VOLATILES					Analy	/st: AG
Benzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
Toluene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Ethylbenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Naphthalene	ND	2.0	μg/L	1	12/10/2015 1:47:44 F	
1-Methylnaphthalene	ND	4.0	μg/L	1	12/10/2015 1:47:44 F	
2-Methylnaphthalene	ND	4.0	μg/L	1	12/10/2015 1:47:44 F	
Acetone	11	10	μg/L	1	12/10/2015 1:47:44 F	
Bromobenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Bromodichloromethane	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Bromoform	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Bromomethane	ND	3.0	μg/L	1	12/10/2015 1:47:44 F	
2-Butanone	ND	10	μg/L	1	12/10/2015 1:47:44 F	
Carbon disulfide	ND	10	μg/L	1	12/10/2015 1:47:44 F	
Carbon Tetrachloride	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Chlorobenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Chloroethane	ND	2.0	μg/L	1	12/10/2015 1:47:44 F	
Chloroform	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
Chloromethane	ND	3.0	μg/L	1	12/10/2015 1:47:44 F	
2-Chlorotoluene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
4-Chlorotoluene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
cis-1,2-DCE	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
Dibromochloromethane	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
Dibromomethane	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
1,2-Dichlorobenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
1,3-Dichlorobenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,4-Dichlorobenzene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
Dichlorodifluoromethane	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	
1,1-Dichloroethane	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
1,1-Dichloroethene	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770
1,2-Dichloropropane	ND	1.0	μg/L	1	12/10/2015 1:47:44 F	PM R30770

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

- * 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 Page 4 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order **1512238**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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.

- * 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 Page 5 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

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		Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: B30821		F	RunNo: 30821						
Prep Date:	Analysis [Date: 12	2/14/2015	9	SeqNo: 9	41747	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	Samp	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals RunNo: 30821					
Client ID: LCSW	Batch ID: B30821			F						
Prep Date:	Analysis Date: 12/14/2015		9	SeqNo: 941748 U			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 LLLCS-B	Samp	Type: LC	SLL	Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: B30821			F	RunNo: 30821					
Prep Date:	Analysis	Date: 12	2/14/2015	S	SeqNo: 9	41749	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

Page 6 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512238**

06-Jan-16

Client: Project:	•	efining C Temporar		eiect							
Sample ID	LCS-B		Type: LC		Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Bato	th ID: B3	0821	F	RunNo: 30	0821				
Prep Date:		Analysis I	Date: 12	2/14/2015	Ç	SeqNo: 94	41847	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	Samp	Туре: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Bato	h ID: B3	0821	F	RunNo: 30	0821				
Prep Date:		Analysis I	Date: 12	2/14/2015		SeqNo: 94	41848	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	MR-R	Samn	Туре: МЕ	RI K	Tes	tCode: FI	PA Method	200.7: Dissol	ved Meta	le	
Client ID:		•	h ID: B3			RunNo: 3 (200.11. 210001	vea meta	.5	
Prep Date:	. 5.,	Analysis I				SegNo: 9		Units: mg/L			
i i						·		_	0/ BDD	DDDI imit	Ougl
Analyte Cadmium		Result ND	PQL 0.0020	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel		ND	0.010								
Zinc		ND	0.010								
Sample ID	LCS-B	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	LCSW	Bato	h ID: B3	0889	F	RunNo: 30	0889				
Prep Date:		Analysis I	Date: 12	2/16/2015	5	SeqNo: 94	44220	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	LLLCS-B	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Bato	h ID: B3	0889	F	RunNo: 30	0889				
Prep Date:		Analysis I	Date: 12	2/16/2015	5	SeqNo: 94	44221	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			

Qualifiers:

Nickel

Zinc

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

ND

ND

0.010

0.010

0.005000

0.005000

- 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

50

50

150

150

E Value above quantitation range

78.8

67.0

- J Analyte detected below quantitation limits
- P Sample pH Not In Range

0

RL Reporting Detection Limit

Page 7 of 26

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.

TestCode: EPA Method 200.7: Dissolved Metals Client ID: Temporary R.O. Rej Batch ID: **B30889** RunNo: 30889 Units: mg/L Prep Date: Analysis Date: 12/16/2015 SeqNo: 944261 Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0 Cadmium 0.53 0.0020 0.5000 106 70 130 Nickel 0.50 0.010 0.5000 0 99.2 70 130 70 Zinc 0.52 0.010 0.5000 0.02057 100 130

Sample ID 1512238-001GMSD TestCode: EPA Method 200.7: Dissolved Metals SampType: MSD 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 70 3.15 20 Cadmium 0.51 0.0020 0 103 130 0.5000 Nickel 0.48 0.010 0.5000 0 95.3 70 130 4.04 20 Zinc 0.010 0.02057 96.7 70 3.48 20 0.50 0.5000 130

TestCode: EPA Method 200.7: Dissolved Metals Sample ID MB-B SampType: MBLK **PBW** Client ID: Batch ID: **B30929** RunNo: 30929 Prep Date: Analysis Date: 12/17/2015 SeqNo: 945585 Units: mg/L **PQL** SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte Result HighLimit Qual ND 0.0080 Molybdenum Silver ND 0.0050

Sample ID LCS-B TestCode: EPA Method 200.7: Dissolved Metals SampType: LCS 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 0.1000 0 Silver 0.098 0.0050 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.
- 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

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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 0.49 0.0080 0.5000 0.003550 97.6 70

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

LowLimit Analyte Result **PQL** SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Molybdenum 0.49 0.0080 0.5000 0.003550 97.9 70 130 0.380 20 105 70 20 Silver 0.11 0.0050 0.1000 0 130 2.48

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

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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	Bat	ch ID: A3	0798	F	RunNo: 3	0798				
Prep Date:		Analysis	Date: 1	2/11/2015	S	SeqNo: 9	41051	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	LLLCS	SampType: LCSLL TestCode: EPA 200.8: Dissolved Metals									
Client ID:	BatchQC	Batch ID: A30798			RunNo: 30798						
Prep Date:		Analysis	Date: 1	2/11/2015	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	Samp	оТуре: МІ	BLK	Tes	tCode: El	PA 200.8: [Dissolved Met	als		

Sample ID MB	SampType:	MBLK	Test	tCode: E	PA 200.8:	Dissolved Met	als		
Client ID: PBW	Batch ID:	A30798	R	tunNo: 3	80798				
Prep Date:	Analysis Date:	12/11/2015	S	eqNo: 9	941056	Units: mg/L			
Analyte	Result PC	QL 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

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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

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

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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 **RPDLimit** Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD Qual Fluoride 0.51 0.10 0.5000 0 102 110 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 POL SPK value SPK Ref Val %REC HighLimit %RPD **RPDLimit** Qual Result LowLimit Fluoride 0.10 0.5000 2.456 82.0 75.3 111 2.9 Sample ID 1512238-001EMSD SampType: MSD TestCode: EPA Method 300.0: Anions Client ID: Batch ID: A30652 RunNo: 30652 Temporary R.O. Rej 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 0.876 20 Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions RunNo: 31049 Client ID: PRW Batch ID: R31049 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

Qualifiers:

Prep Date:

Nitrate+Nitrite as N

Analyte

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded

Analysis Date: 12/22/2015

PQL

0.20

SPK value SPK Ref Val

3.500

Result

3.4

- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

LowLimit

90

Е Value above quantitation range

SeqNo: 949719

%REC

95.9

Units: mg/L

HighLimit

110

%RPD

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

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RPDLimit

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

RPDLimit

Qual

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 Chloride 4.8 0.50 5.000 0 96.8 90 110 Sulfate 10 0 99.7 90 0.50 10.00 110

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

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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

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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 PBW RunNo: 30655 Client ID: Batch ID: 22645 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	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	е	
Client ID: LCSW	Batch	n ID: 22	645	R	RunNo: 3	0655				
Prep Date: 12/7/2015	Analysis D	ate: 12	2/7/2015	S	SeqNo: 9	36460	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

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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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company **Project:** Monthly Temporary RO Reject

Sample ID MB-22699	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch	ID: 22	699	R	RunNo: 3	0771				
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	S	SeqNo: 9	39925	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	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 22	699	R	RunNo: 3	0771				
Prep Date: 12/9/2015	Analysis D	ate: 12	2/11/2015	S	SeqNo: 9	40026	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.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P
- Sample pH Not In Range Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 100ng Ics	SampT	SampType: LCS			tCode: E	ATILES				
Client ID: LCSW	Batch	n ID: R3	0770	F	RunNo: 3	0770				
Prep Date:	Analysis D	ate: 12	2/10/2015	9	SeqNo: 9	39923	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			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	ID: R3	0770	R	RunNo: 3	0770				
Prep Date:	Analysis D	ate: 12	2/10/2015	S	SeqNo: 9	39927	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:

Sample ID rb

- * 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1512238

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

TestCode: EPA Method 8260B: VOLATILES Sample ID rb SampType: MBLK Client ID: **PBW** Batch ID: R30770 RunNo: 30770 Analysis Date: 12/10/2015 Prep Date: SeqNo: 939927 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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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 Analysis Date: 12/10/2015 Prep Date: SeqNo: 939927 Units: µg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Vinyl chloride ND 1.0 Xylenes, Total ND 1.5 87.4 70 Surr: 1,2-Dichloroethane-d4 8.7 10.00 130 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 %REC **PQL** SPK value SPK Ref Val HighLimit %RPD **RPDLimit** Analyte Result LowLimit Qual Benzene 17 1.0 20.00 83.3 70 130 21 20.00 0 106 70 130 Toluene 1.0 19 20.00 0 96.8 70 Chlorobenzene 1.0 130 0 95.6 70 1,1-Dichloroethene 19 1.0 20.00 130 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 99.8 70 Surr: 4-Bromofluorobenzene 10 10.00 130 Surr: Dibromofluoromethane 9.9 10.00 99.3 70 130 Surr: Toluene-d8 10 10.00 104 70 130

Sample ID 1512238-001amsd	12238-001amsd SampType: MSD				tCode: El	ATILES				
Client ID: Temporary R.O. R	ej Batch	ID: R3	0770	R	RunNo: 3	0770				
Prep Date:	Analysis D	ate: 12	2/10/2015	S	SeqNo: 9	39931	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1512238**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 100ng Ics Client ID: LCSW	•	ype: LC			tCode: El	ATILES				
Prep Date:	Analysis D		2/10/2015		SeqNo: 9		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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1512238**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-22700 Client ID: PBW	•	ype: ME		F	RunNo: 3	0775	8310: PAHs			
Prep Date: 12/9/2015	Analysis D	oate: 12	2/11/2015	8	SeqNo: 9	40029	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	SampT	ype: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 22	700	R	RunNo: 3	0775				
Prep Date: 12/9/2015	Analysis D	oate: 12	2/11/2015	S	SeqNo: 9	40030	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

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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

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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

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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 PBW Client ID: 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

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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

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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

NAVAJO REFINING CO Work Order Number: 1512238 RoptNo: 1 Client Name: 12/04/15 Received by/date: Celin Som 12/4/2015 9:20:00 AM Logged By: Celina Sessa Celin Somen Completed By: Celina Sessa 12/4/2015 3;08:09 PM Reviewed By: Chain of Custody No 🗌 Not Present ✓ Yes 1 Custody seals intact on sample bottles? Not Present Yes 🗸 No 🗌 2. Is Chain of Custody complete? 3 How was the sample delivered? Courier Log In No 🗌 NA 🗌 Yes 🗸 4. Was an attempt made to cool the samples? No 🗌 NA 🗌 Were all samples received at a temperature of >0° C to 6.0°C Yes V Yes 🗸 No 🗌 Sample(s) in proper container(s)? No 🗌 7. Sufficient sample volume for indicated test(s)? No 🗌 8. Are samples (except VOA and ONG) properly preserved? NA 🗌 Yes No V 9. Was preservative added to bottles? No VOA Vials No 10. VOA vials have zero headspace? Yes V No V Yes 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 for pH: 12. Does paperwork match bottle labels? Yes V (<2) or >12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 13. Are matrices correctly identified on Chain of Custody? Yes V No 🗆 14. Is it clear what analyses were requested? Checked by Yes V No _ 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA V 16. Was client notified of all discrepancies with this order? No L Person Notified: Date By Whom: eMail Phone Fax In Person Via: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition Seal Intact | Seal No Seal Date Signed By 1.3 Good Yes

ANALYSIS LABORATORY	Client	aln-(ot-Cu	Chain-of-Custody Record	ו חוויסוא-וווחו	Ď.				¥	=	E	HALL ENVIRONMENTAL	O	Σ	E	Y	_	
Project Name: Project Name		avaju n	veillely		X Standard	□ Rush				A	AL	YSI	SL	AB	0	3	O	≿	
Monthly Temporary R.O. Reject Annaholistic Project Manager: Pr					Project Name:				Ŧ	W	w.hall	enviro	nment	al.con	۶				
Tele 562-345-3976 Fax 565-3464107 Project Manager. Project Man	ing Add	ress:	P.O. Box	159 Artesia,	Monthly Temp	orary R.O. Re	eject	49	01 Ha	wkins	빌	Albuq	nerque	e, NM	1871	60			
Project Manager: Container	88211-0	0159			Project #: P.O.	. # 167795		Te	el. 505	-345-3	975	Fa	-505-	345-4	107				
Project Manager: Container Preservative Container Phone #: 57	75-748	3311								Ā	ıalysi	s Requ	uest						
Time Matrix Sample Request ID Type and # Type Ty	ail or Fa	x#: 57	5-746-54	51	Project Manag	ler:						- (8	-		_	_			
Time Matrix Sample Request ID Type and # Type and # Temporary R.O. Reject 1-126ml P HNO3 9-30 liquid Temporary R.O. Reject 1-11 Glass unpression Temporary R.O. Reject 1-10 Glass unpression Temporary R.O. Reject 1-10 Glass unpression Temporary	QC Pack	(age:										366-6							
Time Matrix Sample Request ID Confider Fitzbeth Salsberry Sample Temperature Confider Time Matrix Sample Request ID Type and # Type Confider Type Confider Type Type Confider Type Type Type Confider Type Ty	X Standard	-		☐ Level 4 (Full Validation)	Robert Combs				S		ОЯ	-4+				S	700		
Type Sample Request ID Type and # Type Other _				Sampler: Eliza	beth Salsberr	Ŋ	_	lete	əpi	0 '	966				bild			(1)	
Time Matrix Sample Request ID Type and # Type	EDD (Tyl	(be)			100 M	X Yes	□ No	-	϶W	_	OA	,(PS	(1200)		100
Time Matrix Sample Request ID Type and # Preservative HEAL No Sign Sig					Sample Temp	erature: 1.0			၁၁	_	ı Di	_					WAY SAFE		1
9:30 liquid Temporary R.O. Reject 2-500ml Poly HZSO4 —OO X <t< td=""><td>Date T</td><td>ime</td><td>Matrix</td><td>Sample Request ID</td><td>Container I</td><td>Preservative Type</td><td>HEAL NO.</td><td></td><td>6010B: WQ</td><td></td><td>8015: GRO</td><td></td><td>and the second</td><td>- 11000000000</td><td></td><td></td><td></td><td></td><td>Religion Apples</td></t<>	Date T	ime	Matrix	Sample Request ID	Container I	Preservative Type	HEAL NO.		6010B: WQ		8015: GRO		and the second	- 11000000000					Religion Apples
9:30 liquid Temporary R.O. Reject 1-500ml P HNO3 X 9:30 liquid Temporary R.O. Reject 1-500ml P HNO3 X 9:30 liquid Temporary R.O. Reject 1-500ml P NaOH X 9:30 liquid Temporary R.O. Reject 2-1L P HNO3 X 9:30 liquid Temporary R.O. Reject 2-1 Class unpres X 9:30 liquid Temporary R.O. Reject 1-1 L Glass unpres X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZO4 X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZSO4 X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZSO4 X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZSO4 X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZSO4 X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZSO4 X 9:30 liquid Temporary R.O. Reject 1-1 L Glass HZSO4 X <t< td=""><td>3/15</td><td>9:30</td><td>liquid</td><td>Temporary R.O. Reject</td><td></td><td>1-unpres 1- 12SO4</td><td>100-</td><td></td><td></td><td></td><td></td><td></td><td>×</td><td>5/8/4</td><td></td><td></td><td></td><td></td><td>></td></t<>	3/15	9:30	liquid	Temporary R.O. Reject		1-unpres 1- 12SO4	100-						×	5/8/4					>
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9:30 liquid Temporary R.O. Reject 1-125ml P HNO3 9:30 liquid Temporary R.O. Reject 2-1L P HNO3 9:30 liquid Temporary R.O. Reject 2-1L Glass unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass unpres 9:30 liquid Temporary R.O. Reject 1-250mlGlass unpres 9:30 liquid Temporary R.O. Reject 1-250mlGlass unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass H2SO4 9:30 liquid Trip Blank 2-40ml VOA HCL	3/15	9:30	liquid	Temporary R.O. Reject		HNO3				×		_							
9:30 liquid Temporary R.O. Reject 1-500ml P NaOH 9:30 liquid Temporary R.O. Reject 2-1L P HNO3 9:30 liquid Temporary R.O. Reject 2-1L Glass unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass HCI 9:30 liquid Temporary R.O. Reject 1-250mlGlass unpres Resinquires 9:30 liquid Temporary R.O. Reject 1-1L Glass HZSO4 9:30 liquid Temporary R.O. Reject 1-1L Glass HZSO4 9:30 liquid Temporary R.O. Reject 1-1L Glass HZSO4 9:30 liquid Trip Blank 2-40ml VOA HCL	3/15	9:30	liquid	Temporary R.O. Reject		HNO3			×	_					-	_			-
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9:30 liquid Temporary R.O. Reject 2 - 1L Glass unpres 9:30 liquid Temporary R.O. Reject 1 - 1L Glass unpres 9:30 liquid Temporary R.O. Reject 1 - 250mlGlass unpres 9:30 liquid Temporary R.O. Reject 1 - 1L Glass HZSO4 9:30 liquid Temporary R.O. Reject 1 - 1L Glass HZSO4 9:30 liquid Trip Blank 2 - 40ml VOA HCL - 002 9:30 liquid Trip Blank 2 - 40ml VOA HCL - 002 1::30 gliquid Trip Blank 2 - 40ml VOA HCL - 002 1::30 gliquid Trip Blank 2 - 40ml VOA HCL - 002 1::30 gliquid Trip Blank 2 - 40ml VOA HCL - 002 1::30 gliquid Trip Blank Received by: I 2 / 0 4 / 7 5 of 2 / 0 4 / 0 4 / 0 6 /	12/3/15	9:30	liquid	Temporary R.O. Reject	7.7	Na2S203										-		×	
9:30 liquid Temporary R.O. Reject 1 - 1L Glass unpres 9:30 liquid Temporary R.O. Reject 1 - 250mlGlas unpres 9:30 liquid Temporary R.O. Reject 1 - 1L Glass HZSO4 9:30 liquid Trip Blank 2 - 40ml VOA HCL 9:30 liquid Trip Blank 2 - 40ml VOA HCL 1:30 liquid Trip Blank 2 - 40ml VOA HCL 0:30 liquid Trip Blank 2 - 40ml VOA HCL 0:30 liquid Trip Blank 2 - 40ml VOA HCL 0:30 liquid Trip Blank 2 - 40ml VOA HCL 0:30 liquid Trip Blank 2 - 40ml VOA HCL 0:30 liquid Date Time Impress I Xoyl/I S off 2 overs I Xoyl/I S off 2 overs Image: Time Image: Time Date Time I Xoyl/I S off 2 overs Date Time Image: Time Date Time	12/3/15	9:30	liquid	Temporary R.O. Reject		unpres						×			1	\dashv	4		
9:30 liquid Temporary R.O. Reject 3-40ml VOA HCI 9:30 liquid Temporary R.O. Reject 1-250mlGlas unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass H2SO4 9:30 liquid Trip Blank 2-40ml VOA HCL Date Remainder 1:30 liquid Trip Blank 2-40ml VOA HCL Date Imeal Remainder 1:30 liquid Algoritical Salam Received by: Inchoration Inchoration Inchoration Inchoration 1:30 liquid Relinquished by: Received by: Inchoration Incho	12/3/15	9:30	liquid	Temporary R.O. Reject	-	unpres		×				\dashv			+	-			- 1
9:30 liquid Temporary R.O. Reject 1-250mlGlass unpres 9:30 liquid Temporary R.O. Reject 1-1L Glass H2SO4 9:30 liquid Trip Blank 2-40ml VOA HCL Date Time Remainduished by: Etizoboon Sol Sanny Received by: 1:30 912 of 2000 Annual Received by: 1:30 912 of 2000 Annual Received by: 120 913 Annual Received by: 120	12/3/15	9:30	liquid	Temporary R.O. Reject	-	HCI				-	×				+	\dashv			
9:30 liquid Temporary R.O. Reject 1-1L Glass H2SO4 9:30 liquid Trip Blank 2-40ml VOA HCL Date Time Remainshed by: Received by: 1:30	12/3/15	9:30	liquid	Temporary R.O. Reject		unpres					×				\dashv	\dashv			
9:30 liquid Trip Blank 2-40ml VOA HCL — 602 Time: Relinquished by: Eti 20000 Sol Sarry Received by: 1:30 Qi about Oalym Received by: Date Time Diction Diction Diction Solos		9:30	liquid	Temporary R.O. Reject		H2SO4	\rightarrow							×					
Time: Relinquished by: Efizabath Sal Spany Received by: 1:3D 912 about Jahry Received by: Received by: Date Time Delinom Dichlor Dictions Dictions Dictions Sevocs	Ш	9:30	liquid	Trip Blank	1	HCL	00					\dashv			Н	Н	Ц		
Time: Relinquished by: Date Time			Relinquishe 912	ed by: Efizabach Salsbary	Received by:	g	1 1	Remarks: Metals: As, Vocs: 1,1,	Al, Ba, B	Cd, Cr,	Co, Cu,	Fe, Pb, Tetrach	An, Hg. A proethan	No, Ni, S e; 1,1,2,	e, Ag.	J. Zn chlorce	thyens	5,1,2	0.504
			Relinquishe	ed by:	Received by:			Trichloroeth Dibromoeth Dichlorome SVOCs. be	ane; 1,2 ane; 1,2 thane; E rizo(a)p	,2-Trichlo Dichloror hylbenze rene, phe	roethyle thane; I re; Tolu nol, 1-n	ne; 1,1-D Jenzene; ene; Tota ethylnap	Carbon Carbon Xylene:	nane; 1, Tetrachi s; Vinyl (2-meth	7-Dich oride; (Chloridi iylnaph	oroethe thlorofo e halene,	m; mapht	alene	

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



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

Monthly

				П	ř	Γ
Temporary RO Reject Sample Details	Sample Type	Grab	ghted Composite	ghted Composite		Sample Intervals One
Ter Rej	STEER STORY		Time Wei	Flow We		Parts /

The HollyFrontier Companies

ysical Property	p	D pi	
Ph	Soli	Liqu	Slude

Type of Sampler | Directly to sample jars

South Field R.O. Reject Discarge

North Field R.O. Reject Discarge

Outfall / Sample Location:

Samplers Name Elizabeth Salsberry
Samplers Affiliation Navajo Refining Co. LLC

Project Name Biannual RO Reject

Start Date and Time 12/3/2015 @ 9:20 a.m. End Date and Time 12/3/2015 @ 9:35 a.m.

				のないので		THE STATE OF	SECTION S	Preservatives	ives	は水の地域の地域		
	(100000000000000000000000000000000000000	# of	Neat	Ç	00.41		0				
Container	Size	Material	Containers	(None)	HCL	HNGS	HCL HNO3 HZSO4	NaCH	Na252C3	NaHSC4	Other	Analysis and/or Method Requeste
1.00	500ml	Plastic	2	×			×					pH, CI, F, S04, NO2/NO3, TDS
2	40ml	VOA	6		×							8015 GRO
3	500ml	Plastic	-			×						6020 total metals, 7470 Hg
4	125ml	Plastic	+			×						6020 Dissolved Metals
5	500ml	Plastic	2					×				Cyanide
9	11	Plastic	8			×						Radium 226/228
7	40ml	VOA	2		×							8260 see attached list
8	11	Glass	-	×								8270 see attached list
6	11	Glass	2	×								8082 PCBs
10	40ml	VOA	2	×							8	8015 DRO
11	40ml	VOA	2		×							Radium 226/228

Storage Method	loe 🗹	Refrigerated	Other
3/2015 Tmp 39.2 °F, Humidity 61%, Wind Dir. NNE, Wind Speed3.5 mph. Conditions Clear			
servations, Etc):			Field pH 7.56
Field Data (Weather, Ob	Date and Time:		Field Temp, 66.3F

Shipping Media	The second		
S S S	ripping Media	5	С
	Sh	eol	Other

Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Friday, January 15, 2016 2:49 PM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Combs, Robert; Denton, Scott

Subject: ACO Civil Penalty Payment for November 2015

Attachments: 160114 RO Reject ACO - Civil Penalty Payment Letter.pdf

Jim & Carl,

Attached is a copy of the Civil Penalty Payment for November concerning the RO Reject.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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January 14, 2016

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

FEDEX

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order - RO Reject November 2015 ACO - Civil Penalty Payment HollyFrontier Navajo LLC

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$2,900 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for November 2015 submitted electronically on December 15, 2015. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc:

OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC:

Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

160114 RO Reject ACO - Civil Penalty Payment

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Check Date 01/15/2016 Check Amount 2,900.00 Vendor No 5126527 Payment Document 2000003857 Company Code 1020

Invoice Date	Invoice Number	Description		Invoice Amount	Discount Amount	Net Amount
01/14/2016	011416	REIMBURSIN	G ASSETNATION	2,900.00	0.00	2,900.00
Payment (Check number	Date 01/15/2016	Currency	У	Payment amount *******2,900.00*

I PLEASE FOLD ON PERFORATION AND DETACH HERE I

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT.

CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM

HollyFrontier Navajo Refining LLC 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

64-1278/611

1000318026

01/15/2016

PAY EXACTLY *********2,900.00*USD VOID AFTER 180 DAYS

*** TWO THOUSAND NINE HUNDRED and 00 /100 USD***

TO THE

PAY

ORDER OF STATE OF N M GENERAL FUND

DIRECTOR OIL CONSERVATION DIV

NM EMNR

1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Bank of America N.A.

AUTHORIZED SIGNATURE

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD

Sent: Tuesday, November 17, 2015 8:52 AM **To:** 'Denton, Scott'; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Combs, Robert

Subject: RE: ACO Monthly Report for October 2015

Mr. Denton:

The New Mexico Oil Conservation Division has reviewed the report and approves the penalty amount of \$2,800.

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM Environmental Engineer Oil Conservation Division- Environmental Bureau 1220 South St. Francis Drive

Santa Fe, New Mexico 87505 Phone: (505) 476-3490 Main Phone: (505) 476-3440

Fax: (505) 476-3462

E-mail: <u>CarlJ.Chavez@state.nm.us</u>
Website: <u>www.emnrd.state.nm.us/ocd</u>

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see

how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Denton, Scott [mailto:Scott.Denton@HollyFrontier.com]

Sent: Friday, November 13, 2015 9:36 AM

To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>

Cc: Marks, Allison, EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD <bill.brancard@state.nm.us>;

McWatters, Denise < Denise. McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.

<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Combs, Robert

<Robert.Combs@HollyFrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>

Subject: ACO Monthly Report for October 2015

Jim & Carl,

Attached it the monthly report for October concerning the RO Reject.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies

P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Friday, November 13, 2015 9:36 AM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Combs, Robert; Denton, Scott

Subject: ACO Monthly Report for October 2015

Attachments: 151113 ACO Monthly Report for October 2015.pdf

Jim & Carl,

Attached it the monthly report for October concerning the RO Reject.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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November 13, 2015

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report - October 2015 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's November 2015 monthly report, for the period of October 1-31, under the Order.

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from October 1 through October 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from October 1 through October 31.

Navajo has calculated a penalty of \$2,800 for October 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 28 days in October. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on October 7, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a permit modification request to Discharge Permit GW-028 for installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced.

Navajo is also evaluating options for the underground injection of RO reject fluid.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1 Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permaner	nt RO Units		Tempor	ary Unit	Daily Discharge Volume
	Metere	ed Data		RO Reject Calculated)	(Calculate	ect Discharge d from Log ta)	
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
10/1/2015	125	102	227	7,783	75	2570	10,353
10/2/2015	114	103	217	7,440	118	4060	11,500
10/3/2015	112	59	171	5,863	89	3041	8,904
10/4/2015	146	136	282	9,669	67	2287	11,956
10/5/2015	151	136	287	9,840	0	0	9,840
10/6/2015	154	126	280	9,600	72	2484	12,084
10/7/2015	157	121	278	9,531	46	1589	11,120
10/8/2015	158	131	289	9,909	0	7	9,916
10/9/2015	159	133	292	10,011	8	290	10,301
10/10/2015	155	128	283	9,703	10	353	10,056
10/11/2015	149	122	271	9,291	21	722	10,013
10/12/2015	153	114	267	9,154	55	1881	11,035
10/13/2015	154	125	279	9,566	53	1800	11,366
10/14/2015	153	108	261	8,949	53	1810	10,759
10/15/2015	159	128	287	9,840	57	1971	11,811
10/16/2015	162	136	298	10,217	58	1989	12,206
10/17/2015	153	124	277	9,497	56	1930	11,427
10/18/2015	158	128	286	9,806	48	1646	11,452
10/19/2015	157	122	279	9,566	60	2064	11,630
10/20/2015	158	124	282	9,669	61	2081	11,750
10/21/2015	156	123	279	9,566	63	2149	11,715
10/22/2015	155	115	270	9,257	56	1919	11,176
10/23/2015	156	117	273	9,360	57	1951	11,311
10/24/2015	155	117	272	9,326	58	2004	11,330
10/25/2015	156	122	278	9,531	60	2045	11,576
10/26/2015	160	127	287	9,840	61	2081	11,921
10/27/2015	158	138	296	10,149	62	2111	12,260
10/28/2015	160	126	286	9,806	48	1646	11,452
10/29/2015	141	148	289	9,909	49	1680	11,589
10/30/2015	147	146	293	10,046	51	1745	11,791
10/31/2015	148	141	289	9,909	51	1759	11,668

Attachment 2 Stipulated Penalty Calculation

Calculation of Stipulated Penalties - November 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			s -
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	28	\$2,800
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	mount:	\$2,800

Attachment 3 Analytical Lab Report



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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Analytical ReportLab Order **1510410**

Date Reported: 11/2/2015

Hall Environmental Analysis Laboratory, Inc.

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-SUBBE	D				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 SC	LIDS					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
рН	7.79	1.68	Н	pH units	1	10/9/2015 2:16:27 PM	R29457
EPA METHOD 200.7: DISSOLVED META	ALS					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	
Copper	ND	0.0060		mg/L	1	10/13/2015 9:14:53 PM	
Iron	ND	0.020		mg/L	1	10/14/2015 8:21:34 PM	
Manganese	ND	0.0020		mg/L	1	10/13/2015 9:14:53 PM	
Molybdenum	ND	0.0080		mg/L	1	10/13/2015 9:14:53 PM	
Nickel	ND	0.010		mg/L	1	10/13/2015 9:14:53 PM	
Silver	ND	0.0050		mg/L	1	10/13/2015 9:14:53 PM	
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	Л 21848

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

- * 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical ReportLab Order **1510410**

Hall Environmental Analysis Laboratory, Inc.

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 Q	ual 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	_
Aroclor 1232	ND	1.0	μg/L	1	10/15/2015 1:42:00 AM	
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 RAM	NGE				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 RA	NGE				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.

- * 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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical ReportLab Order **1510410**

Date Reported: 11/2/2015

Hall Environmental Analysis Laboratory, Inc.

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 Qua	al 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.

- * 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 Page 3 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1510410**Date Reported: **11/2/2015**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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.

- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1510410**Date Reported: **11/2/2015**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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.

- * 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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

ND

ND

0.010

0.0050

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 **PBW** Client ID: 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 ND 0.040 Boron 0.0020 Cadmium ND Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 Manganese ND 0.0020 Molybdenum ND 0.0080

Sample ID LCS	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B29512			R	RunNo: 2	9512					
Prep Date:	Analysis Date: 10/13/2015			S	SeqNo: 8	97650	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			F	RunNo: 2	9512				
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:

Nickel

Silver

- * 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

Page 6 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

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 Nickel ND 0.010 0.005000 0 100 50 150	Qual
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
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit	Qual
	Qual
Nickel ND 0.010 0.005000 0 100 50 150	
Cilver ND 0.0000 0.000000 0 07.0 F0 450	
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	<u>,</u>
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

Qualifiers:

Aluminum

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

0.51

0.020

0.5000

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

115

E Value above quantitation range

103

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

Page 7 of 23

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
- P Sample pH Not In RangeRL Reporting Detection Limit

Page 8 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID LCS	SampTyp	e: LCS		Test	tCode: El					
Client ID: LCSW	Batch II	D: B29 6	683	R	unNo: 2	9683				
Prep Date:	Analysis Date	e: 10/2	20/2015	S	SeqNo: 90	03929	Units: mg/L			
Analyte	Result	PQL S	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 0.0	0050	0.01250	0	98.6	85	115			
Selenium	0.023 0.	.0010	0.02500	0	90.5	85	115			
Uranium	0.012 0.0	0050	0.01250	0	96.7	85	115			

Sample ID LLLCS	SampT	ype: LC :	SLL	Test	tCode: EF	PA 200.8: I	Dissolved Met	als		
Client ID: BatchQC	Batch	ID: B2 9	9683	R	unNo: 2 9	9683				
Prep Date:	Analysis Da	ate: 10	/20/2015	S	eqNo: 90	03932	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	0.00050	0.0005000	0	102	50	150			
Selenium	ND	0.0010	0.001000	0	88.7	50	150			
Uranium	ND 0	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 SPI	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

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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

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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

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** 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 99.1 90 110 Λ 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

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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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-21793	SampT	SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range								
Client ID: PBW	Batch	n ID: 21	793	R	unNo: 2	9489				
Prep Date: 10/12/2015	Analysis D	ate: 10	0/12/2015	S	SeqNo: 8	96837	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	n ID: 21	793	R	tunNo: 2	9489				
Prep Date: 10/12/2015	Analysis D	ate: 10	0/12/2015	S	SeqNo: 8	96840	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	SampT	ype: M \$	 S	Tes	Code: El	PA Method	8015M/D: Die	esel Range	e	
Client ID: R.O. Reject				RunNo: 29489						
	Batch	ı ID: 21 '	793	K	lunNo: 2	9489				

Prep Date: 10/12/2015	Analysis D	Date: 10	/12/2015	9	SeqNo: 8	96858	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 1510410-001BMSI) SampT	Гуре: МЅ	ISD TestCode: EPA Method 8015M/D: Diesel Range							
Client ID: R O Reject	Batch	h ID: 217	93	F	RunNo. 2	9489				

Sample ID 1510410-	001BMSD Sai	mpType: N	ISD	Tes	tCode: E	PA Method	8015M/D: Die	esel Range	9	
Client ID: R.O. Reje	ct B	atch ID: 2	1793	F	RunNo: 2	9489				
Prep Date: 10/12/20	15 Analys	sis Date: '	10/12/2015	8	SeqNo: 8	96861	Units: mg/L			
Analyte	Resu	lt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DR	0) 5.	7 1.0	5.000	0	114	-94.6	317	4.71	22.1	
Surr: DNOP	0.5	q	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

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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 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-21811	SampT	ype: ME	BLK	Tes	tCode: El	PA Method				
Client ID: PBW	Batch	ID: 21	811	R	tunNo: 2	9529				
Prep Date: 10/13/2015	Analysis D	ate: 10	0/14/2015	S	SeqNo: 8	99307	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	SampT	ype: LC	s	Tes	tCode: El	PA Method				
Client ID: LCSW	Batch	ID: 21 8	811	F	RunNo: 2	9529				
Prep Date: 10/13/2015	Analysis D	ate: 10	0/14/2015	S	SeqNo: 8	99308	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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	ATILES					
Client ID: LCSW	Batch	n ID: R2	9397	F	RunNo: 2	9397				
Prep Date:	Analysis D	Date: 10)/8/2015	8	SeqNo: 8	94163	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			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	Batch ID: R29397 RunNo: 29397								
Prep Date:	Analysis D	ate: 10	0/8/2015	S	SeqNo: 8	94164	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:

Sample ID rb

- * 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

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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 RunNo: 29397 Client ID: **PBW** Batch ID: R29397 Analysis Date: 10/8/2015 Prep Date: SeqNo: 894164 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb	SampT	ype: ME	BLK	Tes	tCode: El					
Client ID: PBW	Batch	n ID: R2	9397	R	RunNo: 2	9397				
Prep Date:	Analysis D	ate: 10	0/8/2015	S	SeqNo: 8	94164	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

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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

NaphthaleneND2.01-MethylnaphthaleneND2.02-MethylnaphthaleneND2.0Benzo(a)pyreneND0.070

Surr: Benzo(e)pyrene 21 20.00 103 37.2 136

Sample ID LCS-21812	Samp1	ype: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batcl	n ID: 21 8	812	F	RunNo: 2	9527				
Prep Date: 10/13/2015	Analysis D	Date: 10	0/14/2015	S	SeqNo: 8	98374	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	Japhthalene 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	0.41 0.070 0.5020 0 81.7 56		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

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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

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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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R29838	SampT	уре: МЕ	BLK	Tes	tCode: E	PA 903.1: F	a 226 and EP	A 904.0: F	Ra 228-Subbe	d
Client ID: PBW	Batch	1D: R2	9838	F	RunNo: 2	9838				
Prep Date:	Analysis D	ate: 10)/21/2015	S	SeqNo: 9	08965	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	SampT	ype: ME	BLK	Tes	tCode: E	PA 903.1: R	a 226 and EP	A 904.0: F	Ra 228-Subbe	ed
Client ID: PBW	Batch	1D: R2	9838	R	RunNo: 2	9838				
Prep Date:	Analysis D	ate: 10)/21/2015	S	SeqNo: 9	08967	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

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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

Page 23 of 23



Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107

EL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

Clie	nt Name:	NAVAJO RE	FINING CO	Work Order Number	n. 1510	410		RcptNo:	1
Rec	eived by/dat	te:	S	10/08/16					
Logg	ged By:	Lindsay Ma	angin	10/8/2015 9:07:00 AM	1		of the so		
Con	pleted By:	Lindsay Ma	angin	10/8/2015 12:40:53 P	м		July HIGO		
Revi	iewed By:	0	15	10/08/15					
Cha	in of Cus	itody		10(00)13			1 alaska		
		als intact on sa	mple bottles?	¥.	Yes	V	No D	-Not Present 🗸	
2. 1	ls Chain of (Custady compl	lete?		Yes	~	No 🗆	Not Present	
3, 1	How was the	e sample deliv	ered?		Cour	ier			
Log	g In								
4.	Was an atte	empt made to	cool the sampl	es?	Yes	•	No 🗆	NA 🗆	
5.	Were all sar	mples received	l at a temperat	ure of >0° C to 6.0°C	Yes	~	No 🗌	NA 🗆	
6.	Sample(s) i	n proper conta	iner(s)?		Yes	~	No \square		
7.	Sufficient sa	emple volume t	for indicated te	st(s)?	Yes	v	No 🗌		
8.	Are samples	s (except VOA	and ONG) pro	perly preserved?	Yes	~	No 🗆		
9. 1	Was presen	vative added to	bottles?		Yes		No 🗸	NA 🗆	
10.	VOA vials h	ave zero head:	space?		Yes	v	No 🗆	No VOA Vials	
11.	Were any s	ample contain	ers received b	roken?	Yes		No 🗸		
							1510	# of preserved bottles checked //	1
		work match bo			Yes	~	No 🗌	for pH:	12 unless noted)
		pancies on ch s correctly ider			Yes	~	No 🗆	Adjusted?	No
2.20		nat analyses w			Yes		No 🗆		
-202		ding times able			Yes		No 🗆	Checked by:	20
	(If no, notify	customer for a	authorization.)						000
Spe	cial Hand	dling (if app	licable)						
16.	Was client r	notified of all di	screpancies w	ith this order?	Yes		No 🗆	NA 🔽	
	Perso	n Notified:		Date		_			
	By Wi	hom:		Via:	_ ем	ail [Phone Fax	In Person	
	Regar	rding: j							
	Client	Instructions:							
17.	Additional r	remarks:							89
18	Cooler Info	ormation							
	Cooler N	TOTAL PROPERTY OF THE PARTY OF	Condition	Seal Intact Seal No	Seal D	ate	Signed By	1	
	1	1.0	Good	Yes					

VOCs: 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethylene, 1,1,2 SVOCs. benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY 804.1:EDB HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dictionoethane; 1,1-Dichloroethene; 1,2-Hd × Dibromoethane; 1.2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane, Ethylbenzene, Toluene, Total Xylenes, Viryl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request Phenols × Sulfate Chloride × Radioactivity (Ra-226+Ra-228) × 8082: PCBs × Tel. 505-345-3975 ево, вво, ово :9108 × × 7470: Mercury × Total Cyanide × 6010B: WQCC Metals × 8270C: WQCC list SVOCs Remarks × 8560B:WQCC List VOCs × 0907 Time Time HEAL No. Date 51/80/01 ON [Elizabeth Salsberry Rush Preservative Project #: P.O. # 167796 3-40ml VOA Na2S203 Type Sample Temperature: 1 - 1L Glass | H2SO4 unpres -unpres HN03 HN03 2 - 1L Glass unpres 1-250mlGlas unpres X Yes Monthly R.O. Reject HN03 NaOH H2S04 Tum-Around Time 2-40ml VOA HCL 3-40ml VOA HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name 1 - 1L Glass X Standard Container Type and # 2 - 500ml P 1-500ml P 1-500ml P 1-125ml P Received by: Jelin Received by: Sampler 2-1L P On Ice: □ Level 4 (Full Validation) Sample Request ID Relinquished by: Bizovoeth Salsborry Chain-of-Custody Record R.O. Reject Trip Blank Eigherth Halsbry Mailing Address: P.O. Box 159 Artesia, Relinquished by: email or Fax#: 575-746-5451 Navajo Refinery Matrix 9:35 liquid 9:35 liquid 9:35 liquid Phone #: 575-748-3311 9:35 liquid 3:8 Time NM 88211-0159 QA/QC Package: EDD (Type) Ime X Standard 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 □ Other 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 21110 Date Client Date



Nava Jo Refining Company, LLC 501 E. Main Artesia, NM 88210 (Tel) 575,748,3311 (Fax) 575,746,5451

Monthly RO Reject Sample

iils ment	Type	Grab 🖸	posite	posite	ervals One
Details Attachmen	Sample		Time Weighted Com	Flow Weighted Com	Parts / Sample Int

4	HOITYFRONTIFR	The HollyFrontier Companies

Il Property		D.	
Physica	Solid	Liquid	Sludge
2000	200	0.000	

Type of Sampler | Directly to sample jars

South Field R.O. Reject Discarge

North Field R.O. Reject Discarge

Outfall / Sample Location:

Samplers Name Elizabeth Salsberry
Samplers Affiliation Navajo Refining Co. LLC

Project Name Biannual RO Reject

Start Date and Time 107/2015 @ 9:35 am End Date and Time 107/2015 @ 9:50 am

				Charles College			Prese	Preservatives			
Salata Control	10000000000	を は かけいかい	#ut	Neat		31					
Container	Size	Material	Containers	WE	HCL	HN03	HCL HN03 H2SO4 NaOH Na2S2O3 NaHSO4	Na2S2	NaHSO	4 Other	Analysis and/or Method Requested
1	500ml	Plastic	2	-			×				pH, CI, F, S04, NO2/NO3, TDS
2	40ml	VOA	3		×						8015 GRO
03	500ml	Plastic	-			×					6020 total metals, 7470 Hg
4	125ml	Plastic	-			×	own,n				6020 Dissolved Metals
5	500ml	Plastic	2				×				Cyanide
9	7	Plastic	e			×					Radium 226/228
7	40ml	VOA	2	2.5	×						8260 see attached list
8	4	Glass		×							8270 see attached list
6	7	Glass	2	×							8082 PCBs
10	40ml	VOA	2	×							8015 DRO
11	40ml	VOA	2		×						Radium 226/228

Storage Method	lce 🖸	Refrigerated	Other	Shipping Media	loe S	Other
ions Partly Cloudy						
eed 8.1 mph, Condit						
mp.62.5 °F, Humidity 88%, Wind Dir. North, Wind Speed 8.1 mph, Conditions Partly Cloud						
fumidity 88%, Wind						
/2015 Tmp.62.5 °F, F						
tions, Etc): 10/7			Field pH 7.92			
eld Data (Weather, Observations, Etc):	ate and Time:		ield Temp. 24.9C			

Field Data (Weath Date and Time:



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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject

Project:Monthly Temporary RO RejectCollection Date: 10/7/2015 8:55:00 AMLab ID:1510416-001Matrix: AQUEOUSReceived 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-SUBBE	D				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 SO	OLIDS					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
рН	7.80	1.68	Н	pH units	1	10/9/2015 2:20:53 PM	R29457
EPA METHOD 200.7: DISSOLVED MET	ALS					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	Л 21848

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

- * 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/30/2015

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary RO RejectCollection Date: 10/7/2015 8:55:00 AMLab ID:1510416-001Matrix: AQUEOUSReceived Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL Qu	al 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	
Aroclor 1221	ND	1.0	μg/L	1 10/15/2015 2:28:06 AM	-
Aroclor 1232	ND	1.0	μg/L	1 10/15/2015 2:28:06 AM	
Aroclor 1242	ND	1.0	μg/L	1 10/15/2015 2:28:06 AM	
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 RA	NGE			Analyst:	ТОМ
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 RA	ANGE			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.

- * 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
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O. Reject

Project:Monthly Temporary RO RejectCollection Date: 10/7/2015 8:55:00 AMLab ID:1510416-001Matrix: AQUEOUSReceived Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analysi	: 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.

- * 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 Page 3 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

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 Qu	ıal 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.

- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al 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.

- * 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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

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 PBW Client ID: 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 ND 0.0060 Chromium 0.0060 Cobalt ND Copper ND 0.0060 Iron ND 0.020 Manganese ND 0.0020 Nickel 0.010 0.0050 Silver ND

Sample ID LCS-C	Samp	Type: LC	s	Tes	tCode: E	PA Method	d 200.7: Dissolved Metals				
Client ID: LCSW	Bato	h ID: C2	9542	F	RunNo: 2	9542					
Prep Date:	Analysis I	Date: 10	0/14/2015	5	SeqNo: 8	98766	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 LLLCS-C	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Disso	lved Metal	ls	
Client ID: BatchQC	Bato	ch ID: C2	9542	R	RunNo: 2	9542				
Prep Date:	Analysis	Date: 10	0/14/2015	S	SeqNo: 8	98767	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

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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: **1510416**

30-Oct-15

Project:		thly Temporar		eject							
Sample ID	MB-C	Samp	Туре: МЕ	BLK	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID:	PBW	Bato	h ID: C2	9574	F	RunNo: 2	9574				
Prep Date:		Analysis I	Date: 10	0/15/2015	5	SeqNo: 9	00085	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	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID:	LCSW	Bato	h ID: C2	9574	F	RunNo: 2	9574				
Prep Date:		Analysis I	Date: 10	0/15/2015	9	SeqNo: 9	00086	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	LLLCS-C	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID:	BatchQC	Bato	h ID: C2	9574	F	RunNo: 2	9574				
Prep Date:		Analysis I	Date: 10	0/15/2015	9	SeqNo: 9	00087	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	МВ-В	Samp	Туре: МЕ	BLK	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	s	
Client ID:	PBW	Bato	h ID: B2	9618	F	RunNo: 2	9618				
Prep Date:		Analysis I	Date: 10	0/16/2015	\$	SeqNo: 9	01616	Units: mg/L			
		D 1		CDK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte		Result	PQL	SPK value	Of It Itol Val						
Zinc		Result ND	PQL 0.010	SPK value	Of It Itel var						
<u> </u>	LCS-B	ND					PA Method	200.7: Dissol	ved Metal	s	
Zinc		ND Samp	0.010	s	Tes			200.7: Dissol	ved Metal	s	
Zinc Sample ID	LCSW	ND Samp	0.010 Type: LC th ID: B2	:S !9618	Tes F	tCode: El	9618	200.7: Dissol Units: mg/L	ved Metal	s	
Zinc Sample ID Client ID:	LCSW	ND Samp	0.010 Type: LC th ID: B2	es 19618 10/16/2015	Tes F	tCode: EI RunNo: 2 9 SeqNo: 9 0	9618 01617		ved Metal	RPDLimit	Qual

Qualifiers:

Zinc

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

0.46

0.010

0.5000

- 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

115

E Value above quantitation range

91.1

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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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.
- 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: N	lavajo Refining Company
Project: M	Ionthly Temporary RO Reject

Sample ID LCS	Samp	Type: LC	s	Tes	tCode: El	PA 200.8:	Dissolved Met	als		
Client ID: LCSW	Batch ID: B29683			F	RunNo: 29683					
Prep Date:	Analysis	Date: 10)/20/2015	8	SeqNo: 9	03929	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 LLLCS	SampType	LCSLL	Tes	tCode: El	PA 200.8: I	Dissolved Met	als		
Client ID: BatchQC	Batch ID:	B29683	F	RunNo: 2	9683				
Prep Date:	Analysis Date:	10/20/2015	5	SeqNo: 9	03932	Units: mg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND 0.0	0.001000	0	96.3	50	150			_
Lead	0.00051 0.00	0.0005000	0	102	50	150			
Selenium	ND 0.0	0.001000	0	88.7	50	150			
Uranium	ND 0.00	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

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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

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

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Hall Environmental Analysis Laboratory, Inc.

3.5

0.20

3.500

WO#: **1510416**

30-Oct-15

Client:		•	Refining Co										
Project:		Monthly	Temporary	RO R	eject								
Sample ID	MB	SampType: MBLK			Tes	tCode: E	5						
Client ID:	PBW		Batch ID: R29414			F	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 Chloride			ND ND	0.10 0.50									
Sample ID LCS SampType: LCS					TestCode: EPA Method 300.0: Anions								
Client ID:	LCSW		Batch ID: R29414			F	RunNo: 2	9414					
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		SampT	уре: М Е	BLK	Tes	tCode: E	PA Method	6				
Client ID:	PBW		Batch	ID: R2	9666	F	RunNo: 2	9666					
Prep Date:			Analysis D	ate: 10	0/19/2015	9	SeqNo: 9	03381	Units: mg/L				
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sulfate			ND	0.50									
Nitrate+Nitrite a	s N		ND	0.20									
Sample ID LCS SampType: LCS					TestCode: EPA Method 300.0: Anions								
Client ID:	LCSW		Batch ID: R29666			F	9666						
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	<u> </u>			

Qualifiers:

Nitrate+Nitrite as N

- * 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

100

90

110

- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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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

TestCode: EPA Method 8011/504.1: EDB Sample ID LCS-21803 SampType: LCS

Client ID: LCSW Batch ID: 21803 RunNo: 29577

Units: µg/L Prep Date: 10/12/2015 Analysis Date: 10/15/2015 SeqNo: 900399

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL LowLimit HighLimit 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

%REC **PQL** SPK value SPK Ref Val HighLimit %RPD **RPDLimit** Qual Analyte Result LowLimit

1.2-Dibromoethane 0.12 0.010 0.1000

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 I owl imit 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
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range Reporting Detection Limit

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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 PBW Client ID: Batch ID: 21793 RunNo: 29489 10/12/2015 Prep Date: 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	SampT	ype: LC	s	TestCode: EPA Method 8015M/D: Diesel Range						
Client ID: LCSW	Batch	n ID: 21	793	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

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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 93.6 80 120 93.0 Surr: BFB 19 20.00 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

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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			Tes	PA Method					
Client ID: PBW	Batch ID: 21811			R	9529					
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	SampT	ype: LC	s	Tes	PA Method					
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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 100ng lcs	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch ID: R29397 RunNo: 29397			9397						
Prep Date:	Analysis D	ate: 10)/8/2015	8	SeqNo: 8	94163	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			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	ı ID: R2	9397	F	RunNo: 2	9397				
Prep Date:	Analysis D	ate: 1	0/8/2015	S	SeqNo: 8	94164	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:

Sample ID rb

- * 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

TestCode: EPA Method 8260B: VOLATILES Sample ID rb SampType: MBLK RunNo: 29397 Client ID: **PBW** Batch ID: R29397 Analysis Date: 10/8/2015 Prep Date: SeqNo: 894164 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R2	9397	F	RunNo: 2	9397				
Prep Date:	Analysis D	ate: 10	0/8/2015	8	SeqNo: 8	94164	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-21812	SampT	уре: МЕ	BLK	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: PBW	Batch	n ID: 21	812	RunNo: 29527						
Prep Date: 10/13/2015	Analysis D	oate: 10	0/14/2015	8	SeqNo: 8	98372	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	Samp	Гуре: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 21	812	RunNo: 29527						
Prep Date: 10/13/2015	Analysis [Date: 10	0/14/2015	S	SeqNo: 898374					
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

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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

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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:

- * 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

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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 PBW Client ID: Batch ID: R29838 RunNo: 29838 SeqNo: 908965 Prep Date: Analysis Date: 10/21/2015 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	SampT	уре: МЕ	BLK	Test	tCode: El	PA 903.1: R	Ra 226 and EP	A 904.0: F	Ra 228-Subbe	d
Client ID: PBW	Batch	1D: R2	9838	R	tunNo: 2	9838				
Prep Date:	Analysis D	ate: 10	0/21/2015	S	eqNo: 9	08967	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

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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

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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

RcptNo: 1 Work Order Number: 1510416 NAVAJO REFINING CO Client Name: Received by/date: 10/8/2015 9:07:00 AM Logged By: Lindsay Mangin 10/8/2015 12:52:31 PM Completed By: Lindsay Mangin Reviewed By: 0 08 15 Chain of Custody Not Present V 1. Custody seals intact on sample bottles? Yes 🗸 No . Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In No 🗌 NA . Yes V 4. Was an attempt made to cool the samples? NA 🗌 Were all samples received at a temperature of >0° C to 6.0°C Yes V No 🗌 Sample(s) in proper container(s)? No 7. Sufficient sample volume for indicated test(s)? No Yes V 8. Are samples (except VOA and ONG) properly preserved? NA 🗆 No V Yes 9. Was preservative added to bottles? No VOA Vials No _ Yes V 10. VOA vials have zero headspace? No V Yes 11. Were any sample containers received broken? # of preserved bottles checked for pH: No Yes V 12. Does paperwork match bottle labels? 2/or \$12 unless noted) (Note discrepancies on chain of custody) Adjusted? No 🗌 13. Are matrices correctly identified on Chain of Custody? No 🗌 V 14. Is it clear what analyses were requested? Checked by Yes 🗸 No L 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA V Yes __ No L 16. Was client notified of all discrepancies with this order? Date Person Notified: eMail Phone Fax In Person By Whom: Via: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Temp ℃ | Condition | Seal Intact | Seal No | Seal Date Signed By Cooler No 1.0 Good Yes

VOCs: 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethylene, 1,1,2 SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY 804.1:EDB HALL ENVIRONMENTAL Inichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Hd × Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite Dichloromethane, Ethylbenzene, Toluene, Total Xylenes, Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** × Phenols Sulfate Chloride × Radioactivity (Ra-226+Ra-228) × × **bcBs** :2808 Tel. 505-345-3975 еко, рко, око × 3108 × Mercury :0177 × × Total Cyanide 335.4 6010B: WQCC Metals × Remarks × 8270C: WQCC list SVOCs 8560B:WQCC List VOCs × 0907 Time Time HEAL No. 51/80/01 Date SN U Elizabeth Salsberry Monthly Temporary R.O. Reject Rush Preservative Project #: P.O. # 167796 3-40ml VOA Na2S203 Sample Temperature: 1 - 1L Glass | H2SO4 1 - 1L Glass unpres 1-250miGlas unpres 2 - 1L Glass unpres -unpres X Yes NaOH HN03 H2S04 HN03 HN03 2-40ml VOA HCL Turn-Around Time: 3-40ml VOA HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name Allun 2 - 500ml P X Standard Type and # Container 1-500ml P 1-500ml P 1-125ml P Received by: Received by: Sampler. 2-1LP On Ice: Relinquished by: Elizabeth Salsboary □ Level 4 (Full Validation) Temporary R.O. Reject Temporary R.O. Reject Sample Request ID Temporary R.O. Reject Chain-of-Custody Record Trip Blank Ferance of Souther Box 159 Artesia Relinquished by: email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery 8:55 liquid 8:55 liquid Phone #: 575-748-3311 liquid 8:55 liquid Mailing Address: P.O. 8.55 NM 88211-0159 Time Ja:017/15/10/10/ QAVQC Package: EDD (Type) ime Ime: X Standard □ Other 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 10/7/15 Date Date:



Samplers Name Elizabeth Salsberry
Samplers Affiliation Navajo Refining Co. LLC

Project Name Biannual RO Reject

Start Date and Time 10/7/2015 @ 8:55am End Date and Time 10/7/2015 @ 9:11am

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

Monthly

#	HOLLYFRONTIEI The HollyFrontier Companies
	工

Temporary RO Reject Sample Details	Sample Type	Grab 🗈	ed Composite	d Composite	nple Intervals One
Temp Rejec D	Sai	A CONTRACTOR OF THE PARTY OF TH	Time Weighted	Flow Weighted	Parts / Sampl

Outaily sample Location.	ct Discarge — South Held R.C. Reject Discarge

Type of Sampler | Directly to sample jars

Physical Property
Solid Liquid Liquid Sludge

				A STATE OF THE PARTY OF T	1000000	150000	00000000000000000000000000000000000000	Preservatives	ves	100	
Container	Size	Waterial	# of Containers	Neat (None)	REDIFFERENCE.	HNO3	H2SO4	N3OH	HCL HNO3 H2SO4 N3OH N32S2O3 NaHSO4	Other	Analysis and/or Method Requested
1	500ml	Plastic	2	×			×				pH, CI, F, S04, NO2/NO3, TDS
2	40ml	VOA	8		×					38	8015 GRO
3	500ml	Plastic	-			×					6020 total metals, 7470 Hg
4	125ml	Plastic	,			×					6020 Dissolved Metals
5	500ml	Plastic	2					×			Cyanide
9	11	Plastic	0			×					Radium 226/228
7	40ml	VOA	2		×						8260 see attached list
60	11	Glass		×							8270 see attached list
0	7	Glass	2	×							8082 PCBs
10	40ml	VOA	7	×							8015 DRO
11	40ml	VOA	2		×						Radium 226/228

	Storage Method	loe 🖸	Refrigerated	Other	Shipping Media	loe 🖸	Other
100	tly Cloudy	00	ď		18		
	10/7/2015 Tmp. 60.8 °F. Humidity 94%, Wind Dir. North, Wind Speed 8.1 mph. Conditions Partly Cloudy						
	beed 8.1 mph.						
	Vorth, Wind Sp						
	1%, Wind Dir. I						
	. Humidity 94						
	5 Tmp.60.8 °F						
	10/7/201			_			
	Field Data (Weather, Observations, Etc):			Field pH 22.7C			
	eather, Obse	a		8.13			
	Field Data (We	Date and Time:		Field Temp. 8.13			

Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Friday, October 30, 2015 12:44 PM

To: Chavez, Carl J, EMNRD; Griswold, Jim, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Coons, Christina (Christie); Combs, Robert; Denton, Scott

Subject: ACO Civil Penalty Payment for September 2015

Attachments: 151030 Subm' RO Reject ACO - Civil Penalty Payment.pdf

Jim & Carl,

Attached is a copy of the Civil Penalty Payment for September concerning the RO Reject.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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October 30, 2015

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail/Return Receipt 7015 0640 0006 6577 5506

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order – RO Reject September 2015 ACO – Civil Penalty Payment Navajo Refining Company, L.L.C.

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$3,000 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for September 2015 submitted electronically on October 12, 2015. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc: OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

151030 RO Reject ACO - Civil Penalty Payment

NAVAJO REFINING COMPANY, L.L.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Check Date Check Amount Vendor No Payment Document Company Code

USD

10/29/2015

3,000.00

********3,000.00*

Invoice Date	Invoice Number	Description			Invoice	Amount Di	scount Amount	Net Amount
10/28/2015	102815	STIPULATED	PENALTY	RO FLUID	DISCHAR	3,000.00	0.00	3,000.00
Payment of	document	Check number	Date		(Currency	Pa	ayment amount

10/29/2015

1 PLEASE FOLD ON PERFORATION AND DETACH HERE 1

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT: 10 THE CHECK BACKGROUND ABEAICHANGES COLOR GRADUALLY FROM TOP TO

NAVAJO REFINING COMPANY, L.L.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

1000311882

1278/611

10/29/2015

PAY EXACTLY

*********3,000.00*USD

VOID AFTER 180 DAYS

PAY

THREE THOUSAND and 00 /100 USD***

TO THE

ORDER OF STATE OF N M GENERAL FUND

DIRECTOR OIL CONSERVATION DIV

NM EMNR

1220 S ST FRANCIS DR

SANTA FE NM 87505-4225

Bank of America N.A.

Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Monday, October 12, 2015 2:52 PM

To: Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Coons, Christina (Christie); Combs, Robert; Denton, Scott

Subject: ACO Monthly Report for September 2015

Attachments: 151012 ACO Monthly Report for September 2015.pdf

Jim & Carl,

Attached it the monthly report for September concerning the RO Reject.

Please let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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October 12, 2015

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report - September 2015 Reporting Period

Dear Sirs:

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

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

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

Navajo has calculated a penalty of \$3,000 for September 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 30 days in September. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

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

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a permit modification request to Discharge Permit GW-028 for installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to improve recovery of water as part of Navajo's water conservation effort.

Navajo is also evaluating options for the underground injection of RO reject fluid.

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted a GW-028 discharge permit modification request on May 22, 2015. The requested modifications include operating a temporary RO unit at the Navajo Refinery and increasing the total maximum volume of RO reject fluids that can be applied to the surface of Navajo's discharge fields from approximately 10,000 bbl/day to approximately 20,000 bbl/day calculated on a rolling 12-month average. Navajo submitted an *Evaluation of Groundwater Quality – RO Reject Fields* memo on August 27, 2015, and the *Background Groundwater Investigation Report* on September 2, 2015, in support of this modification request.

OCD notified Navajo that the application for the requested permit modification is administratively complete by letter dated July 1, 2015. Navajo submitted proof of completion of the public notice, including an affidavit of mailing and the list of property owners, proof of publication, and an affidavit of posting, to the OCD on September 3, 2015.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Reports

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units		Tempo	rary Unit	Daily Discharge Volume
	Metere	ed Data		l RO Reject (Calculated)	Disc (Calcula	O Reject harge ated from Data)	4
1	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
9/1/2015	128	119	247	8,469	45	1,546	10,015
9/2/2015	200	168	368	12,617	57	1,944	14,561
9/3/2015	109	175	284	9,737	57	1,954	11,691
9/4/2015	110	182	292	10,011	57	1,954	11,965
9/5/2015	112	179	291	9,977	60	2,054	12,031
9/6/2015	112	178	290	9,943	59	2,027	11,970
9/7/2015	115	177	292	10,011	58	1,998	12,009
9/8/2015	114	181	295	10,114	60	2,046	12,160
9/9/2015	106	171	277	9,497	61	2,104	11,601
9/10/2015	115	178	293	10,046	63	2,159	12,205
9/11/2015	113	177	290	9,943	66	2,261	12,204
9/12/2015	114	178	292	10,011	65	2,231	12,242
9/13/2015	115	180	295	10,114	68	2,328	12,442
9/14/2015	116	179	295	10,114	69	2,358	12,472
9/15/2015	115	179	294	10,080	68	2,332	12,412
9/16/2015	120	180	300	10,286	71	2,432	12,718
9/17/2015	117	175	292	10,011	65	2,243	12,254
9/18/2015	115	177	292	10,011	69	2,383	12,394
9/19/2015	111	178	289	9,909	72	2,467	12,376
9/20/2015	115	179	294	10,080	63	2,173	12,253
9/21/2015	116	174	290	9,943	49	1,680	11,623
9/22/2015	115	176	291	9,977	51	1,763	11,740
9/23/2015	120	178	298	10,217	67	2,297	12,514
9/24/2015	116	176	292	10,011	72	2,465	12,476
9/25/2015	116	177	293	10,046	91	3,124	13,170
9/26/2015	121	164	285	9,771	73	2,490	12,261
9/27/2015	125	162	287	9,840	74	2,527	12,367
9/28/2015	126	163	289	9,909	73	2,507	12,416
9/29/2015	125	102	227	7,783	94	3,223	11,006
9/30/2015	123	100	223	7,646	73	2,510	10,156

Attachment 2 Stipulated Penalty Calculation

Calculation of Stipulated Penalties - October 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	na .		
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	30	\$3,000
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	mount:	\$3,000

Attachment 3 Analytical Lab Report



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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

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-SUBBI	ED				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 SC	DLIDS					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
рН	7.89	1.68	Н	pH units	1	9/8/2015 6:24:49 PM	R28726
EPA METHOD 200.7: DISSOLVED META	ALS					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.

- * 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1509214**Date Reported: **10/6/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT:Navajo Refining CompanyClient Sample ID: Temporary R.O. RejectProject:Monthly Temporary R.O. RejectCollection Date: 9/3/2015 8:50:00 AMLab ID:1509214-001Matrix: AQUEOUSReceived Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL Qu	al Units	DF Da	ate 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	
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 RAI	NGE				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 RA	NGE				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		/8/2015 2:48:27 PM	R28707
Methylene Chloride	ND	3.0	μg/L		/8/2015 2:48:27 PM	R28707
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L		/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.

- * 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
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: 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					Analys	t: 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.

- * 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 Page 3 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

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

Company	Analyses	Result	RL Qu	ıal Units	DF	Date Analyzed	Batch
Surr: BFB 93.2 57.8-137 %REC 1 9/10/2015 1:42:19 PM R28761	EPA METHOD 8015D: GASOLINE RAM	NGE				Analyst	: NSB
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 Toluene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Rethylbenzene 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 1.2.4-Trimethylbenzene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2.2-Dichoroethane (EDC) ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dichoroethane (EDC) ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dichoroethane (EDB) 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 1.2-Dibromoethane (EDB) 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 1.2-Dibromoethane (EDB) ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dibromoethane ND 1.0 µg/L 1	Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	9/10/2015 1:42:19 PM	R28761
Benzene	Surr: BFB	93.2	57.8-137	%REC	1	9/10/2015 1:42:19 PM	R28761
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 1,3.5-Trimethylbenzene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1,2Dichloroethane (EDC) ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dichloroethane (EDB) 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 1.4-Methylnaphthalene ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.4-Methylnaphthalene 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 1.4-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 1.2-Dichloroethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1.2-Dichloroethane 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	EPA METHOD 8260B: VOLATILES					Analyst	: AG
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 1,3-5-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-Dichloroethane (EDB) ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dichloroethane (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 1-Methylnaphthalene ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Acetone ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Acetone ND 1.0 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 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 Bromodichloromethane 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 Bromodichloromethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Carbon Tetrachloride 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 Chlorobenzene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 2.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorotehane 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 Dibromomethane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Dibromomethane ND 1.0	Benzene	ND	1.0	μg/L	1	9/8/2015 3:17:15 PM	R28707
Ethylbenzene	Toluene	ND	1.0		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 1,2-Dibromoethane (EDB) ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 2.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 4.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 4.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 4.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromoethane ND 1.0	Ethylbenzene	ND	1.0		1	9/8/2015 3:17:15 PM	R28707
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1,2-Dichloroethane (EDC)	1,3,5-Trimethylbenzene	ND	1.0		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 1-Methylnaphthalene ND 4.0 µg/L 1 9/8/2015 3:17:15 PM R28707 R26707 R2	1,2-Dichloroethane (EDC)	ND	1.0		1		R28707
Naphthalene	1,2-Dibromoethane (EDB)	ND	1.0		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 Bromodichloromethane 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 Bromomethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Bromomethane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Bromomethane ND 1.0 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 disulfide 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 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 Chloroethane ND 3.0 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 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 Gis-1,2-DCE ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 2.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropropane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Dibromo-3-chloropenee ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromo-3-chloropenee ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibromo-3-chloropenee ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,3-Dibrlorobenzene ND 1.0 μg/L 1 9/8/201	Naphthalene	ND	2.0		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 Bromodichloromethane 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 Bromoform 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 2-Butanone ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Carbon disulfide ND 1.0 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-Methylnaphthalene	ND	4.0		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 Chlorothane ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chlorothane ND 1.0 µg/L 1 <td></td> <td>ND</td> <td>4.0</td> <td></td> <td>1</td> <td>9/8/2015 3:17:15 PM</td> <td>R28707</td>		ND	4.0		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 Chloroform ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Chlorofoluene ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 2-Chlorotoluene ND 1.0 μg/L		ND	10		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 Chlorobenzene 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 Chlorobenzene ND 1.0 µg/L 1 9/8/2015 3:17:15 PM R28707 Chloroboluene ND 1.0 µg/L	Bromobenzene	ND	1.0		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 1.0 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 Chlorothane ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 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	Bromodichloromethane	ND	1.0		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 Chlorobenzene 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 Chloroform ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 Chloroformethane ND 1.0 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 cis-1,3-Dichloropropene ND 1.0 μg/L	Bromoform	ND	1.0		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 Chloroform 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 Chloromethane ND 1.0 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 <	Bromomethane	ND	3.0		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 Chlorotethane 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 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 Dibromochloromethane ND 1.0 <	2-Butanone	ND	10		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 Chlorotoluene 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 4-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-1,3-Dichloropenzene ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,2-Dibloromo-3-chloropropane ND 1.0<	Carbon disulfide	ND	10		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 Chlorotoluene 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 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 1,3-Dichlorobenzene ND 1.0	Carbon Tetrachloride	ND	1.0		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 1.0 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 1,2-Dichlorobenzene ND 1.0 μg/L 1 9/8/2015 3:17:15 PM R28707 1,4-Dichlorodenzene ND	Chlorobenzene	ND	1.0		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 1.0 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 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-Dichlorodethane ND	Chloroethane	ND	2.0		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 1.0 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 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	Chloroform	ND	1.0		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 1,3-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	Chloromethane	ND	3.0		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 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	2-Chlorotoluene	ND	1.0		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	4-Chlorotoluene	ND	1.0		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	cis-1,2-DCE	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	cis-1,3-Dichloropropene	ND	1.0		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		ND	2.0	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	Dibromochloromethane	ND	1.0		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	Dibromomethane	ND	1.0	μg/L	1	9/8/2015 3:17:15 PM	R28707
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1,2-Dichlorobenzene	ND	1.0		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	1,3-Dichlorobenzene	ND	1.0		1	9/8/2015 3:17:15 PM	R28707
Dichlorodifluoromethane ND 1.0 μ g/L 1 9/8/2015 3:17:15 PM R28707 1,1-Dichloroethane ND 1.0 μ g/L 1 9/8/2015 3:17:15 PM R28707	1,4-Dichlorobenzene	ND	1.0		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	Dichlorodifluoromethane	ND	1.0		1	9/8/2015 3:17:15 PM	R28707
	1,1-Dichloroethane	ND	1.0		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.

- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: 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.

- * 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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

Sample ID LCS	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Disso	ved Meta	ed Metals			
Client ID: LCSW	Bato	h ID: B2	8759	F	RunNo: 2	8759						
Prep Date:	Analysis Date: 9/10/2015			8	SeqNo: 8	71972	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 LLLCS	pple ID LLLCS SampType: LCSLL					PA Method	200.7: Disso	lved Meta	ls	
Client ID: BatchQC	Bato	ch ID: B2	8759	F	RunNo: 2	8759				
Prep Date:	Analysis	Analysis Date: 9/10/2015			SeqNo: 8	71973	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		<u>, </u>	
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	Samp	Type: ME	BLK	Tes	tCode: El	PA Method	200.7: Dissol			
Client ID: PBW	Batch ID: B28759			F	RunNo: 2	8759				
Prep Date:	Analysis I	Date: 9/	10/2015	8	SeqNo: 8	71977	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								

Qualifiers:

Nickel

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

0.010

ND

- 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

Sample ID	1509214-001IMS	Samp	Туре: МЅ	}	Tes	tCode: El	PA Method	200.7: Disso	ved Meta	ls	
Client ID:	Temporary R.O. Rej	j Bato	h ID: B2	8759	F	RunNo: 2	8759				
Prep Date:	A	Analysis I	Date: 9/	10/2015	8	SeqNo: 8	72105	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	Sample ID 1509214-001IMSD SampType: MSD					tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	Client ID: Temporary R.O. Rej Batch ID: B28759					RunNo: 2	8759				
Prep Date:	A	Analysis I	Date: 9/	10/2015	8	SeqNo: 8	72106	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	Bato	h ID: A2	8781	R	RunNo: 28781							
Prep Date:	Analysis I	nalysis Date: 9/11/2015				72822	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 LLLCS	SampType: LCSLL				TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: A2	8781	R	tunNo: 2	8781						
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.
- 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

Sample ID LLLCS	TestCode: EPA Method 200.7: Dissolved Metals									
Client ID: BatchQC	Bato	h ID: A2	8781	RunNo: 28781						
Prep Date:	Analysis Date: 9/11/2015 Se				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: Batch ID: A28781 RunNo: 28781 Prep Date: Analysis Date: 9/11/2015 SeqNo: 872843 Units: mg/L PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Analyte Result Chromium ND 0.0060 ND 0.0060 Cobalt Molybdenum ND 0.0080 Silver ND 0.0050 ND 0.010 Zinc

Sample ID	1509214-001IMS Sa	трТуре: М	s	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID:	Temporary R.O. Rej	28781	F	RunNo: 2	8781						
Prep Date:	Analy	9	SeqNo: 873630 Uni			Units: mg/L					
Analyte	Resi	ılt PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chromium	0.4	9 0.0060	0.5000	0.006680	96.5	70	130			•	
Cobalt	0.4	0.0060	0.5000	0.006090	91.2	70	130				
Molybdenum	0.4	7 0.0080	0.5000	0	93.9	70	130				
Silver	0.07	2 0.0050	0.1000	0	71.5	70	130				
Zinc	0.5	0.010	0.5000	0.01942	97.0	70	130				

Sample ID 1509214	I-001IMSD Samp	Type: MS	SD	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: Tempor	ary R.O. Rej Bato	RunNo: 28781								
Prep Date:	ate: 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

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Client:

Project:

Hall Environmental Analysis Laboratory, Inc.

Monthly Temporary R.O. Reject

PQL

0.0010

0.0010

ND 0.00050

0.00052 0.00050 0.0005000

0.00050 0.0005000

ND

ND

0.00054

Navajo Refining Company

WO#: **1509214**

06-Oct-15

Sample ID	1509214-001IMS	Samp	туре: М \$	3	Tes	tCode: El	PA 200.8: [Dissolved Me	tals				
Client ID:	Temporary R.O. R	ej Bat	ch ID: B2	8981	RunNo: 28981								
Prep Date:		Analysis Date: 9/18/2015			S	SeqNo: 879521 U			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	Bat	ch ID: B2	8981	R	RunNo: 28981							
Prep Date:		Analysis	Date: 9/	18/2015	SeqNo: 879546 l			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					
					TestCode: EPA 200.8: Dissolved Metals								
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Me	tais				
Sample ID Client ID:	LLLCS BatchQC	·	Type: LC ch ID: B2			tCode: El tunNo: 2		Dissolved Me	tais				

Sample ID MB	SampType: MBLK			Tes	tCode: E	tals				
Client ID: PBW	Batch ID: B28981			F	RunNo: 28981					
Prep Date:	Prep Date: Analysis Date: 9/18/2015		5	SeqNo: 8	79554	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								

0

0

0

%REC

93.3

109

89.0

104

LowLimit

50

50

50

50

HighLimit

150

150

150

150

SPK value SPK Ref Val

0.001000

0.001000

Qualifiers:

Uranium

Analyte

Arsenic Lead

Selenium

Uranium

- * 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

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%RPD

RPDLimit

Qual

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

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Hall Environmental Analysis Laboratory, Inc.

Result

9.8

WO#: **1509214**

06-Oct-15

Client: Project:		Navajo Refining Co Monthly Temporary		Reject									
Sample ID	MB	SampT	уре: М	3LK	Tes	tCode: El	PA Method	300.0: Anion	s				
Client ID:	PBW	Batch	n ID: R2	8686	RunNo: 28686								
Prep Date:		Analysis D	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, Nitrat	e (As N)	ND	0.10										
Sample ID	LCS	SampT	ype: LC	s	Tes	TestCode: EPA Method 300.0: Anions							
Client ID:	LCSW	Batch	Batch ID: R28686			RunNo: 2	8686						
Prep Date:		Analysis D	Analysis Date: 9/4/2015			SeqNo: 8	69230	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, Nitrat	e (As N)	2.6	0.10	2.500	0	104	90	110					
Sample ID	МВ	SampT	уре: М	BLK	Tes	tCode: El	PA Method	300.0: Anion	s				
Client ID:	PBW	Batch	n ID: R2	8852	F	RunNo: 2	8852						
Prep Date:		Analysis D	oate: 9/	14/2015	\$	SeqNo: 8	75093	Units: mg/L					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Sulfate		ND	0.50										
Sample ID	LCS	SampT	ype: LC	s	Tes	tCode: El	PA Method	300.0: Anion	s				
Client ID:	LCSW	Batch	n ID: R2	8852	F	RunNo: 2	8852						
Prep Date:		Analysis D)ate: 9/	14/2015	9	SeqNo: 8	75094	Units: mg/L					

SPK value SPK Ref Val %REC

0

10.00

Qualifiers:

Analyte Sulfate

- * 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

LowLimit

98.4

HighLimit

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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%RPD

RPDLimit

Qual

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

	Tonuny Temporary N	t.o. Itejeet						
Sample ID MB-2118	3 SampTyp	e: MBLK	Tes	tCode: EPA Metho	d 8015M/D: Die	esel Range	9	
Client ID: PBW	Batch II	D: 21183	R	RunNo: 28717				
Prep Date: 9/8/2015	Analysis Date	e: 9/9/2015	S	SeqNo: 870900	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DR	(O) ND	1.0						
Motor Oil Range Organics (MRO) ND	5.0						
Surr: DNOP	1.0	1.000		102 72	2 136			
Sample ID LCS-2118	33 SampTyp	e: LCS	Tes	tCode: EPA Metho	d 8015M/D: Die	esel Range	е	
Client ID: LCSW	Batch ID	D: 21183	R	RunNo: 28717				
Prep Date: 9/8/2015	Analysis Date	e: 9/9/2015	S	SeqNo: 870912	Units: mg/L			
Analyte		PQL SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DR	(0) 5.1	1.0 5.000	0	102 52.4	4 154			
Surr: DNOP	0.52	0.5000		104 72	2 136			
Sample ID 1509214-	001BMS SampTyp	e: MS	Tes	tCode: EPA Metho	d 8015M/D: Die	sel Range	9	
Client ID: Tempora	ry R.O. Rej Batch II	D: 21183	R	RunNo: 28717				
Prep Date: 9/8/2015	Analysis Date	e: 9/9/2015	S	SeqNo: 870914	Units: mg/L			
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DF	(0) 6.1	1.0 5.000	0	123 41.3	3 177			
Surr: DNOP	0.61	0.5000		122 72	2 136			
Sample ID 1509214-	001BMSD SampTyp	e: MSD	Tes	tCode: EPA Metho	d 8015M/D: Die	esel Range	9	
Client ID: Tempora	ry R.O. Rej Batch ID	D: 21183	R	RunNo: 28717				
Prep Date: 9/8/2015	Analysis Date	e: 9/9/2015	S	SeqNo: 870915	Units: mg/L			
Analyte		PQL SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DR	20) 5.1	1.0 5.000	0	102 -94.0	317	18.0	22.1	
Surr: DNOP	0.54	0.5000		108 72	2 136	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

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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

20.00 90.2 Surr: BFB 18 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 98.9 80 120 57.8 Surr: BFB 19 20.00 94.5 137

TestCode: EPA Method 8015D: Gasoline Range Sample ID 1509214-001AMS SampType: MS

Client ID: Temporary R.O. Rej Batch ID: R28761 RunNo: 28761

Prep Date: Analysis Date: 9/10/2015 SeqNo: 872139 Units: mg/L

PQL SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result LowLimit HighLimit Qual 0.43 0.050 0.5000 85.6 70 130

Gasoline Range Organics (GRO) Surr: BFB 20 20.00 99.4 137 57.8

Sample ID 1509214-001AMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: Batch ID: R28761 RunNo: 28761 Temporary R.O. Rej

Analysis Date: 9/10/2015 Prep Date: 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 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
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range

Reporting Detection Limit

- J Analyte detected below quantitation limits
- P Sample pH Not In Range

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Hall Environmental Analysis Laboratory, Inc.

1.3

WO#: **1509214**

06-Oct-15

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

Sample ID MB-21192	SampT	ype: ME	BLK	K TestCode: EPA Method						
Client ID: PBW	Batch	1D: 21	192	F	RunNo: 28	8758				
Prep Date: 9/9/2015	Analysis D	ate: 9/	11/2015	S	SeqNo: 8	72597	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	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	1D: 21	192	F	RunNo: 28	8758				
Prep Date: 9/9/2015	Analysis D	ate: 9/	11/2015	5	SeqNo: 87	73603	Units: µg/L			
Prep Date: 9/9/2015 Analyte	Analysis D Result	ate: 9/ PQL		SPK Ref Val	SeqNo: 8 7	73603 LowLimit	Units: µg/L HighLimit	%RPD	RPDLimit	Qual
	•				·			%RPD	RPDLimit	Qual
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sample ID LCSD-21192	SampT	ype: LC	SD	Tes	PA Method	8082: PCB's				
Client ID: LCSS02	Batch	Batch ID: 21192 RunNo: 28758								
Prep Date: 9/9/2015	Analysis D	ate: 9/	11/2015	S	SeqNo: 8	73604	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	

52.0

20.6

151

2.500

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Surr: Tetrachloro-m-xylene

- 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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1509214**

06-Oct-15

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

Sample ID 100ng Ics	SampT	ype: LC	:S	Test	tCode: El	ATILES				
Client ID: LCSW	Batch	n ID: R2	8707	R	RunNo: 28707					
Prep Date:	Analysis D	ate: 9/	8/2015	S	SeqNo: 8	70059	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			

Client ID: PBW	Batch	ı ID: R2	28707	R	RunNo: 2	8707				
Prep Date:	Analysis D	ate: 9/	/8/2015	S	SeqNo: 8	70063	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:

Sample ID rb

- * 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

TestCode: EPA Method 8260B: VOLATILES

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

TestCode: EPA Method 8260B: VOLATILES Sample ID rb SampType: MBLK Client ID: **PBW** Batch ID: R28707 RunNo: 28707 Analysis Date: 9/8/2015 Prep Date: SeqNo: 870063 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

Sample ID rb Client ID: PBW	•	ype: ME n ID: R2			tCode: El	PA Method 8707	ATILES			
Prep Date:	Analysis D	ate: 9/	8/2015	S	SeqNo: 8	70063	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509214**

06-Oct-15

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

Sample ID MB-21193 Client ID: PBW	SampType: MBLK Batch ID: 21193				tCode: El		8310: PAHs			
Prep Date: 9/9/2015	Analysis D	ate: 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	SampT	ype: LC	s	Tes	tCode: El	8310: PAHs				
Client ID: LCSW	Batch	n ID: 21	193	R	RunNo: 2					
Prep Date: 9/9/2015	Analysis D	oate: 9/	11/2015	S	SeqNo: 8	72224	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	Samp1	Type: LC	SD							
Client ID: LCSS02	Batcl	h ID: 21	193	F	RunNo: 2	8760				
Prep Date: 9/9/2015	Analysis D	Date: 9/	11/2015	9	SeqNo: 8	72225	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

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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

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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

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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						d		
Client ID: PBW	Batch ID: R29270			RunNo: 29270								
Prep Date:	Analysis Date: 9/28/2015			S	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

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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

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Hall Environmenial 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

Work Order Number: 1509214 Client Name NAVAJO REFINING CO RcptNo: 1 Received by/date: alin Som 9/4/2015 10:20:00 AM Logged By: Celina Sessa Celin Som Completed By: Celina Sessa 9/4/2015 12:54:16 PM Reviewed By Chain of Custody Not Present ✓ No 1. Custody seals intact on sample bottles? No Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In NA 🗌 No 🗌 4. Was an attempt made to cool the samples? Yes 🗸 NA 🗌 No Were all samples received at a temperature of >0° C to 6.0°C Yes V Yes V No 🗌 Sample(s) in proper container(s)? Yes V No 7. Sufficient sample volume for indicated test(s)? No 8. Are samples (except VOA and ONG) properly preserved? No V NA 🗌 Yes 9. Was preservative added to bottles? No VOA Vials Yes V No _ 10. VOA vials have zero headspace? No V 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 for pH: Yes V 12. Does paperwork match bottle labels? or >(12)unless noted) (Note discrepancies on chain of custody) Adjusted? No . Yes V 13. Are matrices correctly identified on Chain of Custody? No 🗌 ~ 14 Is it clear what analyses were requested? No 🗌 Checked by: Yes V 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA V Yes 16. Was client notified of all discrepancies with this order? Person Notified: Date In Person By Whom: Via: eMail Phone Fax Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Seal Intact | Seal No Seal Date Cooler No Temp °C Condition Signed By 3.3 Good Yes

VOCs. 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs. benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene 804.1:EDB × ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Hd × Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachlorice; Chloroform; Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, N, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request × Phenols Sulfate Chloride Radioactivity (Ra-226+Ra-228) × × 8082: PCBs Tel. 505-345-3975 8015: GRO, DRO, ORO × × Mercury :0747 × 335.4: Total Cyanide × 6010B: WQCC Metals × 8270C: WQCC list SVOCs × 8260B:WQCC List VOCs × Time me 1509214 HEAL No -003 100 Date 8 0 Elizabeth Salsberry Monthly Temporary R.O. Reject □ Rush Preservative Project #: P.O. # 167796 3-40ml VOA Na2S2O3 Type Sample Temperature: 1 - 1L Glass | H2SO4 2 - 1L Glass unpres 1 - 1L Glass unpres 1-250mlGlasqunpres -nubles HN03 HN03 X Yes HN03 NaOH H2S04 Turn-Around Time: 3-40ml VOA HCL 2-40mil/VOA, HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name X Standard Type and # 2 - 500ml P Container 1-500ml P 1-125ml P Received by 1-500ml P Received by Sampler: ۵. On Ice: 2-1L ☐ Level 4 (Full Validation) Relinquished by: Elizaboth Salsberry Sample Request ID Temporary R.O. Reject Chain-of-Custody Record Trip Blank Bis abeth abulary Mailing Address: P.O. Box 159 Artesia Relinquished by: email or Fax#, 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 liquid liguid liquid pinbi liquid liquid liquid liquid liquid liquid liquid 9/3/15 8:50 liquid pinbi NM 88211-0159 8:33 9/3/15 8:50 9/3/15 8 50 QA/QC Package: Time EDD (Type) 9/3/15 8:50 9/3/15/8:50 9/3/15 8/50 0.30 9/3/15 8:50 9/3/15 8:50 9/3/15 8:50 9/3/15 85D 9/3/15/BSD Time Time: X Standard □ Other 9/3/15 9/3/15 9.3.15 Date Date Date:



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

Monthly Temporary RO Reject Sample Details

#	LYFRONTIER
, ,	HOLLY

The HollyFrontier Companies

Sample Type	Grab 🖸	Time Weighted Composite	Flow Weighted Composite		Parts / Sample Intervals One
	Project Name Biannual RO Reject	Samplers Name Elizabeth Salsberry	Samplers Affiliation Navajo Refining Co. LLC	Start Date and Time 9/3/2015 @ 8:45	End Date and Time 8/3/2015 @ 9:05

South Field R.O. Reject Discarge

North Field R.O. Reject Discarge

Outfall / Sample Location:

				52
injoiner roberty	Solid	⊡ biupi.	ndge 🗆	pler Directly to sample jai
			S	Type of San

						Total State		Preservatives	ves			
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	HCL HNO3 H2SO4 NaOH Na2S2O3 NaHSO4	NaHSO4	Other	Analysis and/or Method Requested
,	500ml	Plastic	2	×			×					pH, Cl, F, S04, NO2/NO3, TDS
2	40ml	VOA	3		×							8015 GRO
3	500ml	Plastic	-			×						6020 total metals, 7470 Hg
4	125ml	Plastic	-			×						6020 Dissolved Metals
5	500ml	Plastic	2					×				Cyanide
9	=	Plastic	3			×						Radium 226/228
7	40ml	VOA	2		×							8260 see attached list
00	=	Glass	-	×								8270 see attached list
6	=	Glass	2	×								8082 PCBs
10	40ml	VOA	2	×								8015 DRO
11	40ml	VOA	2		×							Radium 226/228

Field Data (Masther Observations Ptc):	9/3/2015 Ton 77.0 °F. Humidity 47% Wind Dir. NNW. Wind Speed 5.8 mph, Conditions Clear	Storage Meth
Date and Time:		Ice 🕙
Cate and Time.		Refrigerated
Field Temp. 26.3°C Field pH 7.70		Other
		Shipping Me
		100
		Other

Storage Method	Ce S	_ D		Shipping Media	Se 🖸	
0,	OI OI	Refrigerated	Othe		Ol Services	CHA



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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

and st

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 1509219

Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

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-SUBBE	D				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 SC	LIDS					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	Н	pH units	1	9/8/2015 6:28:53 PM	R28726
EPA METHOD 200.7: DISSOLVED META	ALS					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.

- * 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 Page 1 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1509219**Date Reported: **10/6/2015**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB				Ana	lyst: JME
1,2-Dibromoethane	ND	0.010	μg/L	1 9/9/2015 3:02:31 PI	M 21198
EPA METHOD 8082: PCB'S				Ana	lyst: 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	
Aroclor 1232	ND	1.0	μg/L	1 9/11/2015 11:45:50	
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 RAN	GE			Ana	lyst: KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1 9/9/2015 5:52:34 PI	M 21183
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1 9/9/2015 5:52:34 PI	M 21183
Surr: DNOP	115	72-136	%REC	1 9/9/2015 5:52:34 PI	M 21183
EPA METHOD 8015D: GASOLINE RAI	NGE			Ana	lyst: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1 9/10/2015 2:07:41 F	PM R28761
Surr: BFB	91.3	57.8-137	%REC	1 9/10/2015 2:07:41 F	PM R28761
EPA METHOD 8310: PAHS				Ana	lyst: SCC
Naphthalene	ND	2.0	μg/L	1 9/11/2015 8:39:09 A	M 21193
1-Methylnaphthalene	ND	2.0	μg/L	1 9/11/2015 8:39:09 A	AM 21193
2-Methylnaphthalene	ND	2.0	μg/L	1 9/11/2015 8:39:09 A	AM 21193
Benzo(a)pyrene	ND	0.070	μg/L	1 9/11/2015 8:39:09 A	AM 21193
Surr: Benzo(e)pyrene	49.1	37.2-136	%REC	1 9/11/2015 8:39:09 A	AM 21193
EPA METHOD 8260B: VOLATILES				Ana	lyst: BCN
Benzene	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
Toluene	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
Ethylbenzene	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
Carbon Tetrachloride	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
Chloroform	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
1,1-Dichloroethane	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
1,1-Dichloroethene	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
Methylene Chloride	ND	3.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 9/8/2015 8:43:58 PI	M R28705

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

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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 Page 2 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical ReportLab Order **1509219**

Date Reported: 10/6/2015

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: 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					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	9/30/2015	21585

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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 Page 3 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order 1509219

Hall Environmental Analysis Laboratory, Inc.

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 Qu	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAI	NGE				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

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- * 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 Page 4 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Analytical Report

Lab Order **1509219**Date Reported: **10/6/2015**

Hall Environmental Analysis Laboratory, Inc.

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 Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: 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.

- * 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 Page 5 of 23
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID LCS	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Disso	lved Meta	ls	
Client ID: LCSW	Bato	h ID: B2	8759	F	RunNo: 2	8759				
Prep Date:	Analysis	Date: 9/	10/2015	9	SeqNo: 8	71972	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 LLLCS	Sample ID LLLCS SampType: LCSLL			Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Bato	Batch ID: B28759			RunNo: 2	8759					
Prep Date:	Analysis	Date: 9/	10/2015	S	SeqNo: 8	71973	Units: mg/L	ı			
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	Samp	Type: ME	BLK	Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: PBW	Batch ID: B28759			R	RunNo: 28759					
Prep Date:	Analysis I	Date: 9/	10/2015	S	SeqNo: 8	71977	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								

Qualifiers:

Iron Nickel

Silver

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

ND

ND

ND

0.020

0.010

0.0050

- 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

Page 6 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID LCS	SampType: LCS			Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: A28781			F	RunNo: 28781						
Prep Date:	Analysis Date: 9/11/2015			9	SeqNo: 872822						
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 LLLCS	SampT	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: A28781			R	RunNo: 28781					
Prep Date:	Analysis D	ate: 9/	11/2015	S	SeqNo: 8	72823	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	SampTy	/pe: MB	BLK	Test	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: PBW	Batch	ID: A2 8	8781	R	RunNo: 2	8781				
Prep Date:	Analysis Da	ate: 9/ 1	11/2015	S	SeqNo: 8	72843	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								

Chromium	ND	0.0060
Cobalt	ND	0.0060
Manganese	ND	0.0020
Molybdenum	ND	0.0080
Zinc	ND	0.010

Sample ID 1509219-001IMS	Samp	SampType: MS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: R.O. Reject	Bato	Batch ID: A28781			RunNo: 28781						
Prep Date:	Analysis	Date: 9/	11/2015	9	SeqNo: 8	73693	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID 1509219-001IMSD	Samp	Туре: М	SD.	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: R.O. Reject	Bato	ch ID: A2	8781	R	RunNo: 2	8781					
Prep Date:	Analysis	Date: 9/	11/2015	S	SeqNo: 8	73697	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID LCS	Samp	SampType: LCS			tCode: El					
Client ID: LCSW	Bat	Batch ID: D28981			RunNo: 28981					
Prep Date:	Analysis	Date: 9/	18/2015	S	SeqNo: 8	79547	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 LLLCS	SampTyp	e: LCSL I	L	Test	TestCode: EPA 200.8: Dissolved Metals					
Client ID: BatchQC	Batch ID: D28981			R	RunNo: 28981					
Prep Date:	Analysis Date	e: 9/18/ 2	2015	S	eqNo: 87	79551	Units: mg/L			
Analyte	Result F	PQL SF	PK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND 0.	0010 0	0.001000	0	92.1	50	150			
Lead	0.00052 0.0	0050 0.0	0005000	0	104	50	150			
Selenium	ND 0.	0010 0	0.001000	0	95.2	50	150			
Uranium	ND 0.0	0050 0.0	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

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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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1509219

06-Oct-15

Client:		Navajo R	defining Co	mpany								
Project:		Monthly	R.O. Reje	ct								
Sample ID	МВ		SampT	уре: МІ	BLK	Tes	tCode: E	PA Method	300.0: Anions	s		
Client ID:	PBW		Batch	ID: R2	28686	F	RunNo: 2	8686				
Prep Date:			Analysis D	ate: 9/	/4/2015	\$	SeqNo: 8	69229	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, Nitra	te (As N)		ND	0.10								
Sample ID	LCS		SampT	ype: LC	s	Tes	tCode: E	PA Method	300.0: Anions	s		
Client ID:	LCSW		Batch	ID: R2	28686	F	RunNo: 2	8686				
Prep Date:			Analysis D	ate: 9/	/4/2015	5	SeqNo: 8	69230	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, Nitra	te (As N)		2.6	0.10	2.500	0	104	90	110			
Sample ID	МВ		SampT	уре: МІ	BLK	Tes	tCode: E	PA Method	300.0: Anions	s		
Client ID:	PBW		Batch	ID: R2	8852	F	RunNo: 2	8852				
Prep Date:			Analysis D	ate: 9/	14/2015	9	SeqNo: 8	75093	Units: mg/L			
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate			ND	0.50								
Sample ID	LCS		SampT	ype: LC	s	Tes	tCode: E	PA Method	300.0: Anions	s		
Client ID:	LCSW		Batch	ID: R2	8852	F	RunNo: 2	8852				
Prep Date:			Analysis D	ate: 9/	14/2015	5	SeqNo: 8	75094	Units: mg/L			
Analyte			Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

10.00

Qualifiers:

Sulfate

- Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

9.8

0.50

- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

98.4

- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- Reporting Detection Limit

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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

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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 1.000 102 72 1.0 136

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

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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 98.9 80 120 94.5 Surr: BFB 19 20.00 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID MB-21192	SampT	ype: M	BLK	TestCode: EPA Method 8082: PCB's							
Client ID: PBW	Batch	n ID: 21	192	F	RunNo: 2	8758					
Prep Date: 9/9/2015	Analysis D	oate: 9/	/11/2015	9	SeqNo: 8	72597	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	SampT	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's	<u> </u>	·	·	
Client ID: LCSW	Batch	n ID: 21	192	F	RunNo: 2	8758					
				_							

Sample ID LCS-21192	Sampi	ype: LC	S	res	(Code: El	A Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 21	192	R	RunNo: 2	8758				
Prep Date: 9/9/2015	te: 9/9/2015 Analysis Date: 9/11/2015				SeqNo: 8	73603				
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			Tes	tCode: E	PA Method				
Client ID: LCSS02	Batc	h ID: 21	192	F	RunNo: 2	8758				
Prep Date: 9/9/2015	Analysis Date: 9/11/2015			9	SeqNo: 8	73604	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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

Batch ID: R28705

WO#: **1509219**

06-Oct-15

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

Sample ID 100ng Ics	SampT	ype: LC	S	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch	n ID: R2	8705	F	RunNo: 2	8705				
Prep Date:	Analysis D	Analysis Date: 9/8/2015			SeqNo: 8	70016	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			

TestCode: EPA Method 8260B: VOLATILES

RunNo: 28705

Prep Date:	Analysis D	ate: 9/	8/2015	S	SeqNo: 8	70017	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:

Sample ID rb

Client ID: PBW

- * 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

TestCode: EPA Method 8260B: VOLATILES Sample ID rb SampType: MBLK Client ID: **PBW** Batch ID: R28705 RunNo: 28705 Analysis Date: 9/8/2015 Prep Date: SeqNo: 870017 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 4-Chlorotoluene ND 1.0 ND cis-1,2-DCE 1.0 ND cis-1,3-Dichloropropene 1.0 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 Dibromomethane ND 1.0 1,2-Dichlorobenzene ND 1.0 ND 1,3-Dichlorobenzene 1.0 1,4-Dichlorobenzene ND 1.0 ND Dichlorodifluoromethane 1.0 1,1-Dichloroethane ND 1.0 ND 1,1-Dichloroethene 1.0 1,2-Dichloropropane ND 1.0 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 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 ND 1.0 Styrene 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 ND trans-1,2-DCE 1.0 ND 1.0 trans-1,3-Dichloropropene 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 ND Trichloroethene (TCE) 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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID rb Client ID: PBW Prep Date:	•	ype: ME n ID: R2 Date: 9 /		F	tCode: El RunNo: 2 SeqNo: 8	8705	8260B: VOL . Units: μ g/L	ATILES		
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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID MB-21193 Client ID: PBW	SampType: MBLK Batch ID: 21193				tCode: El	PA Method 8760				
Prep Date: 9/9/2015	Analysis D	Analysis Date: 9/11/2015			SeqNo: 8	72124	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	SampT	ype: LC	s	Tes	tCode: El					
Client ID: LCSW	Batch	n ID: 21 ′	193	R	RunNo: 2	8760				
Prep Date: 9/9/2015	Analysis D	ate: 9/	11/2015	S	SeqNo: 8	72224				
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	SampT	Type: LC	SD	8310: PAHs						
Client ID: LCSS02	Batcl	h ID: 21	193	F	RunNo: 2	8760				
Prep Date: 9/9/2015	Analysis D	Date: 9/	11/2015	8	72225					
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

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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

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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

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1509219**

06-Oct-15

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

Sample ID MB-R29271	SampT	ype: ME	BLK	Tes	tCode: El	PA 903.1: R	a 226 and EP	A 904.0: F	Ra 228-Subbe	d
Client ID: PBW	Batch	n ID: R2	9271	R	RunNo: 2	9271				
Prep Date:	Analysis D	ate: 9/	28/2015	S	SeqNo: 8	89332	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

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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

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Hall Eavironmental 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

RoptNo: 1 Work Order Number: 1509219 NAVAJO REFINING CO Client Name: 09/04/15 Received by/date: Celin Som 9/4/2015 10:20:00 AM Celina Sessa Logged By: 9/4/2015 1:36:01 PM Completed By: Celina Sessa oglouli5 Reviewed By: Chain of Custody Not Present V 1. Custody seals intact on sample bottles? Not Present No 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In Yes V No 🗌 NA . 4. Was an attempt made to cool the samples? No 🗌 NA Were all samples received at a temperature of >0° C to 6.0°C Yes V Yes V No _ Sample(s) in proper container(s)? Yes V 7 Sufficient sample volume for indicated test(s)? Yes 8. Are samples (except VOA and ONG) properly preserved? NA 🗌 Yes No V 9. Was preservative added to bottles? Yes V No VOA Vials No 10. VOA vials have zero headspace? No V Yes 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 for pH: Yes V 12. Does paperwork match bottle labels? 2 unless noted) (Note discrepancies on chain of custody) Adjusted³ No 🗌 13. Are matrices correctly identified on Chain of Custody? No 🗌 14. Is it clear what analyses were requested? Checked by No . Yes V 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes NA V No L 16. Was client notified of all discrepancies with this order? Person Notified: Date Phone Fax Via: eMail By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition Seal Intact Seal No Seal Date Signed By 3.3 Good

Air Dubbloc (V or NI) VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs: benzo(a)pyrene, phenol. 1-methyinaphthalene, 2-methyinaphthalene, naphthalene × ANALYSIS LABORATORY 604.1:EDB HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Hd × Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Total Dissolved Solids Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Vitrate/Nitrite Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request Phenols Sulfate Chloride × Radioactivity (Ra-226+Ra-228) × **b**CBs :2808 × Tel. 505-345-3975 еко, рко, око 3108 × × Mercury 0147 × 335.4: Total Cyanide × 6010B: WQCC Metals × 8270C: WQCC list SVOCs × 8560B:WQCC List VOCs × 509219 Time 1000 HEAL No. 100 Date MAIN S U Elizabeth Salsberry □ Rush Preservative Project #: P.O. # 167796 3-40ml VOA Na2S2O3 Type Sample Temperature: 1 - 1L Glass | H2SO4 1 - 1L Glass unpres 1-250mlGlastunpres HN03 2 - 1L Glass unpres HN03 X Yes -unpres HN03 NaOH Monthly R.O. Reject H2S04 3-40ml VOA HCL Tum-Around Time 2-40ml VOA HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name X Standard Type and # 2 - 500ml P Container 1-500ml P Received by: 1-125ml P 1-500ml P Received by Sampler: 2-1L P On Ice: □ Level 4 (Full Validation) Relinquished by. Elitabeth Salsbern Sample Request ID Chain-of-Custody Record R.O. Reject Trip Blank Brown Solm Mailing Address: P.O. Box 159 Artesia, Relinquished by: email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 liquid NM 88211-0159 Time 10,33 QA/QC Package: EDD (Type) 9/3/15 9: 10 9/3/15 9:10 9/3/15 9:10 9/3/15 9:10 9/3/15 9:10 9/3/15 9:10 9/3/15 9:10 9/3/15 9:10 9/3/15 9:10 Time: 9/3/15 9:10 Time 9/3/15 0:10 9/3/15 9:10 X Standard Other 9/3/15 Date 9315 Date: Date:



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

Monthly RO

	IER
11	TNO
+	YFRC
	HOLL

				_		_
MOTHER NO.	Reject Sample	Details	Attachment	Sample Type	Grab 🖸	e Weighted Composite

LLYFRONTIER	The HollyFrontier Companies	Physical Property	Solid	Liquid 🗵	Sludge

	South Field R.O. Reject Discarge	☐ North Field R.O. Reject Discarge	Outfall / Sample Location:
		The second secon	
Type of Sampler Directly to sample jars	rts / Sample Intervals One	Parl	End Date and Time 8/3/2015 @ 9:20
		9	Start Date and Time 9/3/2015 @ 9.06
Sindge	Weighted Composite	Co. LLC	Samplers Affiliation Navajo Refining Co. LLC
Liquid	Weighted Composite	Tme V	Samplers Name Elizabeth Salsberry
Solid	Grab S	ject	Project Name Biannual RO Reject

				To the same of the	1			Preservatives	ves			
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	HCL HNO3 H2SO4	NaOH	Na2S203	NaOH Na2S2O3 NaHSO4	Other	Analysis and/or Method Requested
Ser. Land	-	Plastic	2									pH, Cl, F, S04, NO2/NO3, TDS
2	40ml	VOA	6		×							8015 GRO
3	500ml	Plastic	-			×						6020 total metals, 7470 Hg
4	125ml	Plastic	-			×						6020 Dissolved Metals
5	500ml	Plastic	2					×			-0	Cyanide
9	11	Plastic	8			×						Radium 226/228
7	40ml	VOA	2		×							8260 see attached list
80	7	Glass	-	×								8270 see attached list
o	1	Glass	2	×								8082 PCBs
10	40ml	VOA	2	×								8015 DRO
**	1000	VOV	c		>							Radium 226/228

Field Data (Weather, Observations, Etc):	9/3/2015 Tmp, 78.8 °F. Humidity 44%, Wind Dir. North, Wind Speed 8.1 mph, Conditions Clear	Storage Metho
		Refrigerated
Field pH 7.72		Other
		Shipping Me
		loe loe
		Other



September 15, 2015

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report – August 2015 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's September 2015 monthly report, for the period of August 1-31, under the Order.

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from August 1 through August 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from August 1 through August 31.

Navajo has calculated a penalty of \$3,100 for August 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 31 days in August. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

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

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Options under consideration include the installation of a third permanent RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced. Navajo is also evaluating options for the underground injection of RO reject fluid. In addition, Navajo has conducted a study of background groundwater concentrations of key chemical constituents of the RO reject fluid discharged under its groundwater discharge permit to determine whether concentrations of these constituents exceed background levels. Navajo submitted the associated background groundwater concentration report to OCD on September 2, 2015.

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

Navajo has completed the public notice requirements set forth in 20.6.2.3108B New Mexico Administrative Code (NMAC) regarding public notice of the permit modification request. Mailings were sent to adjacent landowners within a 1/3 mile radius of the property, signs have been posted near the discharge location (Richey Avenue) and at the Refinery offices, and the notice has been published in the *Artesia Daily Press*. Navajo submitted proof of completion of the public notice, including an affidavit of mailing and the list of property owners, proof of publication, and an affidavit of posting, to the OCD on September 3, 2015.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units			ary Unit	Daily Discharge Volume
	Metere	ed Data	j.	RO Reject Calculated)	Disch (Calculate	O Reject narge d from Log ta)	
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
8/1/2015	129	132	261	8,949	62	2,131	11,080
8/2/2015	132	107	239	8,194	63	2,160	10,354
8/3/2015	136	126	262	8,983	63	2,166	11,149
8/4/2015	134	127	261	8,949	62	2,134	11,083
8/5/2015	135	129	264	9,051	60	2,061	11,112
8/6/2015	136	126	262	8,983	59	2,033	11,016
8/7/2015	138	121	259	8,880	56	1,904	10,784
8/8/2015	137	133	270	9,257	45	1,539	10,796
8/9/2015	134	126	260	8,914	48	1,641	10,555
8/10/2015	137	133	270	9,257	57	1,961	11,218
8/11/2015	135	126	261	8,949	58	2,001	10,950
8/12/2015	132	121	253	8,674	49	1,680	10,354
8/13/2015	143	128	271	9,291	56	1,906	11,197
8/14/2015	135	120	255	8,743	58	1,993	10,736
8/15/2015	143	131	274	9,394	48	1,659	11,053
8/16/2015	134	130	264	9,051	44	1,509	10,560
8/17/2015	131	130	261	8,949	47	1,601	10,550
8/18/2015	129	124	253	8,674	57	1,960	10,634
8/19/2015	134	129	263	9,017	56	1,928	10,945
8/20/2015	134	129	263	9,017	56	1,935	10,952
8/21/2015	134	121	255	8,743	56	1,928	10,671
8/22/2015	132	131	263	9,017	57	1,948	10,965
8/23/2015	135	129	264	9,051	57	1,966	11,017
8/24/2015	136	131	267	9,154	58	1,979	11,133
8/25/2015	131	124	255	8,743	57	1,939	10,682
8/26/2015	130	128	258	8,846	56	1,924	10,770
8/27/2015	128	118	246	8,434	57	1,941	10,375
8/28/2015	129	128	257	8,811	52	1,775	10,586
8/29/2015	118	127	245	8,400	47	1,624	10,024
8/30/2015	132	129	261	8,949	48	1,648	10,597
8/31/2015	131	125	256	8,777	55	1,885	10,662

Attachment 2 Stipulated Penalty Calculation

Calculation of Stipulated Penalties - August 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			-
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	31	\$3,100
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	Amount:	\$3,100

Attachment 3 Analytical Lab Report



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

August 26, 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.: 1508063

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/4/2015 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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project:

Monthly Temporary R.O. Reject

Collection Date: 8/3/2015 9:30:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: DBD
Arsenic	ND	0.0050		mg/L	5	8/12/2015 8:39:59 PM	D28151
Copper	0.0037	0.0010		mg/L	1	8/19/2015 1:30:00 PM	B28323
Lead	ND	0.00050		mg/L	1	8/12/2015 8:19:49 PM	D28151
Selenium	0.0086	0.0050		mg/L	5	8/12/2015 8:39:59 PM	D28151
Uranium	0.0070	0.00050		mg/L	1	8/12/2015 8:19:49 PM	D28151
EPA 903.1: RA 226 AND EPA 904.0: F	RA 228-SUBBE	D				Analyst	SUB
Radium-226	1.27	0.620		pCi/L	1	8/18/2015	R28452
Radium-226 ±	0.644	0.620		pCi/L	1	8/18/2015	R28452
Radium-228	0.571	0.712		pCi/L	1	8/18/2015	R28452
Radium-228 ±	0.375	0.712		pCi/L	1	8/18/2015	R28452
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	3.6	0.10		mg/L	1.	8/4/2015 2:39:23 PM	R27968
Chloride	320	10		mg/L	20	8/4/2015 3:16:37 PM	R27968
Sulfate	1900	50		mg/L	100	8/14/2015 3:34:40 AM	R28192
Nitrate+Nitrite as N	1.7	1.0		mg/L	5	8/14/2015 4:24:18 AM	R28192
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst	: KS
Total Dissolved Solids	4000	20.0	*	mg/L	1	8/6/2015 5:55:00 PM	20614
EPA 335.4: TOTAL CYANIDE SUBBE	D					Analyst	: SUB
Cyanide	ND	0.0100		mg/L	1	8/12/2015	R28452
SM4500-H+B: PH						Analyst	: JRR
pH	8.04	1.68	Н	pH units	1	8/6/2015 8:07:28 PM	R28029
EPA METHOD 200.7: DISSOLVED ME	TALS					Analyst	: ELS
Aluminum	ND	0.020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Barium	0.076	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Boron	0.093	0.040		mg/L	1	8/5/2015 9:48:22 PM	R27986
Cadmium	ND	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Chromium	ND	0.0060		mg/L	1	8/5/2015 9:48:22 PM	R27986
Cobalt	ND	0.0060		mg/L	1	8/5/2015 9:48:22 PM	R27986
Iron	ND	0.020		mg/L	1	8/7/2015 2:05:37 PM	R28044
Manganese	0.0094	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Molybdenum	0.0082	0.0080		mg/L	1	8/5/2015 9:48:22 PM	R27986
Nickel	ND	0.010		mg/L	1	8/5/2015 9:48:22 PM	R27986
Silver	ND	0.0050		mg/L	1	8/5/2015 9:48:22 PM	R27986
Zinc	0.053	0.010		mg/L	1	8/6/2015 3:42:35 PM	C28013
EPA METHOD 245.1: MERCURY						Analyst	: JLF
Mercury	ND	0.00020		mg/L	1	8/7/2015 2:01:54 PM	20665

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- 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 Page 1 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 8/3/2015 9:30:00 AM

Lab ID: 1508063-001

Matrix: AQUEOUS

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RA	NGE					Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/4/2015 8:14:29 PM	R27954
Surr: BFB	99.9	70-130		%REC	1	8/4/2015 8:14:29 PM	R27954
EPA METHOD 8011/504.1: EDB						Analys	t: JME
1,2-Dibromoethane	ND	0.010		μg/L	1	8/7/2015 12:08:21 PM	20627
EPA METHOD 8082: PCB'S						Analys	t: SCC
Aroclor 1016	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1221	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1232	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1242	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1248	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1254	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1260	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Surr: Decachlorobiphenyl	92.0	44.5-110		%REC	1	8/10/2015 9:50:46 AM	20661
Surr: Tetrachloro-m-xylene	113	31.8-95.7	s	%REC	1	8/10/2015 9:50:46 AM	20661
EPA METHOD 8015M/D: DIESEL RAM	NGE					Analys	t: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/5/2015 10:39:12 PM	20617
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/5/2015 10:39:12 PM	20617
Surr: DNOP	98.5	72-136		%REC	1	8/5/2015 10:39:12 PM	20617
EPA METHOD 8310: PAHS						Analys	t: SCC
Naphthalene	ND	2.0		μg/L	1	8/10/2015 9:22:01 AM	20677
1-Methylnaphthalene	ND	2.0		μg/L	1	8/10/2015 9:22:01 AM	20677
2-Methylnaphthalene	ND	2.0		μg/L	1	8/10/2015 9:22:01 AM	20677
Benzo(a)pyrene	ND	0.070		μg/L	1	8/10/2015 9:22:01 AM	20677
Surr: Benzo(e)pyrene	48.7	37.2-136		%REC	1	8/10/2015 9:22:01 AM	20677
EPA METHOD 8260B: VOLATILES						Analys	t: BCN
Benzene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Toluene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Ethylbenzene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,2-Dichloroethane (EDC)	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,2-Dibromoethane (EDB)	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Carbon Tetrachloride	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Chloroform	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,1-Dichloroethane	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,1-Dichloroethene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R2795
Methylene Chloride	ND	3.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952

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- 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 Page 2 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 8/3/2015 9:30:00 AM

Lab ID: 1508063-001

Matrix: AQUEOUS

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: BCN
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/4/2015 5:33:38 PM	R27952
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/4/2015 5:33:38 PM	R2795
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/4/2015 5:33:38 PM	R2795
Vinyl chloride	ND	1.0	μg/L	1	8/4/2015 5:33:38 PM	R2795
Xylenes, Total	ND	1.5	μg/L	1	8/4/2015 5:33:38 PM	R2795
Surr: 1,2-Dichloroethane-d4	100	70-130	%REC	1	8/4/2015 5:33:38 PM	R2795
Surr: 4-Bromofluorobenzene	104	70-130	%REC	1	8/4/2015 5:33:38 PM	R2795
Surr: Dibromofluoromethane	98.4	70-130	%REC	1	8/4/2015 5:33:38 PM	R2795
Surr: Toluene-d8	90.6	70-130	%REC	1	8/4/2015 5:33:38 PM	R27952
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	8/6/2015	20629

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- 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 Page 3 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Month

Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1508063-002

Matrix: TRIP BLANK

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Q	ıal Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAM	IGE				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/4/2015 8:42:06 PM	R2795
Surr: BFB	99.0	70-130	%REC	1	8/4/2015 8:42:06 PM	R2795
EPA METHOD 8260B: VOLATILES					Analys	t: BCN
Benzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Toluene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Ethylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,3,5-Trimethylbenzene	ND	1.0	μg/L	. 1	8/4/2015 6:02:20 PM	R2795
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Naphthalene	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1-Methylnaphthalene	ND	4.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
2-Methylnaphthalene	ND	4.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Acetone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromodichloromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromoform	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromomethane	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
2-Butanone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R2795
Carbon disulfide	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R2795
Carbon Tetrachloride	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chloroethane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chloroform	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chloromethane	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
2-Chlorotoluene	ND	1.0	μg/L	. 1	8/4/2015 6:02:20 PM	R2795
4-Chlorotoluene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
cis-1,2-DCE	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Dibromochloromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Dibromomethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,1-Dichloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,1-Dichloroethene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952

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

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- 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 Page 4 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject Collection Date:

Lab ID: 1508063-002 Matrix: TRIP BLANK Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: BCN
1,2-Dichloropropane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,3-Dichloropropane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
2,2-Dichloropropane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1-Dichloropropene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Hexachlorobutadiene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
2-Hexanone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R27952
Isopropylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
4-Isopropyltoluene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
4-Methyl-2-pentanone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R27952
Methylene Chloride	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
n-Butylbenzene	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
n-Propylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
sec-Butylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Styrene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
tert-Butylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
trans-1,2-DCE	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Trichlorofluoromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,3-Trichloropropane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Vinyl chloride	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Xylenes, Total	ND	1.5	μg/L	1	8/4/2015 6:02:20 PM	R27952
Surr: 1,2-Dichloroethane-d4	97.6	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: 4-Bromofluorobenzene	98.2	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: Dibromofluoromethane	95.9	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: Toluene-d8	89.0	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952

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- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits Page 5 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB	Samp	Type: ME	BLK	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Bato	Batch ID: R27986			RunNo: 27986						
Prep Date:	Analysis Date: 8/5/2015		\$	SeqNo: 842241			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									
Manganese	ND	0.0020									
Molybdenum	ND	0.0080									
lickel	ND	0.010									
Silver	ND	0.0050									

Sample ID LCS	SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals									
Client ID: LCSW	Bato	ch ID: R2	7986	. F	RunNo: 27986					
Prep Date:	Analysis	Date: 8/	5/2015	S	eqNo: 8	42242	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	104	85	115			
Barium	0.49	0.0020	0.5000	0	98.4	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.2	85	115			
Chromium	0.49	0.0060	0.5000	0	98.1	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.6	85	115			
Manganese	0.48	0.0020	0.5000	0	95.6	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Silver	0.10	0.0050	0.1000	0	99.7	85	115			

Sample ID LLLCS	Samp	Type: LC	SLL	Tes	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Bato	h ID: R2	7986	, Е	RunNo: 27986							
Prep Date:	Analysis	Analysis Date: 8/5/2015			SeqNo: 842243			Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Aluminum	ND	0.020	0.01000	0	115	50	150					
Barium	ND	0.0020	0.002000	. 0	85.0	50	150					
Boron	ND	0.040	0.04000	0	97.3	50	150					
Cadmium	ND	0.0020	0.002000	0	95.5	50	150					
Chromium	0.0062	0.0060	0.006000	0	104	50	150					
Cobalt	ND	0.0060	0.006000	0	99.3	50	150					
Manganese	0.0026	0.0020	0.002000	0	131	50	150					
Molybdenum	0.0087	0.0080	0.008000	0	109	50	150					

Qualifiers:

- Value exceeds Maximum Contaminant Level.
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- 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

Page 6 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID LLLCS	Samp	Гуре: LC	SLL	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: R27986 RunNo: 27986				7986						
Prep Date:	Analysis [Date: 8/	5/2015	SeqNo: 842243 Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nickel	ND	0.010	0.005000	0	93.4	50	150				
Silver	ND	0.0050	0.005000	0	93.8	50	150				

Sample iD MB	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	200.7: Disso	ved Meta	ls	
Client ID: PBW	Bato	h ID: R2	7986	F	RunNo: 2	7986				
Prep Date:	Analysis I	Date: 8/	5/2015	8	SeqNo: 8	42244	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								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

e ID LCS SampType: LCS					TestCode: EPA Method 200.7: Dissolved Metals							
Batch ID: R27986 Analysis Date: 8/5/2015			F	RunNo: 27986								
			8	SeqNo: 842245			Units: mg/L					
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
0.52	0.020	0.5000	0	103	85	115						
0.50	0.0020	0.5000	0	99.0	85	115						
0.51	0.040	0.5000	0	103	85	115						
0.50	0.0020	0.5000	0	99.2	85	115						
0.49	0.0060	0.5000	0	98.2	85	115			•			
0.47	0.0060	0.5000	0	94.6	85	115						
0.48	0.0020	0.5000	0	96.3	85	115						
0.51	0.0080	0.5000	. 0	103	85	115						
0.47	0.010	0.5000	0	94.8	85	115						
0.10	0.0050	0.1000	0	100	85	115						
	Result 0.52 0.50 0.51 0.50 0.49 0.47 0.48 0.51 0.47	Batch ID: R2 Analysis Date: 8/ Result PQL 0.52 0.020 0.50 0.0020 0.51 0.040 0.50 0.0020 0.49 0.0060 0.47 0.0060 0.48 0.0020 0.51 0.0080 0.47 0.010	Analysis Date: 8/5/2015 Result PQL SPK value 0.52 0.020 0.5000 0.50 0.0020 0.5000 0.51 0.040 0.5000 0.50 0.0020 0.5000 0.49 0.0060 0.5000 0.47 0.0060 0.5000 0.51 0.0080 0.5000 0.47 0.0080 0.5000 0.47 0.010 0.5000	Batch ID: R27986 F Analysis Date: 8/5/2015 S Result PQL SPK value SPK Ref Val 0.52 0.020 0.5000 0 0.50 0.0020 0.5000 0 0.51 0.040 0.5000 0 0.50 0.0020 0.5000 0 0.49 0.0060 0.5000 0 0.47 0.0060 0.5000 0 0.48 0.0020 0.5000 0 0.51 0.0080 0.5000 0 0.51 0.0080 0.5000 0 0.47 0.010 0.5000 0	Batch ID: R27986 RunNo: 2 Analysis Date: 8/5/2015 SeqNo: 8 Result PQL SPK value SPK Ref Val %REC 0.52 0.020 0.5000 0 103 0.50 0.0020 0.5000 0 99.0 0.51 0.040 0.5000 0 99.2 0.49 0.0060 0.5000 0 98.2 0.47 0.0060 0.5000 0 94.6 0.48 0.0020 0.5000 0 96.3 0.51 0.0080 0.5000 0 103 0.47 0.010 0.5000 0 94.8	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842245 Result PQL SPK value SPK Ref Val %REC LowLimit 0.52 0.020 0.5000 0 103 85 0.50 0.0020 0.5000 0 99.0 85 0.51 0.040 0.5000 0 103 85 0.50 0.0020 0.5000 0 99.2 85 0.49 0.0060 0.5000 0 98.2 85 0.47 0.0060 0.5000 0 94.6 85 0.48 0.0020 0.5000 0 96.3 85 0.51 0.0080 0.5000 0 103 85 0.51 0.0080 0.5000 0 94.8 85	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842245 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 0.52 0.020 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 103 85 115 0.51 0.040 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.2 85 115 0.49 0.0060 0.5000 0 98.2 85 115 0.47 0.0060 0.5000 0 94.6 85 115 0.48 0.0020 0.5000 0 96.3 85 115 0.51 0.0080 0.5000 0 103 85 115 0.47 0.010 0.5000 0 94.8 85 115 0.47 0.010 0.5000<	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842245 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 0.52 0.020 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.0 85 115 0.51 0.040 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.2 85 115 0.49 0.0060 0.5000 0 98.2 85 115 0.47 0.0060 0.5000 0 94.6 85 115 0.48 0.0020 0.5000 0 96.3 85 115 0.51 0.0080 0.5000 0 103 85 115 0.47 0.010 0.5000 0 94.8 85 115 0.47 0.010 </td <td>Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842245 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 0.52 0.020 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.0 85 115 0.51 0.040 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.2 85 115 0.49 0.0060 0.5000 0 98.2 85 115 0.47 0.0060 0.5000 0 94.6 85 115 0.48 0.0020 0.5000 0 96.3 85 115 0.51 0.0080 0.5000 0 103 85 115 0.51 0.0080 0.5000 0 94.8 85 115 0.47 0.010 0.5000 0 94.8 85 115 <</td>	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842245 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 0.52 0.020 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.0 85 115 0.51 0.040 0.5000 0 103 85 115 0.50 0.0020 0.5000 0 99.2 85 115 0.49 0.0060 0.5000 0 98.2 85 115 0.47 0.0060 0.5000 0 94.6 85 115 0.48 0.0020 0.5000 0 96.3 85 115 0.51 0.0080 0.5000 0 103 85 115 0.51 0.0080 0.5000 0 94.8 85 115 0.47 0.010 0.5000 0 94.8 85 115 <			

Sample ID LLLCS	SampType: LCSLL	TestCode: EPA Method 200.7: Dis	solved Metals
Client ID: BatchQC	Batch ID: R27986	RunNo: 27986	
Prep Date:	Analysis Date: 8/5/2015	SeqNo: 842246 Units: m	g/L
Analyte	Result PQL SPK value S	PK Ref Val %REC LowLimit HighLimi	t %RPD RPDLimit Qual

- * 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
- Page 7 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

		iy i cilipotat	<i>J</i>								
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Bato	h ID: R2	7986	F	RunNo: 2	7986				
Prep Date:		Analysis I	Date: 8/	5/2015	S	SeqNo: 842246					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020	0.01000	0	112	50	150			
Barium		ND	0.0020	0.002000	0	98.5	50	150			
Boron		ND	0.040	0.04000	0	99.7	50	150			
Cadmium		ND	0.0020	0.002000	0	77.5	50	150			
Chromium		0.0062	0.0060	0.006000	0	103	50	150			
Cobalt		ND	0.0060	0.006000	0	99.8	50	150			
Manganese		0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum		0.0093	0.0080	0.008000	0	116	50	150			
Nickel		ND	0.010	0.005000	0	97.4	50	150			
Silver		ND	0.0050	0.005000	0	95.4	50	150			
Sample ID	МВ	Samp	Туре: МЕ	BLK	TestCode: EPA Method 200.7: Dissolved Met					ls	
Client ID:	PBW	Bato	Batch ID: C28013			RunNo: 2	8013				
Prep Date:		Analysis l	Date: 8/	6/2015	8	SeqNo: 8	43253	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc		ND	0.010								
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	LCSW	Bato	h ID: C2	8013	RunNo: 28013						
Prep Date:		Analysis l	Date: 8/	6/2015		SeqNo: 8	43254	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc		0.50	0.010	0.5000	. 0	101	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Bato	h ID: C2	8013	F	RunNo: 2	8013				
Prep Date:		Analysis i	Date: 8/	6/2015	S	SeqNo: 8	43255	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc		ND	0.010	0.005000	0	128	50	150			
Sample ID	МВ	Samp	Туре: МЕ	BLK	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Bato	h ID: R2	8044	F	Run N o: 2	8044				
Prep Date:		Analysis	Date: 8/	7/2015	5	SeqNo: 8	44435	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		ND	0.020								

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

Page 8 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

13	Sample ID:	LCS
١,	Client ID:	LCCW

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

Client ID:

Batch ID: R28044

RunNo: 28044

Prep Date: Analysis Date: 8/7/2015

SeqNo: 844436

Units: mg/L

Analyte

Result **PQL** SPK value SPK Ref Val %REC 0.51 0.020 0.5000

LowLimit 102

HighLimit %RPD Qual

Iron

Sample ID LLLCS Client ID: BatchQC

SampType: LCSLL

TestCode: EPA Method 200.7: Dissolved Metals

Batch ID: R28044

RunNo: 28044

Prep Date:

Analysis Date: 8/7/2015

SeqNo: 844437

Units: mg/L

%RPD

RPDLimit

Analyte

Result

SPK value SPK Ref Val

%REC LowLimit

HighLimit

Qual

Iron

0.026

PQL 0.020 0.02000

131

50 150 **RPDLimit**

Sample ID MB Client ID: PRW

SampType: MBLK

RunNo: 28044

TestCode: EPA Method 200.7: Dissolved Metals

Prep Date:

Batch ID: R28044 Analysis Date: 8/7/2015

SeqNo: 844438

Units: mg/L

%RPD

%RPD

%RPD

Analyte

Result **PQL** SPK value SPK Ref Val

%REC LowLimit

HighLimit

RPDLimit Qual

Iron

ND 0.020

TestCode: EPA Method 200.7: Dissolved Metals

RunNo: 28044

LowLimit

Client ID: Prep Date:

Sample ID LCS

Batch ID: R28044 Analysis Date: 8/7/2015

SampType: LCS

%REC

Analyte

SeqNo: 844439

Units: mg/L HighLimit

RPDLimit Qual

Iron

LCSW

0.49 0.020

POL

TestCode: EPA Method 200.7: Dissolved Metals

Client ID:

Prep Date:

Analyte

BatchQC

Sample ID LLLCS

SampType: LCSLL

Analysis Date: 8/7/2015

Batch ID: R28044

RunNo: 28044

SeqNo: 844440

Units: ma/L

RPDLimit Qual

Iron

Result 0.020

Result

PQL SPK value SPK Ref Val 0.020 0.02000

SPK value SPK Ref Val

0.5000

%REC 101

LowLimit

HighLimit

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Not Detected at the Reporting Limit ND R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix

Holding times for preparation or analysis exceeded

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:	1	Monthly Tempora	ry R.O. I	Reject	<u> </u>						
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: El	PA 200.8: [Dissolved Met	als		
Client ID:	LCSW	Bat	ch ID: D2	8151	F	RunNo: 28151					
Prep Date:		Analysis	Date: 8/	12/2015	s	SeqNo: 8	48117	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	97.0	85	115			
Lead		0.012	0.00050	0.01250	0	99.4	85	115			
Selenium		0.025	0.0010	0.02500	0	99.7	85	115			
Uranium		0.012	0.00050	0.01250	0	98.6	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Me	als		
Client ID:	BatchQC	Bat	ch ID: D2	8151	F	RunNo: 2	8151				
Prep Date:		Analysis	Date: 8/	12/2015	S	SeqNo: 8	48119	Units: mg/L			
Analyte	waren	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.0010	0.0010	0.001000	0	104	50	150			
Lead			0.00050		0	105	50	150			
Selenium		0.0010	0.0010	0.001000	0	105	50	150			
Uranium		0.00053	0.00050	0.0005000	0	105	50	150	-		
Sample ID	МВ	Samp	Туре: М	BL'K	TestCode: EPA 200.8: Dissolved Metals						
Client ID:	PBW	Bat	ch ID: D2	8151	RunNo: 28151						
Prep Date:		Analysis	Date: 8/	12/2015	S	SeqNo: 8	48122	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	ens.							
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: El	PA 200.8: [Dissolved Met	als		
Client ID:	LCSW	Bat	ch ID: B2	8323	R	RunNo: 2	8323				
Prep Date:		Analysis	Date: 8/	19/2015	S	SeqNo: 8	55090	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		0.024	0.0010	0.02500	0	95.4	85	115			
Sample ID	LLLCS	Samp	Туре: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Met	als		
Client ID:	BatchQC	Bat	ch ID: B2	8323	· F	RunNo: 2	8323				
Prep Date:		Analysis	Date: 8/	19/2015	s	SeqNo: 8	55092	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		ND	0.0010	0.001000	0	91.5	50	150			

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
- Analyte detected below quantitation limits
- Page 10 of 25

- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW

Batch ID: **B28323**

RunNo: 28323

Prep Date:

Analysis Date: 8/19/2015

SeqNo: 855094

Units: mg/L

Analyte

Result PQL SPK

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD RPDLimit

Qual

Copper

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

Page 11 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20665

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID:

PBW

Batch ID: 20665

RunNo: 28038

Prep Date: 8/7/2015

Analysis Date: 8/7/2015

SeqNo: 844199

SPK value SPK Ref Val %REC LowLimit

Units: mg/L HighLimit

%RPD

%RPD

RPDLimit

Qual

Analyte Mercury

ND 0.00020

Sample ID LCS-20665

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Prep Date: 8/7/2015 Batch ID: 20665

RunNo: 28038

SeqNo: 844200

Units: mg/L

RPDLimit Qual

Analyte

PQL

SPK value SPK Ref Val

%REC

HighLimit

Mercury

0.0050 0.00020 0.005000

Analysis Date: 8/7/2015

99.8

120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank В

E Value above quantitation range

J Analyte detected below quantitation limits Page 12 of 25

Sample pH Not In Range

RLReporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID 1508063-001EMS

SampType: MS

TestCode: EPA Method 300.0: Anions

75.3

75.3

Client ID:

Temporary R.O. Rej

Batch ID: R27968

RunNo: 27968

Prep Date:

Analysis Date: 8/4/2015

SeqNo: 841509

Units: mg/L

Analyte

Result **PQL**

SPK value SPK Ref Val

Fluoride

0.10

%REC LowLimit 3.578 64.8

HighLimit %RPD

Qual s

RPDLimit

Sample ID 1508063-001EMSD

SampType: MSD

TestCode: EPA Method 300.0: Anions

Client ID: Temporary R.O. Rej

Batch ID: R27968

PQL

0.10

RunNo: 27968

Prep Date: Analyte

Fluoride

Analysis Date: 8/4/2015

Result

Result

ND

ND

3.8

SeqNo: 841510

Units: mg/L HighLimit

SPK value SPK Ref Val %REC 3.578

LowLimit

111

RPDLimit Qual

20

Sample ID MB

SampType: MBLK

0.5000

0.5000

TestCode: EPA Method 300.0: Anions

Client ID: PBW

Analysis Date: 8/5/2015

Batch ID: R27968

RunNo: 27968 SeqNo: 841566

Units: mg/L

%RPD

2.20

Analyte

Prep Date:

PQL

HighLimit

Fluoride

0.10

SPK value SPK Ref Val

0

%REC LowLimit

%RPD **RPDLimit** Qual

S

Chloride

0.50

TestCode: EPA Method 300.0: Anions

90

90

TestCode: EPA Method 300.0: Anions

Sample ID LCS

SampType: LCS

RunNo: 27968

Prep Date:

Client ID: LCSW

Batch ID: R27968 Analysis Date: 8/5/2015

HighLimit

Analyte

Result **PQL** SPK value SPK Ref Val 0.52 0.10 0.5000

SeqNo: 841567 %REC LowLimit

Units: mg/L

%RPD **RPDLimit** Qual

Fluoride Chloride

4.8 0.50 5.000

104 n 96.4

110

110

Sample ID MB

Prep Date:

Client ID: PBW

SampType: MBLK

Batch ID: R28192

RunNo: 28192

Analyte

Analysis Date: 8/13/2015

Result

ND

3.5

0

0

SeqNo: 849498

Units: mg/L

RPDLimit Qual

Sulfate

PQL 0.50 SPK value SPK Ref Val %REC LowLimit

RPDLimit

Qual

0.20

HighLimit %RPD

Nitrate+Nitrite as N

ND 0.20

TestCode: EPA Method 300.0: Anions

Sample ID LCS Client ID: LCSW

Nitrate+Nitrite as N

Prep Date:

SampType: LCS Batch ID: R28192

RunNo: 28192

99.0

101

90

90

Units: mg/L

HighLimit

110

110

Analysis Date: 8/13/2015 SeqNo: 849499 %REC Result **PQL** SPK value SPK Ref Val Low! imit 9.9 0.50 10.00

3.500

ND

R

Analyte

Sulfate

Qualifiers: Value exceeds Maximum Contaminant Level.

Not Detected at the Reporting Limit

RPD outside accepted recovery limits

- Sample Diluted Due to Matrix D
- Н Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

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

Page 13 of 25

%RPD

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20627

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW

Batch ID: 20627

RunNo: 28045

Prep Date: 8/6/2015

Analysis Date: 8/7/2015

SeqNo: 844775

Units: µg/L

Analyte

Result SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

%RPD

RPDLimit

Qual

1.2-Dibromoethane

ND 0.010

Sample ID LCS-20627

SampType: LCS

TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW

Batch ID: 20627

RunNo: 28045

Prep Date: 8/6/2015

SeqNo: 844776

Analyte

Analysis Date: 8/7/2015

Units: µg/L

RPDLimit Qual

Result **PQL**

SPK value SPK Ref Val

HighLimit

0.11

0.1000

0

1,2-Dibromoethane

0.010

110

%REC LowLimit

130

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID LCS-20617	SampT	ype: LC	S	Tes	tCode: E	PA Method	8015M/D: Die	sel Rang	e	
Client ID: LCSW	Batch	1D: 20	617	F	Run N o: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	8	SeqNo: 8	42448	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	60.1	156			
Surr: DNOP	0.52		0.5000		104	72	136			
Sample ID 1508063-001KMS	SampT	ype: MS	3	Tes	tCode: El	PA Method	8015M/D: Die	sel Rang	e	
Client ID: Temporary R.O.	Rej Batch	1D: 20	617	F	RunNo: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	S	SeqNo: 8	42451	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	116	75.9	164		*****	
Surr: DNOP	0.51		0.5000		103	72	136			
Sample ID 1508063-001KMS	SD SampT	ype: MS	SD	Tes	tCode: El	PA Method	8015M/D: Die	sel Range	8	
Client ID: Temporary R.O.	Rej Batch	1D: 20	617	F	RunNo: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	S	SeqNo: 8	42452	Units: mg/L			
	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte	Ttocalt									
Analyte Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	75.9	164	3.46	22.1	

Sample ID MB-20617	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8015M/D: Die	esel Rang	e	
Client ID: PBW	Batch	ID: 20	617	F	RunNo: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	S	SeqNo: 8	42468	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	0.95		1.000		95.5	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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20661	SampT	ype: M E	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch	1D: 20	661	F	RunNo: 2	B049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015	s	SeqNo: 8	45110	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		73.6	44.5	110			
Surr: Tetrachloro-m-xylene	2.3		2.500		90.4	31.8	95.7			

Sample ID LCS-20661	SampT	ype: LC	s	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: LCSW	Batcl	h ID: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis E)ate: 8/	10/2015	S	SeqNo: 8	45133	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.9	1.0	5.000	0	117	9.01	142			
Aroclor 1260	6.0	1.0	5.000	0	119	25.6	164			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.7		2.500		107	31.8	95.7			S

Sample ID 1508063-001DN	IS SampT	ype: MS	3	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: Temporary R.O	. Rej Batch	1D: 20 0	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015	S	SeqNo: 8	45724	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.7	1.0	5.000	0	94.4	14.5	105		*	
Aroclor 1260	5.7	1.0	5.000	0	113	21.4	125			
Surr: Decachlorobiphenyl	2.4		2.500		96.4	44.5	110			
Surr: Tetrachloro-m-xylene	2.8		2.500		112	31.8	95.7			s

Sample ID 1508063-001DM	SD SampT	ype: MS	SD	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: Temporary R.O.	Rej Batch	ID: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015		SeqNo: 8	45725	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.3	1.0	5.000	0	86.6	14.5	105	8.66	20	
Aroclor 1260	5.2	1.0	5.000	0	104	21.4	125	8.17	27.6	
Surr: Decachlorobiphenyl	2.2		2.500		88.8	44.5	110	0	0	
Surr: Tetrachioro-m-xylene	2.5		2.500		100	31.8	95.7	0	0	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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

11

9.7

11

9.8

10.00

10.00

10.00

10.00

Sample ID rb	SampTy	pe: ME	BLK	Test	Code: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch I	D: R2	7954	R	tunNo: 2	7954				
Prep Date:	Analysis Da	te: 8/	4/2015	S	eqNo: 8	41101	Units: %RE	C		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			
Sample ID 100ng ics	SampTy	pe: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch I	D: R2	7954	F	RunNo: 2	7954				
Prep Date:	Analysis Da	te: 8/	4/2015	. 8	SeqNo: 8	41102	Units: %RE	C		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		99.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	9.5		10.00		95.2	70	130			
Sample ID 100ng Ics	SampTy	pe: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch I	D: R2	7952	F	RunNo: 2	7952				
Prep Date:	Analysis Da	te: 8/	4/2015	S	SeqNo: 8	41117	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	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	93.8	70	130			
1,1-Dichloroethene	25	1.0	20.00	0	127	70	130			

Sample ID VSB deli	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	7952	F	RunNo: 2	7952				
Prep Date:	Analysis D	ate: 8/	4/2015	\$	SeqNo: 8	41118	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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Surr: 1,2-Dichloroethane-d4

Surr: 4-Bromofluorobenzene

Surr: Dibromofluoromethane

Surr: Toluene-d8

- 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

130

130

130

130

70

70

70

70

109

96.9

107

97.9

- E Value above quantitation range
- J Analyte detected below quantitation limits

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1

1508063 26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID VSB deli	SampT	ype: MBL	K	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: R27 9	952	F	Run N o: 2	7952				
Prep Date:	Analysis D	ate: 8/4/	2015	s	SeqNo: 8	41118	Units: µg/L			
Analyte	Result	PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
?-Chlorotoluene	ND	1.0								
I-Chlorotoluene	ND	1.0								
sis-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 ND	2.0								
1,1-Dichloropropene	ND ND	2.0 1.0								
r, r-Dichloropropene Hexachlorobutadiene										
	ND	1.0								
2-Hexanone	ND	10								
sopropylbenzene	ND	1.0								
4-Isopropyltoluene	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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID VSB deli	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: R2	7952	. F	RunNo: 2	7952				
Prep Date:	Analysis D	ate: 8/	4/2015	S	SeqNo: 8	41118	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
l-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								
ert-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								
rans-1,2-DCE	ND	1.0								
rans-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								
Frichloroethene (TCE)	ND	1.0								
Frichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
/inyl chloride	ND	1.0								
Kylenes, 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		102	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

- * 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
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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20677	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: PBW	Batch	D: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis D)ate: 8/	10/2015	S	SeqNo: 8	44835	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	14		20.00		68.8	37.2	136			
Sample ID LCS-20677	SampT	ype: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis D)ate: 8/	10/2015	S	SeqNo: 8	45107	Units: µg/L			

Sample ID LCS-20677	Samp	ype: LC	S	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batc	n ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis [)ate: 8/	10/2015	5	SeqNo: 8	45107	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.4	57.8	83.9			S
1-Methylnaphthalene	74	2.0	80.20	0	91.8	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	89.4	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		70.8	37.2	136			

Sample ID 1508063-001D	MS SampT	1 31			TestCode: EPA Method 8310: PAHs					
Client ID: Temporary R.	O. Rej Batcl				RunNo: 28051					
Prep Date: 8/10/2015	Analysis D				SeqNo: 845141					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	63	2.0	80.00	0	78.8	21.6	109			
1-Methylnaphthalene	64	2.0	80.20	0	79.7	15.8	102			
2-Methylnaphthalene	62	2.0	80.00	0	78.0	11.4	99			
Benzo(a)pyrene	0.40	0.070	0.5020	0	79.7	25	123			
Surr: Benzo(e)pyrene	13		20.00		67.3	37.2	136			

Sample 1D 1508063-001DMSD Samplype: MSD TestCode: EPA Method 8310: PAHS										
Client ID: Temporary R.O.	. Rej Batcl	Rej Batch ID: 20677			RunNo: 28051					
Prep Date: 8/10/2015	Analysis Date: 8/10/2015			SeqNo: 845142			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	54	2.0	80.00	0	67.5	21.6	109	15.5	20	
1-Methylnaphthalene	55	2.0	80.20	0	68.8	15.8	102	14.7	20	
2-Methylnaphthalene	54	2.0	80.00	0	67.6	11.4	99	14.3	20	
Benzo(a)pyrene	0.34	0.070	0.5020	0	67.7	25	123	16.2	20	
Surr: Benzo(e)pyrene	12		20.00		58.0	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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20629

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Client ID: PBW

Batch ID: 20629

2.5

RunNo: 27992

Prep Date: 8/6/2015

Analysis Date: 8/6/2015

Result

ND

SeqNo: 842690

Units: µg/L

Qual

Analyte

SPK value SPK Ref Val %REC LowLimit **PQL**

%RPD HighLimit

RPDLimit

Phenolics, Total Recoverable Sample ID LCS-20629

Client ID: LCSW

SampType: LCS Batch ID: 20629 TestCode: Total Phenolics by SW-846 9067 RunNo: 27992

Prep Date: 8/6/2015

Analysis Date: 8/6/2015

SeqNo: 842691

Units: µg/L

Analyte

PQL Result

SPK value SPK Ref Val

%REC LowLimit

Qual

Phenolics, Total Recoverable

21

2.5 20.00 104

HighLimit

RPDLimit

Sample ID LCSD-20629

SampType: LCSD

TestCode: Total Phenolics by SW-846 9067

135

Client ID: LCSS02 Prep Date: 8/6/2015

Batch ID: 20629

RunNo: 27992 SeqNo: 842692

Units: µg/L

Qual

Analyte

Analysis Date: 8/6/2015 Result PQL

2.5

SPK value SPK Ref Val %REC

LowLimit

HighLimit

RPDLimit

Phenolics, Total Recoverable

18

20.00

O

91.6

64.4

64.4

135

12.7

%RPD

%RPD

21.4

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

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Sample pH Not In Range

Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-R28452

SampType: MBLK

TestCode: EPA 335.4: Total Cyanide Subbed

Client ID:

PBW

Batch ID: R28452

RunNo: 28452

Prep Date:

Analysis Date: 8/12/2015

SeqNo: 859841

Units: mg/L

Analyte

Result **PQL** SPK value SPK Ref Val %REC LowLimit

PQL

HighLimit

Qual

RPDLimit

Cyanide

ND 0.0100

Sample ID LCS-R28452

SampType: LCS

TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW

Batch ID: R28452

RunNo: 28452

Prep Date:

Analysis Date: 8/12/2015

SeqNo: 859842

Units: mg/L

%RPD

Analyte

104

90

RPDLimit

%RPD

Qual

Result

Cyanide

0.521

0.5000

0

SPK value SPK Ref Val %REC

LowLimit

HighLimit 110

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID rb SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range Client ID: **PBW** Batch ID: R27954 RunNo: 27954 Prep Date: Analysis Date: 8/4/2015 SeqNo: 841369 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 70 10 10.00

Client ID: LCSW

Prep Date:

101

130

TestCode: EPA Method 8015D: Gasoline Range

Sample ID 2.5ug gro Ics

SampType: LCS

Batch ID: R27954

Analysis Date: 8/4/2015

RunNo: 27954

SeqNo: 841371

Units: mg/L

%RPD

RPDLimit

Qual

%REC HighLimit Analyte Result PQL SPK value SPK Ref Val LowLimit 80.6 122 Gasoline Range Organics (GRO) 0.50 0.050 0.5000 0 100 Surr: BFB 9.9 10.00 99.4 70 130

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- Value above quantitation range
- Analyte detected below quantitation limits
- Page 23 of 25

- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-R28452	Samp1	Гуре: М Е	3LK	Tes	tCode: El	PA 903.1: F	Ra 226 and EF	PA 904.0: I	Ra 228-Subb€	ed
Client ID: PBW	Batc	h ID: R2	8452	F	RunNo: 2	8452				
Prep Date:	Analysis [Date: 8/	18/2015	8	SeqNo: 8	59845	Units: pCi/L	•		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	ND	0.551								
Radium-226 ±	0.342	0.551								
Radium-228	0.014	0.860								
Radium-228 ±	0.371	0.860								

Sample ID MB-R28452	Samp	Гуре: МЕ	BLK	Tes	tCode: E	PA 903.1: F	Ra 226 and EF	PA 904.0: I	Ra 228-Subbe	ed
Client ID: PBW	Batc	h ID: R2	8452	F	RunNo: 2	8452				
Prep Date:	Analysis [Date: 8/	18/2015	S	SeqNo: 8	59847	Units: pCi/L	-		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.556	0.599								
Radium-226 ±	0.441	0.599								
Radium-228	0.314	0.882								
Radium-228 ±	0.412	0.882								

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

Page 24 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20614

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW

Batch ID: 20614

RunNo: 28014

Prep Date: 8/5/2015

Analysis Date: 8/6/2015

SeqNo: 843310

Units: mg/L

Analyte

Result

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

%RPD

RPDLimit

Qual

Total Dissolved Solids

ND

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW

SampType: LCS Batch ID: 20614

RunNo: 28014

Prep Date: 8/5/2015

Sample ID LCS-20614

Units: mg/L

Analyte

Analysis Date: 8/6/2015

SeqNo: 843311

Qual

PQL 20.0

102

RPDLimit

Total Dissolved Solids

1020

Result

1000

SPK value SPK Ref Val %REC LowLimit

HighLimit 120

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- Analyte detected in the associated Method Blank Ε Value above quantitation range
- Analyte detected below quantitation limits J
- Page 25 of 25

- P Sample pH Not In Range
- Reporting Detection Limit



4901 Hawkins NE. Albuquerque, NM 87109

Sample Log-In Check List

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com Client Name **NAVAJO REFINING CO** Work Order Number: 1508063 ReptNo: 1 Received by/date: Logged By **Ashley Gallegos** 8/4/2015 9:13:00 AM Ashley Gallegos Completed By: 8/4/2015 9:27:44 AM Reviewed By: 08/04/15 Chain of Custody 1. Custody seals intact on sample bottles? Yes No | Not Present V 2. Is Chain of Custody complete? No _ Not Present Yes 🗹 3. How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? No ... NA Yes V 5. Were all samples received at a temperature of >0° C to 6.0°C NA ... 6. Sample(s) in proper container(s)? No 🗌 7. Sufficient sample volume for indicated test(s)? No Yes 🗸 8. Are samples (except VOA and ONG) properly preserved? 9. Was preservative added to bottles? Yes No V 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? No . (Note discrepancies on chain of custody) unless noted) 13. Are matrices correctly identified on Chain of Custody? No 🗌 Yes 🗸 14. Is it clear what analyses were requested? Yes 🗸 No 15. Were all holding times able to be met? No 🗌 Checked by Yes V (If no, notify customer for authorization.) Special Handling (if applicable)

	tiscrepancies with this order?		Yes [No		. N	a V
Person Notified.		Date					
By Whom:		Via:	eMail	Phone	Fax	In Person	
Regarding		THE CONTRACTOR OF THE PARTY OF			- National Assessment	***************************************	annumerics to
Client Instructions:			disipatana ni e sanos ena un	and and the second second second second	*******		(State Separate)

17. Additional remarks:

18. Cooler information

Cooler No	Temp ℃	Condition	Seal Intact	Seal No	Seal Date	Signed By
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200	583	لمجتوع	th doubles	allen S	- Commence	21/00/12	Meta 09/3 VOC	Metals: As, Al, Bo, B, Cc, Cr, Co, Cu, Fe, Pb, Mn, Hg, No, Ni, Se, Ag, U, Zh VOCs: 1,1,1 Trichlproblane: 112.3-Telearthumatrane 113.2 Telearth	Be, B, C Frichlory	in Co. o	2 Cu Fe	P. P. Mer	HQ, No.	Ž.	Ag. U	Ş		
2	<u>e</u>	Kelinquished by.		Received by:			T	Trichloroethane; 1.1.2-Trichloroethyfene 1.1-Dichloroethane; 1.5-Dichloroethane; 1.2-Dichloroethane; 1.2-Dichloroethane; 3.2-Dichloroethane; 3.2-D	e: 112.	Trichloro	sthyfene ane, Bor	1,1-E/d zene; C	Moroeth erbon Te	ane 1.5 etachlo	Dichlor Party and	oethen Innfer		Š.
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if recessary, samples submitted to Hall Environmental may be subcontracted to other advented tahwahnias. This mount



Artesia Refining Gegreny, Elf 301 E. Main Artesia, NM 88216 (761 575 748 3311 (Fax) 575 746 5451

Monthly RO Reject Sample Details Attachment

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The HollyFrontier Companies

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Devised Name Of Contract of Contract	Samplers Name (Figures) Samplers	Samplers Affillation Navajo Refining Co. L.C	Start Date and Time Razzons @ 08.25	End Date and Time (23/25/15 // 9 9 //

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

OrderNo.: 1508065

August 26, 2015

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

RE: Monthly R.O. Reject

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/4/2015 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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1508065

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 8/3/2015 10:10:00 AM

Lab ID: 1508065-001

Matrix: AQUEOUS

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: DBD
Arsenic	ND	0.0050		mg/L	5	8/12/2015 8:24:51 PM	D28151
Lead	ND	0.00050		mg/L	1	8/11/2015 9:43:20 PM	R28115
Selenium	0.0067	0.0010		mg/L	1	8/11/2015 9:43:20 PM	R28115
Uranium	0.0047	0.00050		mg/L	1	8/11/2015 9:43:20 PM	R28115
EPA 903.1: RA 226 AND EPA 904.0:	RA 228-SUBBE	D				Analyst	: SUB
Radium-226	0.144	0.867		pCi/L	1	8/18/2015	R28452
Radium-226 ±	0.448	0.867		pCi/L	1	8/18/2015	R28452
Radium-228	0.151	0.690		pCi/L	1	8/18/2015	R28452
Radium-228 ±	0.313	0.690		pCi/L	1	8/18/2015	R28452
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	2.4	0.10		mg/L	1	8/4/2015 7:37:13 PM	R27968
Chloride	230	10		mg/L	20	8/4/2015 7:49:37 PM	R27968
Nitrogen, Nitrate (As N)	1.6	0.10		mg/L	1	8/4/2015 7:37:13 PM	R27968
Sulfate	1400	25		mg/L	50	8/14/2015 3:09:51 AM	R28192
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst	: KS
Total Dissolved Solids	2860	20.0	*	mg/L	1	8/6/2015 8:33:00 PM	20626
EPA 335.4: TOTAL CYANIDE SUBB	ED					Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	8/12/2015	R28452
SM4500-H+B: PH						Analyst	JRR
pН	8.09	1.68	Н	pH units	1	8/6/2015 8:11:30 PM	R28029
EPA METHOD 200.7: DISSOLVED N	IETALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Barium	0.056	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Boron	0.083	0.040		mg/L	1	8/5/2015 9:52:54 PM	R27986
Cadmium	ND	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Chromium	ND	0.0060		mg/L	1	8/5/2015 9:52:54 PM	R27986
Cobalt	ND	0.0060		mg/L	1	8/5/2015 9:52:54 PM	R27986
Copper	ND	0.0060		mg/L	1	8/6/2015 3:44:28 PM	C28013
Iron	ND	0.020		mg/L	1	8/7/2015 2:07:43 PM	R28044
Manganese	ND	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Molybdenum	ND	0.0080		mg/L	1	8/5/2015 9:52:54 PM	R27986
Nickel	ND	0.010		mg/L	1	8/5/2015 9:52:54 PM	R27986
Silver	ND	0.0050		mg/L	. 1	8/5/2015 9:52:54 PM	R27986
Zinc	0.051	0.010		mg/L	1	8/6/2015 3:44:28 PM	C28013
EPA METHOD 245.1: MERCURY						Analyst	: JLF
Mercury	ND	0.00020		mg/L	1	8/7/2015 2:04:07 PM	20665

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

- * 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 Page 1 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508065

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: R.O. Reject

 Project:
 Monthly R.O. Reject
 Collection Date: 8/3/2015 10:10:00 AM

 Lab ID:
 1508065-001
 Matrix: AQUEOUS
 Received Date: 8/4/2015 9:13:00 AM

Analyses Result **RL Qual Units DF** Date Analyzed Batch Analyst: DJF **EPA METHOD 8015D: GASOLINE RANGE** Gasoline Range Organics (GRO) 0.072 0.050 mg/L 1 8/5/2015 8:34:25 PM R27991 Surr: BFB %REC 1 8/5/2015 8:34:25 PM R27991 103 70-130 **EPA METHOD 8011/504.1: EDB** Analyst: JME 8/7/2015 12:22:21 PM 1,2-Dibromoethane ND 0.010 20627 µg/L **EPA METHOD 8082: PCB'S** Analyst: SCC Aroclor 1016 ND 8/10/2015 12:08:32 PM 20661 1.0 μg/L Aroclor 1221 ND 8/10/2015 12:08:32 PM 1.0 μg/L 8/10/2015 12:08:32 PM 20661 Aroclor 1232 ND 1.0 μg/L Aroclor 1242 ND 8/10/2015 12:08:32 PM 20661 1.0 μg/L Aroclor 1248 ND 1.0 μg/L 8/10/2015 12:08:32 PM 20661 8/10/2015 12:08:32 PM 20661 Aroclor 1254 ND 1.0 μg/L Aroclor 1260 8/10/2015 12:08:32 PM 20661 ND 1.0 μg/L Surr: Decachlorobiphenyl %REC 8/10/2015 12:08:32 PM 20661 90.0 44.5-110 Surr: Tetrachloro-m-xylene 31.8-95.7 %REC 8/10/2015 12:08:32 PM 20661 108 **EPA METHOD 8015M/D: DIESEL RANGE** Analyst: KJH Diesel Range Organics (DRO) ND 1.0 mg/L 8/5/2015 11:43:27 PM 20617 Motor Oil Range Organics (MRO) ND 5.0 mg/L 8/5/2015 11:43:27 PM 20617 Surr: DNOP 102 72-136 %REC 8/5/2015 11:43:27 PM 20617 **EPA METHOD 8310: PAHS** Analyst: SCC 8/10/2015 10:49:51 AM 20677 Naphthalene ND 2.0 μg/L 1-Methylnaphthalene ND 8/10/2015 10:49:51 AM 20677 2.0 μg/L 8/10/2015 10:49:51 AM 20677 2-Methylnaphthalene ND 2.0 μg/L Benzo(a)pyrene 8/10/2015 10:49:51 AM 20677 ND 0.070 μg/L Surr: Benzo(e)pyrene 75.6 37.2-136 %REC 8/10/2015 10:49:51 AM 20677 **EPA METHOD 8260B: VOLATILES** Analyst: DJF Benzene ND 8/5/2015 8:34:25 PM R27991 1.0 μg/L Toluene ND 1 8/5/2015 8:34:25 PM R27991 1.0 μg/L Ethylbenzene R27991 ND 8/5/2015 8:34:25 PM 1.0 μg/L 1,2-Dichloroethane (EDC) ND 8/5/2015 8:34:25 PM R27991 1.0 μg/L 1,2-Dibromoethane (EDB) ND 1.0 μg/L 8/5/2015 8:34:25 PM R27991 Carbon Tetrachloride 8/5/2015 8:34:25 PM R27991 ND 1.0 μg/L Chloroform 8/5/2015 8:34:25 PM ND 1.0 μg/L R27991 1,1-Dichloroethane ND 8/5/2015 8:34:25 PM R27991 1.0 μg/L μg/L 1,1-Dichloroethene ND 8/5/2015 8:34:25 PM R27991 1.0 Methylene Chloride ND 8/5/2015 8:34:25 PM R27991 3.0 μg/L 1,1,2,2-Tetrachloroethane ND 2.0 μg/L 8/5/2015 8:34:25 PM R27991 Tetrachloroethene (PCE) 8/5/2015 8:34:25 PM R27991 1.0 μg/L

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

- 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 Page 2 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508065

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Project: Monthly R.O. Reject

1508065-001 Lab ID:

Client Sample ID: R.O. Reject

Collection Date: 8/3/2015 10:10:00 AM

Matrix: AQUEOUS Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
Vinyl chloride	ND	1.0	μg/L	1	8/5/2015 8:34:25 PM	R27991
Xylenes, Total	ND	1.5	μg/L	1	8/5/2015 8:34:25 PM	R27991
Surr: 1,2-Dichloroethane-d4	96.6	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: 4-Bromofluorobenzene	112	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: Dibromofluoromethane	107	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: Toluene-d8	104	70-130	%REC	1	8/5/2015 8:34:25 PM	R27991
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	8/6/2015	20629

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

- 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
- RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits Page 3 of 26 J
- P Sample pH Not In Range
- Reporting Detection Limit

Lab Order 1508065

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1508065-002

Matrix: TRIP BLANK

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAI	NGE				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/5/2015 9:02:06 PM	R27991
Surr: BFB	97.5	70-130	%REC	1	8/5/2015 9:02:06 PM	R27991
EPA METHOD 8011/504.1: EDB					Analys	t: JME
1,2-Dibromoethane	ND	0.010	μg/L	1	8/7/2015 1:04:28 PM	20627
EPA METHOD 8260B: VOLATILES					Analys	t: DJF
Benzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Toluene	ND	1.0	μg/L	. 1	8/5/2015 9:02:06 PM	R27991
Ethylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Naphthalene	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1-Methylnaphthalene	NĐ	4.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
2-Methylnaphthalene	ND	4.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Acetone	ND	10	μg/L	1	8/5/2015 9:02:06 PM	R27991
Bromobenzene	ND	1.0	μg/L	- 1	8/5/2015 9:02:06 PM	R27991
Bromodichloromethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Bromoform	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Bromomethane	ND	3.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
2-Butanone	ND	10	μg/L	1	8/5/2015 9:02:06 PM	R27991
Carbon disulfide	ND	10	μg/L	1	8/5/2015 9:02:06 PM	R27991
Carbon Tetrachloride	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Chlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Chloroethane	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Chloroform	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Chloromethane	ND	3.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
2-Chlorotoluene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
4-Chlorotoluene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
cis-1,2-DCE	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
cis-1,3-Dichtoropropene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Dibromochloromethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
Dibromomethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991

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

- * 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 Page 4 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508065

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1508065-002

Matrix: TRIP BLANK

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Q	ual Units	DF	Date Analyzed	Batch	
EPA METHOD 8260B: VOLATILES					Analys	t: DJF	
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1-Dichloroethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1-Dichloroethene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,2-Dichloropropane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,3-Dichloropropane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
2,2-Dichloropropane	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1-Dichloropropene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Hexachlorobutadiene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
2-Hexanone	ND	10	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Isopropylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
4-Isopropyltoluene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
4-Methyl-2-pentanone	ND	10	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Methylene Chloride	ND	3.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
n-Butylbenzene	ND	3.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
n-Propylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
sec-Butylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Styrene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
tert-Butylbenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
trans-1,2-DCE	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Trichlorofluoromethane	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
1,2,3-Trichloropropane	ND	2.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Vinyl chloride	ND	1.0	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Xylenes, Total	ND	1.5	μg/L	1	8/5/2015 9:02:06 PM	R27991	
Surr: 1,2-Dichloroethane-d4	104	70-130	%REC	1	8/5/2015 9:02:06 PM	R27991	
Surr: 4-Bromofluorobenzene	106	70-130	%REC	1	8/5/2015 9:02:06 PM	R27991	
Surr: Dibromofluoromethane	109	70-130	%REC	1	8/5/2015 9:02:06 PM	R27991	
Surr: Toluene-d8	102	70-130	%REC	1	8/5/2015 9:02:06 PM	R27991	

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

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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 Page 5 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB	Samp	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Bato	h ID: R2	7986	F	RunNo: 2	7986					
Prep Date:	Analysis I	Date: 8/	5/2015	8	SeqNo: 8	42241	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									
Manganese	ND	0.0020									
Molybdenum	ND	0.0080									
Nickel	ND	0.010									
Silver	ND	0.0050									

SampType: LCS			Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Batc	h ID: R2	7986	F	RunNo: 2	7986				
Analysis [Date: 8/	5/2015	8	SeqNo: 8	42242	Units: mg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
0.52	0.020	0.5000	0	104	85	115			
0.49	0.0020	0.5000	0	98.4	85	115			
0.51	0.040	0.5000	0	102	85	115			
0.49	0.0020	0.5000	0	98.2	85	115			
0.49	0.0060	0.5000	0	98.1	85	115			
0.47	0.0060	0.5000	0	93.6	85	115			
0.48	0.0020	0.5000	. 0	95.6	85	115			
0.51	0.0080	0.5000	0	102	85	115			
0.47	0.010	0.5000	. 0	94.3	85	115			
0.10	0.0050	0.1000	0	99.7	85	115			
	Result 0.52 0.49 0.51 0.49 0.49 0.47 0.48 0.51 0.47	Batch ID: R2 Analysis Date: 8/ Result PQL 0.52 0.020 0.49 0.0020 0.51 0.040 0.49 0.0020 0.49 0.0060 0.47 0.0060 0.48 0.0020 0.51 0.0080 0.47 0.010	0.52 0.020 0.5000 0.49 0.0020 0.5000 0.51 0.040 0.5000 0.49 0.0020 0.5000 0.49 0.0060 0.5000 0.47 0.0060 0.5000 0.51 0.0080 0.5000 0.47 0.010 0.5000	Batch ID: R27986 F Analysis Date: 8/5/2015 S Result PQL SPK value SPK Ref Val 0.52 0.020 0.5000 0 0.49 0.0020 0.5000 0 0.51 0.040 0.5000 0 0.49 0.0020 0.5000 0 0.49 0.0060 0.5000 0 0.47 0.0060 0.5000 0 0.48 0.0020 0.5000 0 0.51 0.0080 0.5000 0 0.47 0.010 0.5000 0	Batch ID: R27986 RunNo: 2 Analysis Date: 8/5/2015 SeqNo: 8 Result PQL SPK value SPK Ref Val %REC 0.52 0.020 0.5000 0 104 0.49 0.0020 0.5000 0 98.4 0.51 0.040 0.5000 0 102 0.49 0.0020 0.5000 0 98.2 0.49 0.0060 0.5000 0 98.1 0.47 0.0060 0.5000 0 93.6 0.48 0.0020 0.5000 0 95.6 0.51 0.0080 0.5000 0 102 0.47 0.010 0.5000 0 94.3	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842242 Result PQL SPK value SPK Ref Val %REC LowLimit 0.52 0.020 0.5000 0 104 85 0.49 0.0020 0.5000 0 98.4 85 0.51 0.040 0.5000 0 98.2 85 0.49 0.0020 0.5000 0 98.1 85 0.49 0.0060 0.5000 0 93.6 85 0.47 0.0060 0.5000 0 95.6 85 0.48 0.0020 0.5000 0 95.6 85 0.51 0.0080 0.5000 0 102 85 0.47 0.010 0.5000 0 94.3 85	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842242 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 0.52 0.020 0.5000 0 104 85 115 0.49 0.0020 0.5000 0 98.4 85 115 0.51 0.040 0.5000 0 102 85 115 0.49 0.0020 0.5000 0 98.2 85 115 0.49 0.0060 0.5000 0 98.1 85 115 0.47 0.0060 0.5000 0 93.6 85 115 0.48 0.0020 0.5000 0 95.6 85 115 0.51 0.0080 0.5000 0 102 85 115 0.47 0.010 0.5000 0 94.3 85 115 0.47 0.010 0.5000	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842242 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 0.52 0.020 0.5000 0 104 85 115 0.49 0.0020 0.5000 0 98.4 85 115 0.49 0.0020 0.5000 0 102 85 115 0.49 0.0020 0.5000 0 98.2 85 115 0.49 0.0060 0.5000 0 98.1 85 115 0.47 0.0060 0.5000 0 93.6 85 115 0.48 0.0020 0.5000 0 95.6 85 115 0.51 0.0080 0.5000 0 102 85 115 0.51 0.0080 0.5000 0 94.3 85 115	Batch ID: R27986 RunNo: 27986 Analysis Date: 8/5/2015 SeqNo: 842242 Units: mg/L Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 0.52 0.020 0.5000 0 104 85 115 0.49 0.0020 0.5000 0 98.4 85 115 0.51 0.040 0.5000 0 102 85 115 0.49 0.0020 0.5000 0 98.2 85 115 0.49 0.0060 0.5000 0 98.1 85 115 0.47 0.0060 0.5000 0 93.6 85 115 0.48 0.0020 0.5000 0 95.6 85 115 0.51 0.0080 0.5000 0 102 85 115 0.51 0.0080 0.5000 0 102 85 115 0.

Sample ID LLLCS	Samp	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Bato	Batch ID: R27986			RunNo: 2	7986				
Prep Date:	Analysis I	Date: 8/	5/2015	8	SeqNo: 8	42243	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	115	50	150			
Barium	ND	0.0020	0.002000	0	85.0	50	150			
Boron	ND	0.040	0.04000	0	97.3	50	150			
Cadmium	ND	0.0020	0.002000	0	95.5	50	150			
Chromium	0.0062	0.0060	0.006000	0	104	50	150			
Cobalt	ND	0.0060	0.006000	0	99.3	50	150			
Manganese	0.0026	0.0020	0.002000	0	131	50	150			
Molybdenum	0.0087	0.0080	0.008000	0	109	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

Page 6 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID LLLCS	Samp1	ype: LC	SLL	Test	Code: E	PA Method	200.7: Disso	lved Meta	ls	
Client ID: BatchQC	Batc	h ID: R2	7986	R	unNo: 2	7986				
Prep Date:	Analysis [Date: 8/	5/2015	S	eqNo: 8	42243	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	93.4	50	150			
Silver	ND	0.0050	0.005000	0	93.8	50	150			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Bato	h ID: R2	7986	F	RunNo: 2	7986				
Prep Date:	Analysis I	Date: 8/	5/2015	S	SeqNo: 8	42244	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								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID LCS	Samp	Type: LC	s	Tes	tCode: E	PA Method	200.7: Disso	ved Meta	ls	
Client ID: LCSW	Bato	h ID: R2	7986	F	RunNo: 2	7986				
Prep Date:	Analysis	Date: 8/	5/2015	S	SeqNo: 8	42245	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			
Barium	0.50	0.0020	0.5000	0	99.0	85	115			
Boron	0.51	0.040	0.5000	0	103	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.2	85	115			
Chromium	0.49	0.0060	0.5000	0	98.2	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.6	85	115			
Manganese	0.48	0.0020	0.5000	0	96.3	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			

Sample ID LLLCS	SampType: LCSLL	TestCode: EPA Method 2	200.7: Dissolved Metals
Client ID: BatchQC	Batch ID: R27986	RunNo: 27986	
Prep Date:	Analysis Date: 8/5/2015	SeqNo: 842246	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual

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

Page 7 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

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

Project:	N	Ionthly R.O. Reje	ect								
Sample ID	LLLCS	Samp	Type: LC	SLL	Test	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Bato	ch ID: R2	7986	R	RunNo: 2	7986				
Prep Date:		Analysis	Date: 8/	5/2015	S	SeqNo: 8	42246	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020	0.01000	0	112	50	150			
Barium		ND	0.0020	0.002000	0	98.5	50	150			
Boron		ND	0.040	0.04000	0	99.7	50	150			
Cadmium		ND	0.0020	0.002000	0	77.5	50	150			
Chromium		0.0062	0.0060	0.006000	0	103	50	150			
Cobalt		ND	0.0060	0.006000	0	99.8	50	150			
Manganese		0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum		0.0093	0.0080	0.008000	0	116	50	150			
Nickel		ND	0.010	0.005000	0	97.4	50	150			
Silver		ND	0.0050	0.005000	0	95.4	50	150			
Sample ID	мв	Samp	Туре: МЕ	BLK	Test	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Bato	ch ID: C2	8013	R	RunNo: 2	8013				
Prep Date:		Analysis	Date: 8/	6/2015	S	SeqNo: 8	43253	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		ND	0.0060								
Zinc		ND	0.010								
Sample ID	LCS	Samp	Type: LC	s	Test	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	LCSW	Bato	ch ID: C2	8013	R	RunNo: 2	8013				
Prep Date:		Analysis	Date: 8/	6/2015	S	SeqNo: 8	43254	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		0.50	0.0060	0.5000	0	99.7	85	115			
Zinc		0.50	0.010	0.5000	0	101	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Bate	ch ID: C2	8013	F	RunNo: 2	8013				
Prep Date:		Analysis	Date: 8/	6/2015	S	SeqNo: 8	43255	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		0.0063	0.0060	0.006000	0	105	50	150			
Zinc		ND	0.010	0.005000	0	128	50	150			
Sample ID	МВ	Samp	Туре: МЕ	BLK	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Bate	ch ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis	Date: 8/	7/2015	S	SeqNo: 8	44435	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits

Page 8 of 26

- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB

SampType: MBLK

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: PBW

Batch ID: R28044

RunNo: 28044

Prep Date: Analysis Date: 8/7/2015 SeaNo: 844435 Units: mg/L

LowLimit

Analyte Iron

Result POL 0.020 ND

Sample ID LCS

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

SPK value SPK Ref Val %REC LowLimit

%RPD

%RPD

%RPD

Client ID: LCSW

Batch ID: R28044

PQL

0.020

RunNo: 28044

HighLimit

Analyte

Prep Date:

Analysis Date: 8/7/2015

Result

0.51

SeqNo: 844436

102

Units: mg/L HighLimit

RPDLimit

RPDLimit Qual

Qual

Iron

Sample ID LLLCS

SampType: LCSLL

RunNo: 28044

%REC

TestCode: EPA Method 200.7: Dissolved Metals

115

Client ID: **BatchQC**

Batch ID: R28044

Analysis Date: 8/7/2015

0.5000

SeqNo: 844437

Units: mg/L

Analyte Iron

Prep Date:

Result 0.026 POL

SPK value SPK Ref Val 0.02000

SPK value SPK Ref Val

%REC LowLimit 131

HighLimit 150 **RPDLimit**

Qual

Sample ID MB

SampType: MBLK

0.020

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: PBW Prep Date:

Batch ID: R28044 Analysis Date: 8/7/2015

PQL

RunNo: 28044

Units: mg/L

Analyte

Result

SPK value SPK Ref Val %REC LowLimit

SeqNo: 844438

HighLimit

50

%RPD

RPDLimit

Qual

Iron

ND 0.020

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: Prep Date:

Sample ID LCS

LCSW

Batch ID: R28044

RunNo: 28044

%REC

99.0

RPDLimit

Analyte

Result **PQL** 0.49 0.020

Analysis Date: 8/7/2015 SPK value SPK Ref Val

0.5000

SeqNo: 844439

LowLimit

Units: mg/L HighLimit

Qual

Qual

Iron

115

150

Sample ID LLLCS

Client ID: **BatchQC**

SampType: LCSLL

Analysis Date: 8/7/2015

PQL

Batch ID: R28044

RunNo: 28044

Units: mg/L

RPDLimit

Prep Date: Analyte Iron

0.020

SPK value SPK Ref Val 0.020 0.02000

%REC LowLimit

SeqNo: 844440

101

HighLimit

TestCode: EPA Method 200.7: Dissolved Metals

%RPD

%RPD

R

Qualifiers:

RPD outside accepted recovery limits

- Value exceeds Maximum Contaminant Level.
- Η Holding times for preparation or analysis exceeded
- ND
- D Sample Diluted Due to Matrix
- Not Detected at the Reporting Limit

% Recovery outside of range due to dilution or matrix

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

Page 9 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508065**

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Project:	Monthly I	R.O. Rej	ect								,
Sample ID	1508065-001GMS	Samp	Type: MS	3	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	R.O. Reject	Bat	ch ID: R2	8115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date: 8/	11/2015		SeqNo: 8	47552	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	107	70	130			
Selenium		0.031	0.0010	0.02500	0.006711	99.1	70	130			
Uranium		0.019	0.00050	0.01250	0.004729	117	70	130			
Sample ID	1508065-001GMSE) Samp	Туре: М	SD	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	R.O. Reject	Bat	ch ID: R2	8115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date: 8/	11/2015	5	SeqNo: 8	47553	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	105	70	130	2.13	20	
Selenium		0.032	0.0010	0.02500	0.006711	100	70	130	0.805	20	
Uranium		0.019	0.00050	0.01250	0.004729	115	70	130	1.42	20	
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	LCSW	Bat	ch ID: R2	8115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date: 8/	11/2015	\$	SeqNo: 8	47560	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	99.5	85	115			
Selenium		0.025	0.0010	0.02500	0	101	85	115			
Uranium		0.012	0.00050	0.01250	0	99.9	85	115			
Sample ID	LCS	Samp	Type: LC	s	Tes	tCode: E	PA 200.8: [Dissolved Met	als		
Client ID:	LCSW	Bat	ch ID: R2	8115	F	RunNo: 2	8115				
Prep Date:		Analysis	Date: 8/	11/2015	5	SeqNo: 8	47561	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	98.8	85	115			
Selenium		0.025	0.0010	0.02500	0	101	85	115			
Selemani											
Uranium		0.012	0.00050	0.01250	0	99.1	85	115			
	LLLCS		0.00050 Type: LC					115 Dissolved Met	tals		

Qualifiers:

Client ID: BatchQC

Prep Date:

Analyte

Selenium

Uranium

Lead

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

Batch ID: R28115

PQL

0.00051 0.00050 0.0005000

0.00051 0.00050 0.0005000

0.0010

SPK value SPK Ref Val

0.001000

0

0

0

Analysis Date: 8/11/2015

Result

0.0010

- 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

LowLimit

50

50

50

E Value above quantitation range

RunNo: 28115

SeqNo: 847562

%REC

103

103

103

Units: mg/L

HighLimit

150

150

150

J Analyte detected below quantitation limits

Page 10 of 26

RPDLimit

Qual

%RPD

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Project: Navajo Refining Company

Sample ID LLLCS

Monthly R.O. Reject

Client ID: **BatchQC** SampType: LCSLL Batch ID: R28115 TestCode: EPA 200.8: Dissolved Metals

50

50

Prep Date:

Analysis Date: 8/11/2015

RunNo: 28115 SeqNo: 847563

105

113

104

Units: mg/L

Qual

Analyte Lead

Result

0.00052 0.00050

0.00053

0.0011

Result

%REC

HighLimit 150

150

150

RPDLimit

Selenium Uranium

> Sample ID MB PRW

SampType: MBLK Batch ID: R28115

PQL

0.00050

0.0010

TestCode: EPA 200.8: Dissolved Metals

RunNo: 28115

Units: mg/L

Client ID: Prep Date: Analyte

Analysis Date: 8/11/2015

SeqNo: 847564

SPK value SPK Ref Val %REC LowLimit HighLimit

RPDLimit Qual

Lead Selenium Uranium

ND 0.00050 ND 0.0010 ND 0.00050

Sample ID MB

PBW

SampType: MBLK

Batch ID: R28115

Analysis Date: 8/11/2015

TestCode: EPA 200.8: Dissolved Metals

SPK value SPK Ref Val

0

0

0.0005000

0.001000

0.0005000

RunNo: 28115

Units: mg/L

%RPD

%RPD

Analyte

Client ID:

Prep Date:

PQL 0.00050

SeqNo: 847565 SPK value SPK Ref Val %REC

Lead

ND

HighLimit

%RPD **RPDLimit** Qual

Selenium Uranium

ND 0.0010 ND 0.00050

TestCode: EPA 200.8: Dissolved Metals

Client ID: R.O. Reject

Sample ID 1508065-001GMS

Batch ID: D28151

POL

RunNo: 28151

Prep Date:

Analysis Date: 8/12/2015

SampType: MS

SegNo: 848111

Units: mg/L

Analyte

Result

SPK value SPK Ref Val

%REC LowLimit

Qual

0.0050 0.12

0.1250 0.001284

979

HighLimit 130

Qual

Arsenic

SampType: LCS

Analysis Date: 8/12/2015

TestCode: EPA 200.8: Dissolved Metals

%RPD

Sample ID LCS

Prep Date:

Client ID: LCSW

Batch ID: D28151

RunNo: 28151

115

RPDLimit

Analyte

Result POL

SPK value SPK Ref Val

SeqNo: 848117

Units: mg/L

Arsenic

0.024 0.0010

0.02500

%REC 97.0 LowLimit HighLimit 85

%RPD **RPDLimit**

Qualifiers: Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits % Recovery outside of range due to dilution or matrix Analyte detected in the associated Method Blank

Value above quantitation range E

Analyte detected below quantitation limits

Page 11 of 26

P Sample pH Not In Range

Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID LLLCS

SampType: LCSLL

TestCode: EPA 200.8: Dissolved Metals

Batch ID: D28151

RunNo: 28151

Client ID:

BatchQC

PBW

Prep Date:

Analysis Date: 8/12/2015

SeqNo: 848119

Units: mg/L

Analyte

Result

Result

SPK value SPK Ref Val %REC LowLimit

Arsenic

0.0010 0.0010 0.001000

104

HighLimit %RPD Qual

Sample ID MB

Client ID:

Prep Date:

SampType: MBLK Batch ID: **D28151**

RunNo: 28151

SPK value SPK Ref Val %REC LowLimit

SeqNo: 848122

TestCode: EPA 200.8: Dissolved Metals

Units: mg/L

HighLimit

%RPD

RPDLimit

RPDLimit Qual

Analyte

PQL

Analysis Date: 8/12/2015

Arsenic

ND 0.0010

Qualifiers:

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix D

Н Holding times for preparation or analysis exceeded

Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

Page 12 of 26

Sample pH Not In Range

Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB-20665

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID: PBW

Batch ID: 20665

RunNo: 28038

Prep Date: 8/7/2015

Analysis Date: 8/7/2015

SeqNo: 844199

Units: mg/L

Analyte

PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit

RPDLimit

Qual

Qual

Mercury

ND 0.00020

Sample ID LCS-20665

SampType: LCS

TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Prep Date: 8/7/2015 Batch ID: 20665

RunNo: 28038

Analysis Date: 8/7/2015

SeqNo: 844200

Units: mg/L

%RPD **RPDLimit**

%RPD

PQL SPK value SPK Ref Val

LowLimit

0.005000

Analyte

0.0050 0.00020

%REC 99.8

HighLimit

Mercury

80

120

- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits % Recovery outside of range due to dilution or matrix
- Value exceeds Maximum Contaminant Level.
- В Analyte detected in the associated Method Blank E
- Value above quantitation range Analyte detected below quantitation limits
- Page 13 of 26

- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

ND

0.50

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB	SampT	ype: ME	3LK	Tes	tCode: E	PA Method	300.0: Anion	s		
Client ID: PBW	•	ID: R2			RunNo: 2					
Prep Date:	Analysis D	ate: 8/	5/2015	8	SeqNo: 8	41566	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	SampT	ype: LC	s	Tes	tCode: E	PA Method	300.0: Anion	s		
Client ID: LCSW	Batch	ID: R2	7968	·F	RunNo: 2	7968				
Prep Date:	Analysis D	ate: 8/	5/2015	S	SeqNo: 8	41567	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			,
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Sample ID MB	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	300.0: Anion	s		
Client ID: PBW	Batch	ID: R2	8192	F	RunNo: 2	8192				
Prep Date:	Analysis D	ate: 8/	13/2015	. 8	SeqNo: 8	49498	Units: mg/L			

Sample ID LCS	SampT	ype: LC	s	Tes	tCode: E	PA Method	s			
Client ID: LCSW	Batch	1D: R2	8192	F	RunNo: 2	8192				
Prep Date:	Analysis D	ate: 8/	13/2015	\$	SeqNo: 8	49499	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	99.0	90	110			

%REC LowLimit

HighLimit

%RPD

RPDLimit

Qual

SPK value SPK Ref Val

Qualifiers:

Analyte

Sulfate

- * 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

Page 14 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB-20627

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW

Batch ID: 20627

POL

RunNo: 28045

Analysis Date: 8/7/2015

SeqNo: 844775

Units: µg/L

Prep Date: 8/6/2015 Analyte

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

%RPD

RPDLimit

Qual

1,2-Dibromoethane

ND 0.010

Sample ID LCS-20627

SampType: LCS Batch ID: 20627 TestCode: EPA Method 8011/504.1: EDB RunNo: 28045

Client ID: LCSW Prep Date: 8/6/2015

SeqNo: 844776

Units: µg/L

Analyte

Analysis Date: 8/7/2015

Result 0.11

Result

SPK value SPK Ref Val 0.1000

0.1000

%REC 110

HighLimit LowLimit

RPDLimit

1,2-Dibromoethane

130

Qual

Sample ID 1508065-001BMS

SampType: MS

TestCode: EPA Method 8011/504.1: EDB

Client ID:

R.O. Reject

Batch ID: 20627

RunNo: 28045

164

Prep Date: 8/6/2015

Analysis Date: 8/7/2015

0.010

PQL

0.010

SeqNo: 844786

Units: µg/L

Analyte

Result 0.13 PQL

SPK value SPK Ref Val %REC

HighLimit LowLimit

45.7

%RPD **RPDLimit** Qual

1,2-Dibromoethane

SampType: MSD

TestCode: EPA Method 8011/504.1: EDB

Sample ID 1508065-001BMSD Client ID: R.O. Reject

Batch ID: 20627

RunNo: 28045

127

Units: µg/L

Analyte

Prep Date: 8/6/2015

Analysis Date: 8/7/2015

SeqNo: 844787

LowLimit

Qual

1.2-Dibromoethane

Result 0.14 **PQL** SPK value SPK Ref Val 0.1000 0.010

0

%REC 135

45.7

HighLimit 164 %RPD 6.11 **RPDLimit** 20

D

Value exceeds Maximum Contaminant Level.

Н

ND Not Detected at the Reporting Limit

Analyte detected in the associated Method Blank

Analyte detected below quantitation limits

Page 15 of 26

Sample pH Not In Range

Reporting Detection Limit

Qualifiers:

Sample Diluted Due to Matrix Holding times for preparation or analysis exceeded

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В

Е

Value above quantitation range

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID LCS-20617	Samp	Type: LC	s	TestCode: EPA Method 8015M/D: Diesel Range							
Client ID: LCSW	Batc	h ID: 20	617	RunNo: 27957							
Prep Date: 8/5/2015	Analysis [Date: 8/	5/2015	s							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	60.1	156				
Surr: DNOP	0.52		0.5000		104	72	136				

Sample ID MB-20617	SampT	уре: МЕ	BLK	TestCode: EPA Method 8015M/D: Diesel Range							
Client ID: PBW	Batch	ID: 20	617	F	RunNo: 2	7957					
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	s	SeqNo: 8	42468	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	0.95		1.000		95.5	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

Page 16 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB-20661	SampT	ype: MI	BLK	Tes	tCode: El	A Method	8082: PCB's			
Client ID: PBW	Batch	n ID: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015	S	SeqNo: 8	45110	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		73.6	44.5	110			
Surr: Tetrachloro-m-xylene	2.3		2.500		90.4	31.8	95.7			
Sample ID LCS-20661	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	1D: 20	661	F	RunNo: 28	3049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015	s	SeqNo: 84	4 5133	Units: µg/L			

Campie is LOG-2000	Camp	ype. Lu	.3	169	icode. E	A Mediod	000Z. FCD 5			
Client ID: LCSW	Batc	h ID: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis [Date: 8/	10/2015	S	SeqNo: 8	45133	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.9	1.0	5.000	0	117	9.01	142			
Aroclor 1260	6.0	1.0	5.000	0	119	25.6	164			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.7		2.500		107	31.8	95.7			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

Page 17 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID RB	SampT	ype: MBL	(Test	tCode: El	PA Method	8260B: VOLA	ATILES		
Client ID: PBW	Batch	n ID: R279	91	R	RunNo: 2	7991				
Prep Date:	Analysis D)ate: 8/5/2	!015	s	SeqNo: 8	42681	Units: μg/L			
Analyte	Result	PQL S	PK 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								
	,,,,	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

Page 18 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID RB	SampT	ype: MBL	.K	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batcl	h ID: R27 9	991	F	RunNo: 2	7991				
Prep Date:	Analysis D	Date: 8/5/	2015	S	SeqNo: 84	42681	Units: µg/L			
Analyte	Result	PQL S	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	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	12		10.00		116	70	130			
Surr: Toluene-d8	9.7		10.00		97.0	70	130			

Sample ID 100ng Ics	SampT	ype: LC	S	TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch	1D: R2	7991	F	tun N o: 2	7991					
Prep Date:	Analysis D)ate: 8/	5/2015	S	eqNo: 8	42682	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	21	1.0	20.00	0	103	70	130				
Toluene	20	1.0	20.00	0	101	70	130				
Chlorobenzene	20	1.0	20.00	0	98.4	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

Page 19 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID 100ng ics	SampT	ype: LC	s	TestCode: EPA Method 8260B: VOLATILES											
Client ID: LCSW	Batch	ID: R2	7991	F	RunNo: 2	7991									
Prep Date:	Analysis D	ate: 8/	5/2015		SeqNo: 8	42682	Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual					
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130								
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130								
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130								
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130								
Surr: Dibromofluoromethane	10		10.00		105	70	130								
Surr: Toluene-d8	9.8		10.00		98.3	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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB-20677	Samp1	ype: ME	BLK	Tes	tCode: El	PA Method	8310: PAHs				
Client ID: PBW	Batcl	h ID: 20	677	F	RunNo: 2	B051					
Prep Date: 8/10/2015	Analysis D	Date: 8/	10/2015	s	SeqNo: 8	44835	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val %RE		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	14		20.00		68.8	37.2	136				

Sample ID LCS-20677	SampT	ype: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batc	n ID: 20	677	· F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis D	Date: 8/	10/2015	s	SeqNo: 8	45107	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.4	57.8	83.9			S
1-Methylnaphthalene	74	2.0	80.20	0	91.8	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	89.4	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		70.8	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

Page 21 of 26

RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID	MB-20629
Client ID:	PBW

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

Batch ID: 20629

RunNo: 27992

Prep Date: 8/6/2015

Analysis Date: 8/6/2015

SeqNo: 842690

SPK value SPK Ref Val %REC LowLimit

Units: µg/L

Analyte

Result **PQL**

HighLimit

RPDLimit Qual

Phenolics, Total Recoverable

ND 2.5

TestCode: Total Phenolics by SW-846 9067

%RPD

%RPD

Sample ID LCS-20629 Client ID: LCSW

SampType: LCS Batch ID: 20629

RunNo: 27992

Prep Date: 8/6/2015

Analysis Date: 8/6/2015

SeqNo: 842691

104

Units: µg/L

Analyte

Result **PQL**

21

SPK value SPK Ref Val

%REC LowLimit

HighLimit

RPDLimit

Qual

Phenolics, Total Recoverable

Prep Date: 8/6/2015

Phenolics, Total Recoverable

SampType: LCSD

TestCode: Total Phenolics by SW-846 9067

135

Sample ID LCSD-20629

Client ID: LCSS02

Batch ID: 20629

20.00

20.00

RunNo: 27992 SeqNo: 842692

91.6

Units: µg/L

135

Analyte

Result **PQL**

18

Analysis Date: 8/6/2015

2.5

2.5

SPK value SPK Ref Val %REC

LowLimit HighLimit

64.4

64.4

%RPD 12.7

RPDLimit

Qual 21.4

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Η.

% Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

Page 22 of 26

Sample pH Not In Range

RLReporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB-R28452

SampType: MBLK

TestCode: EPA 335.4: Total Cyanide Subbed

Client ID:

PBW

Batch ID: R28452

RunNo: 28452

Prep Date:

Analysis Date: 8/12/2015

SeqNo: 859841

Units: mg/L

Qual

Analyte

SPK value SPK Ref Val

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

%RPD

Cyanide

0.0100

SampType: LCS

TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW

Sample ID LCS-R28452

Batch ID: R28452

PQL

RunNo: 28452

Prep Date:

Analysis Date: 8/12/2015

SeqNo: 859842

Units: mg/L

Analyte

Result

0.5000

%REC

90

110

RPDLimit

RPDLimit

Qual

Cyanide

0.521

104

HighLimit

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range
- Analyte detected below quantitation limits

Page 23 of 26

- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID RB

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID:

PBW

Batch ID: R27991

RunNo: 27991

Prep Date:

Analysis Date: 8/5/2015

SeqNo: 842759

Units: mg/L HighLimit

Qual

Analyte Gasoline Range Organics (GRO) Result ND

%RPD

%RPD

Surr: BFB

11

10.00

110

130

RPDLimit

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

SPK value SPK Ref Val %REC LowLimit

Sample ID 2.5ug gro Ics Client ID: LCSW

Result

Batch ID: R27991

RunNo: 27991

LowLimit

Units: mg/L

Prep Date:

Analysis Date: 8/5/2015 **PQL**

PQL

0.050

SegNo: 842760 %REC

HighLimit

RPDLimit Qual

Analyte Gasoline Range Organics (GRO)

0.5000

100 103

122

Surr: BFB

0.50 0.050 10

10.00

SPK value SPK Ref Val

70

130

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded

% Recovery outside of range due to dilution or matrix

- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Analyte detected below quantitation limits
- Sample pH Not In Range

E

- Reporting Detection Limit
- Value above quantitation range Page 24 of 26

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508065

26-Aug-15

Client:

Navajo Refining Company

0.556

0.441

0.314

0.412

0.599

0.599

0.882

0.882

Project:

Radium-226

Radium-228

Radium-226 ±

Radium-228 ±

Monthly R.O. Reject

Sample ID MB-R28452	SampType: MBLK	TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed										
Client ID: PBW	Batch ID: R28452	RunNo: 28452										
Prep Date:	Analysis Date: 8/18/2015	SeqNo: 859845	Units: pCi/L									
Analyte	Result PQL SPK valu	e SPK Ref Val %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual						
Radium-226	ND 0.551											
Radium-226 ±	0.342 0.551											
Radium-228	0.014 0.860											
Radium-228 ±	0.371 0.860											
Sample ID MB-R28452	SampType: MBLK	TestCode: EPA 903.1: F	Ra 226 and EP	4 904.0: F	Ra 228-Subbe	d						
Client ID: PBW	Batch ID: R28452	RunNo: 28452										
Prep Date:	Analysis Date: 8/18/2015	SeqNo: 859847	Units: pCi/L									
Analyte	Result PQL SPK value	e SPK Ref Val %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual						

- * 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

Page 25 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly R.O. Reject

Sample ID MB-20626

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

PBW

Batch ID: 20626

RunNo: 28016

Prep Date:

8/5/2015

Analysis Date: 8/6/2015

SeqNo: 843340

Units: mg/L

RPDLimit

Qual

Analyte

Result

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

Total Dissolved Solids

ND

SampType: LCS

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW

Batch ID: 20626

RunNo: 28016

Prep Date: 8/5/2015

Sample ID LCS-20626

Analysis Date: 8/6/2015

SeqNo: 843341

Units: mg/L

%RPD **RPDLimit**

Analyte

Result PQL

SPK value SPK Ref Val

%REC LowLimit 101

1000

HighLimit

Total Dissolved Solids

1010

80

120

Qual

20.0

Qualifiers:

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

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenviroamenial.com

Sample Log-In Check List

Client Name NAVAJO REFINING CO Work Order Number:	1508065	RcptNo: 1
Received by/date: CS 08/04/15		
Logged By: Ashley Gallegos 8/4/2015 9:13:00 AM	A	
Completed By: Ashley Gallegos 8/4/2015 10:09:41 AM	4	
Reviewed By	ď	
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		
Was an attempt made to cool the samples?	Yes 🗹 No 🗌	NA Lo
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑ No □	NA 🗆
6. Sample(s) in proper container(s)?	Yes 🗹 No 🗌	
7. Sufficient sample volume for indicated test(s)?	Yes 🗹 No 🗌	
8. Are samples (except VOA and ONG) properly preserved?	Yes 🗸 No 🗌	
9. Was preservative added to bottles?	Yes No M	NA C
10. VOA vials have zero headspace?	Yes 10 08/05/15	No VOA Viais
11, Were any sample containers received broken?	Yes No 🗹	
		# of preserved bottles checked /2 /
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🗸 No 🗌	for pH: (<2)or f12,unless noted)
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? (If no, notify customer for authorization.)	Yes V No	Checked by:
Special Handling (if applicable)		
16. Was client notified of all discrepancies with this order?	Yes 🗌 No 🗆	NA ☑
Person Notified Date	efuerja azanto antekso z secondokuncjić o projektički ki kiliki kiliki kiliki 1949 (1944).	en verger var i vergen en vergever i vir vir vir vir vir vir vir vir vir
By Whom: Via:	☐ eMail ☐ Phone ☐ Fax	In Person
Regarding:		abuni di akada Danacha un delerin ni ni menden delerin ni hini di menden delerin ni di menden delerin
Client Instructions:	- Meteorita programma del SESSA ASSESCIO ES ESCUDA ES ASSESCIONA AS ASSESCIO DE CASA CONTRA C	MANAGEMENT AND
17. Additional remarks:		
18. Cooler Information		1
Cooler No Temp °C Condition Seal Intact Seal No S	Seal Date Signed By	

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4	HALL ENVIRONMENTAL ANALYSIS LABORATORY www.halienvironmental.com kins NE - Albuquerque, NM 87109 345-3975 Fax 505-345-4107 Analysis Request				Total Dissolved Solids								e a supplement	op spoje seco												5 to 5	Inditionations 1,1,2-1rentorestrytene; 1,1-Jidhiordemane; 1,1-Dignorodings; Discompethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform;	1	
Y d		<i>f</i>	Albuquerge Activity (Ra-226+Ra-228) Sadioactivity (Ra-226+Ra-228) Sulfate Chloride Activity (Ra-226+Ra-228) Sulfate Chloride Activity (Ra-226+Ra-228) Sulfate Chloride Activity (Ra-226+Ra-228)) 	Republican Ann Ann													9 6 C	ğ. 5.	loride			
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E		0	Re	#		age.	1	ps	E	X Yes	pera	<u>o</u>	1-un H2S	HCL	HNO3	HNO3	NaOH	HNO3	-	unpres		HC	E N	옆	도		火		
Turn-Around Time:	X Standard	Project Name	0.0	Project #, P.O. # 167796		Project Manager:		Robert Combs	L.		Sample Temperature:	Container Type and #	ם	3-40ml VOA	Q.	O.	<u>a</u>	Ь	3-40ml VOA	Glass	Glass	3-40ml VOA HCI	1-250mlGlas unpres	Slass	2-40ml VOA	ολ:	,]	Ωλ:	
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Chain-of-Custody Record	Clent: Navajo Refinery		1 .		Phone #; 575-748-3311	email or Fax#: 575-746-5451					,	Matrix	iguid	liquid	iquid	iquid	biupii	liquid	liquid	liquid	Inquid	liquid	liquid	liquid	liquid	Relinquished by: Elizabeth Salsborn Received by:	Priciper	Reling	
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October 2, 2015

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail/Return Receipt 7015 0640 0006 6577 5018

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order – RO Reject August 2015 ACO - Civil Penalty Payment Navajo Refining Company, L.L.C.

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$3,100 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for August 2015 submitted electronically on September 15, 2015. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc:

OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC

Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

151002 RO Reject ACO - Civil Penalty Payment

NAVAJO REFINING COMPANY, L.L.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225 Check Date
Check Amount
Vendor No
Payment Document
Company Code

09/29/2015 3,100.00 5126527 2000124161 1020

Invoice Date	Invoice Number	Description		Invoice Amount Di	iscount Amount	Net Amount
09/28/2015	092815	STIPULATED	PENALTY FOR RO	3,100.00	0.00	3,100.00
Payment 2000124161		Check number	Date 09/29/2015	Currency USD		Payment amount

I PLEASE FOLD ON PERFORATION AND DETACH HERE I

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT.

CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTON

NAVAJO REFINING COMPANY, L.I.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507 64-1278/611

1**000309264** 09/29/2015

PAY ** THREE THOUSAND ONE HUNDRED and 00 /100 USD***

TO THE

ORDER OF STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR

> 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Bank of America N.A.

Stephen D Wise

AUTHORIZED SIGNATURE



Czels copy

705 SCHIP 3: 31

September 10, 2015

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail/Return Receipt 7014 3490 0000 6269 9046

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order – RO Reject July 2015 ACO – Civil Penalty Payment Navajo Refining Company, L.L.C.

Artesia Refinery

Dear Director:

Enclosed please find a check in the amount of \$2,700 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). This penalty was calculated and reported to OCD in the monthly report for July 2015 submitted electronically on August 14, 2015. If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

Environmental Manager

Enclosure

Electronic cc: OCD:

Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

HFC Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

150910 RO Reject ACO - Civil Penalty Payment

NAVAJO REFINING COMPANY, L.L.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF N M GENERAL FUND DIRECTOR OIL CONSERVATION DIV NM EMNR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Check Date 08/19/2015 Check Amount 2,700.00 Vendor No 5126527 Payment Document 2000099552 Company Code 1020

Invoice Date	Invoice Number	Description		Invoice	Amount 1	Discount Amount	Net Amount
08/18/2015	081815	STIPULATED	PENALTY FOR RO	REJECT FL	2,700.00	0.00	2,700.00
Payment o	document	Check number	Date	(Currency		Payment amount

I PLEASE FOLD ON PERFORATION AND DETACH HERE I

VERIFY THE AUTHENTICITY OF THIS MULTI-TONE SECURITY DOCUMENT.

CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTOM.

L.L.C NAVAJO REFINING COMPANY, 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

08/19/2015

PAY EXACTLY

********2,700.00*USD

VOID AFTER 180 DAYS

PAY

*** TWO THOUSAND SEVEN HUNDRED and 00 /100 USD***

TO THE

STATE OF N M GENERAL FUND ORDER OF

DIRECTOR OIL CONSERVATION DIV

NM EMNR

1220 S ST FRANCIS DR

SANTA FE NM 87505-4225

Bank of America N.A.

AUTHORIZED SIGNATURE

Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

Sent: Friday, August 14, 2015 10:23 AM

To: Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Coons, Christina (Christie); Denton, Scott

Subject: ACO Monthly Report for July 2015

Attachments: 150814 ACO Monthly Report for July 2015 with data.pdf

Jim & Carl,

Attached it the monthly report for July concerning the RO Reject.

Let me know if you have any questions.

Thanks,

SMD

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

Scott.Denton@HollyFrontier.com

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August 14, 2015

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report - July 2015 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's August 2015 monthly report, for the period of July 1-31, under the Order.

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from July 1 through July 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from July 1 through July 31.

Navajo has calculated a penalty of \$2,700 for July 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 27 days in July. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on July 1, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

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

anticipates completion and submittal of the associated background groundwater concentration report to OCD in late August or early September 2015.

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

As the permit modification application was deemed to be administratively complete, Navajo completed the public notice requirements set forth in 20.6.2.3108B New Mexico Administrative Code (NMAC) regarding public notice of the permit modification request. Mailings were sent to adjacent landowners within a 1/3 mile radius of the property, signs have been posted at the discharge location (Richey Avenue) and at the Refinery offices, and the notice has been published in the *Artesia Daily Press*. Navajo is currently preparing the proof of completion of the public notice requirements for submittal to the OCD.

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1 Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

						Ďaily	
	Permanent	t RO Units		Tempor	ary Unit	Discharge	
	1			Total RC) Reject	Volume	
		Combined	RO Reject				
Metere	d Data		Discharge (Calculated)		(Calculated from Log		
				Da			
GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL	
SOUTH	NORTH						
126	107	233	7989	62		10129	
128	106	234	8023	62	2131	10154	
137	110	247	8469	63	2160	10629	
140	111	251	8606	66	2270	10876	
132	109	241	8263	67	2293	10556	
125	113	238	8160	68	2331	10491	
129	107	236	8091	71	2426	10517	
131	118	249	8537	74	2545	11082	
131	104	235	8057	64	2204	10261	
138	107	245	8400	65	2236	10636	
134	109	243	8331	68	2317	10648	
125	102	227	7783	70	2401	10184	
137	103	240	8229	72	2452	10681	
133	108	241	8263	73	2514	10777	
132	77	209	7166	74	2537	9703	
132	91	223	7646	75	2571	10217	
132	108	240	8229	76	2591	10820	
133	108	241	8263	78	2673	10936	
129	115	244	8366	77	2636	11002	
133	109	242	8297	78	2689	10986	
127	108	235	8057	78	2684	10741	
134	78	212	7269	77	2655	9924	
131	85	216	7406	75	2569	9975	
140	111	251	8606	63	2150	10756	
****	111	238	8160	64	2201	10361	
~~~		238	8160	65	2228	10388	
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	GPM SOUTH 126 128 137 140 132 125 129 131 131 138 134 125 137 133 132 132 132 132 133 129 133 127 134 131	Metered Data           GPM         GPM           SOUTH         NORTH           126         107           128         106           137         110           140         111           132         109           125         113           129         107           131         118           131         104           138         107           134         109           125         102           137         103           133         108           132         77           132         91           132         108           133         108           129         115           133         109           127         108           134         78           131         85           140         111           127         111           127         111           133         113           134         78           131         85           140         111           127	GPM         GPM         GPM           SOUTH         NORTH         126         107         233           128         106         234         137         110         247           140         111         251         132         109         241         125         133         238         129         107         236         131         118         249         131         118         249         131         104         235         138         107         245         134         109         243         125         102         227         137         103         240         133         108         241         132         77         209         132         91         223         132         108         240         133         108         241         129         115         244         133         108         241         129         115         244         133         109         242         127         108         235         134         78         212         131         85         126         140         111         251         127         111         238         127         111         238         127         111	Metered Data         Combined RO Reject Discharge (Calculated)           GPM         GPM         GPM         BBL/DAY           SOUTH         NORTH         126         107         233         7989           128         106         234         8023         137         110         247         8469           140         111         251         8606         132         109         241         8263           125         113         238         8160         8091         131         118         249         8537           131         118         249         8537         131         104         235         8057           138         107         245         8400         8091         133         104         235         8057           138         107         245         8400         8209         133         102         227         7783         8331         125         102         227         7783         137     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     245         8400         65         65         134         109         243         8331         68         68         125         102         227         7783         70         70         137         133         108         241         8263         73         73         137         103         240         8229         72</td> <td>Metered Data         Combined Ro Reject Discharge (Calculated) Calculated from Log Data)           GPM         GPM         GPM         BBL/DAY         GPM         BBL/DAY           SOUTH         NORTH         NORTH         NORTH         PM         BBL/DAY           126         107         233         7989         62         2140           128         106         234         8023         62         2131           137         110         247         8469         63         2160           140         111         251         8606         66         2270           132         109         241         8263         67         2293           125         113       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      68         129         107         236         8091         71         131         118         249         8537         74         131         104         235         8057         64         138         107         245         8400         65         65         134         109         243         8331         68         68         125         102         227         7783         70         70         137         133         108         241         8263         73         73         137         103         240         8229         72	Metered Data         Combined Ro Reject Discharge (Calculated) Calculated from Log Data)           GPM         GPM         GPM         BBL/DAY         GPM         BBL/DAY           SOUTH         NORTH         NORTH         NORTH         PM         BBL/DAY           126         107         233         7989         62         2140           128         106         234         8023         62         2131           137         110         247         8469         63         2160           140         111         251         8606         66         2270           132         109         241         8263         67         2293           125         113         238         8160         68         2331           129         107         236         8091         71         2426           131         118         249         8537         74         2545           131         104         235         8057         64         2204           138         107         245         8400         65         2236           134         109         243         8331         68	

Attachment 2 Stipulated Penalty Calculation

# Calculation of Stipulated Penalties - July 2015

Order Section III., Paragraph Number	Penalty	Payment Þer day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	and the		A
2.b.i.1	- <b>Prior</b> to Navajo submitting a discharge permit modification application	\$1,000	·	\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	27	\$2,700
2.b.i.2	- If the daily volume exceeds 15,000 barrels <b>after</b> Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	mount:	\$2,700

Attachment 3 Analytical Lab Report



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

July 22, 2015

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly RO Reject OrderNo.: 1507157

#### Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/3/2015 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 <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1507157

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly RO Reject
 Collection Date: 7/1/2015 2:50:00 PM

 Lab ID:
 1507157-001
 Matrix: AQUEOUS
 Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL (	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: DBD
Arsenic	ND	0.0050		mg/L	5	7/14/2015 1:48:38 PM	R27505
Lead	ND	0.00050		mg/L	1	7/13/2015 4:43:45 PM	R27474
Selenium	0.011	0.0010		mg/L	1	7/14/2015 1:11:54 PM	R27505
Uranium	0.0066	0.00050		mg/L	1	7/13/2015 4:43:45 PM	R27474
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	SUB
Radium-226	1.79	0.574		pCi/L	1	7/16/2015	R27657
Radium-226 ±	0.792	0.574		pCi/L	1	7/16/2015	R27657
Radium-228	0.141	0.802		pCi/L	1	7/16/2015	R27657
Radium-228 ±	0.359	0.802		pCi/L	1	7/16/2015	R27657
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	3.7	2.0		mg/L	20	7/6/2015 10:17:45 PM	R27319
Chloride	210	10		mg/L	20	7/6/2015 10:17:45 PM	R27319
Sulfate	1800	50		mg/L	100	7/15/2015 4:09:28 PM	R27535
Nitrate+Nitrite as N	2.1	1.0		mg/L	5	7/6/2015 11:32:12 PM	R27319
SM2540C MOD: TOTAL DISSOLVED SC	LIDS					Analyst	: KS
Total Dissolved Solids	3890	20.0	*	mg/L	1	7/9/2015 2:45:00 PM	20140
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	7/13/2015	R27657
SM4500-H+B: PH						Analyst	: JRR
рН	8.04	1.68	Н	pH units	1	7/9/2015 10:05:05 PM	R27410
EPA METHOD 200.7: DISSOLVED META	ALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	7/7/2015 3:24:49 PM	R27323
Barium	0.074	0.0020		mg/L	1	7/7/2015 3:24:49 PM	R27323
Boron	0.088	0.040		mg/L	1	7/7/2015 3:24:49 PM	R27323
Cadmium	ND	0.0020		mg/L	1	7/7/2015 3:24:49 PM	R27323
Chromium	ND	0.0060		mg/L	1	7/7/2015 3:24:49 PM	R27323
Cobalt	ND	0.0060		mg/L	1	7/7/2015 3:24:49 PM	R27323
Copper	ND	0.0060		mg/L	1	7/7/2015 3:24:49 PM	R27323
Iron	ND	0.020		mg/L	1	7/7/2015 3:24:49 PM	R27323
Manganese	ND	0.0020		mg/L	1	7/7/2015 3:24:49 PM	R27323
Molybdenum	ND	0.0080		mg/L	1	7/7/2015 3:24:49 PM	R27323
Nickel	ND	0.010		mg/L	1	7/7/2015 3:24:49 PM	R27323
Silver	ND	0.0050		mg/L	1	7/7/2015 3:24:49 PM	R27323
Zinc	0.028	0.010		mg/L	1	7/7/2015 3:24:49 PM	R27323
EPA METHOD 245.1: MERCURY						Analyst	: JLF
Mercury	ND	0.00020		mg/L	1	7/8/2015 4:35:51 PM	20160

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

Page 1 of 27

- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order 1507157

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Navajo Refining Company Client Sample ID: R.O. Reject

**Project:** Monthly RO Reject **Collection Date:** 7/1/2015 2:50:00 PM 1507157-001 Matrix: AQUEOUS Received Date: 7/3/2015 9:45:00 AM Lab ID:

Analyses	Result	RL (	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analys	: KJH
1,2-Dibromoethane	ND	0.010	μg/L	1	7/9/2015 5:02:41 PM	20171
EPA METHOD 8082: PCB'S					Analys	: SCC
Aroclor 1016	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Aroclor 1221	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Aroclor 1232	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Aroclor 1242	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Aroclor 1248	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Aroclor 1254	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Aroclor 1260	ND	1.0	μg/L	1	7/14/2015 8:23:58 AM	20149
Surr: Decachlorobiphenyl	63.2	44.5-110	%REC	1	7/14/2015 8:23:58 AM	20149
Surr: Tetrachloro-m-xylene	65.6	31.8-95.7	%REC	1	7/14/2015 8:23:58 AM	20149
EPA METHOD 8015M/D: DIESEL RA	NGE				Analys	:: KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	7/6/2015 8:38:10 PM	20109
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	7/6/2015 8:38:10 PM	20109
Surr: DNOP	99.5	76.5-150	%REC	1	7/6/2015 8:38:10 PM	20109
EPA METHOD 8015D: GASOLINE RA	ANGE				Analys	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	7/7/2015 4:57:38 PM	R27335
Surr: BFB	86.0	57.8-137	%REC	1	7/7/2015 4:57:38 PM	R27335
EPA METHOD 8310: PAHS					Analys	: SCC
Naphthalene	ND	2.0	μg/L	1	7/8/2015 3:12:02 PM	20150
1-Methylnaphthalene	ND	2.0	μg/L	1	7/8/2015 3:12:02 PM	20150
2-Methylnaphthalene	ND	2.0	μg/L	1	7/8/2015 3:12:02 PM	20150
Benzo(a)pyrene	ND	0.070	μg/L	1	7/8/2015 3:12:02 PM	20150
Surr: Benzo(e)pyrene	58.5	37.2-136	%REC	1	7/8/2015 3:12:02 PM	20150
EPA METHOD 8260B: VOLATILES					Analys	:: cadg
Benzene	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Toluene	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Ethylbenzene	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Carbon Tetrachloride	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Chloroform	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
1,1-Dichloroethane	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
1,1-Dichloroethene	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Methylene Chloride	ND	3.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395

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

#### **Qualifiers:**

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order **1507157** 

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

 Project:
 Monthly RO Reject
 Collection Date: 7/1/2015 2:50:00 PM

 Lab ID:
 1507157-001
 Matrix: AQUEOUS
 Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	cadg
1,1,1-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Trichloroethene (TCE)	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Vinyl chloride	ND	1.0	μg/L	1	7/10/2015 4:49:29 AM	R27395
Xylenes, Total	ND	1.5	μg/L	1	7/10/2015 4:49:29 AM	R27395
Surr: 1,2-Dichloroethane-d4	97.5	70-130	%REC	1	7/10/2015 4:49:29 AM	R27395
Surr: 4-Bromofluorobenzene	104	70-130	%REC	1	7/10/2015 4:49:29 AM	R27395
Surr: Dibromofluoromethane	93.5	70-130	%REC	1	7/10/2015 4:49:29 AM	R27395
Surr: Toluene-d8	102	70-130	%REC	1	7/10/2015 4:49:29 AM	R27395
TOTAL PHENOLICS BY SW-846 9067					Analyst	: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	7/7/2015	20119

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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order **1507157**

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject Collection Date:

**Lab ID:** 1507157-002 **Matrix:** TRIP BLANK **Received Date:** 7/3/2015 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst	: КЈН
1,2-Dibromoethane	ND	0.010	μg/L	1	7/9/2015 5:16:26 PM	20171
EPA METHOD 8260B: VOLATILES					Analyst	: cadg
Benzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Toluene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Ethylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Naphthalene	ND	2.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1-Methylnaphthalene	ND	4.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
2-Methylnaphthalene	ND	4.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Acetone	ND	10	μg/L	1	7/10/2015 5:18:14 AM	R27395
Bromobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Bromodichloromethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Bromoform	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Bromomethane	ND	3.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
2-Butanone	ND	10	μg/L	1	7/10/2015 5:18:14 AM	R27395
Carbon disulfide	ND	10	μg/L	1	7/10/2015 5:18:14 AM	R27395
Carbon Tetrachloride	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Chlorobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Chloroethane	ND	2.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Chloroform	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Chloromethane	ND	3.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
2-Chlorotoluene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
4-Chlorotoluene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
cis-1,2-DCE	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Dibromochloromethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Dibromomethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2-Dichlorobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,3-Dichlorobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,4-Dichlorobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Dichlorodifluoromethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1-Dichloroethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1-Dichloroethene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2-Dichloropropane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395

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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

#### Lab Order **1507157**

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject Collection Date:

**Lab ID:** 1507157-002 **Matrix:** TRIP BLANK **Received Date:** 7/3/2015 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: cadg
1,3-Dichloropropane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
2,2-Dichloropropane	ND	2.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1-Dichloropropene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Hexachlorobutadiene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
2-Hexanone	ND	10	μg/L	1	7/10/2015 5:18:14 AM	R27395
Isopropylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
4-Isopropyltoluene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
4-Methyl-2-pentanone	ND	10	μg/L	1	7/10/2015 5:18:14 AM	R27395
Methylene Chloride	ND	3.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
n-Butylbenzene	ND	3.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
n-Propylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
sec-Butylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Styrene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
tert-Butylbenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
trans-1,2-DCE	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1,1-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Trichloroethene (TCE)	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Trichlorofluoromethane	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
1,2,3-Trichloropropane	ND	2.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Vinyl chloride	ND	1.0	μg/L	1	7/10/2015 5:18:14 AM	R27395
Xylenes, Total	ND	1.5	μg/L	1	7/10/2015 5:18:14 AM	R27395
Surr: 1,2-Dichloroethane-d4	97.1	70-130	%REC	1	7/10/2015 5:18:14 AM	R27395
Surr: 4-Bromofluorobenzene	107	70-130	%REC	1	7/10/2015 5:18:14 AM	R27395
Surr: Dibromofluoromethane	95.8	70-130	%REC	1	7/10/2015 5:18:14 AM	R27395
Surr: Toluene-d8	102	70-130	%REC	1	7/10/2015 5:18:14 AM	R27395

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
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- 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-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: R27323 RunNo: 27323

Prep Date:	Analysis I	Date: 7/	7/2015	5	SeqNo: 8	18884	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS	Samp	Type: <b>LC</b>	S	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Bato	ch ID: R2	7323	R	RunNo: 2	7323				
Prep Date:	Analysis	Date: <b>7/</b>	7/2015	S	SeqNo: 8	18885	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	106	85	115		·	·
Barium	0.47	0.0020	0.5000	0	94.9	85	115			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.9	85	115			
Copper	0.47	0.0060	0.5000	0	95.0	85	115			
Iron	0.47	0.020	0.5000	0	93.1	85	115			
Manganese	0.48	0.0020	0.5000	0	96.9	85	115			
Molybdenum	0.49	0.0080	0.5000	0	98.0	85	115			
Nickel	0.48	0.010	0.5000	0	95.7	85	115			
Silver	0.099	0.0050	0.1000	0	99.3	85	115			
Zinc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID LLLCS	Samp ⁻	Гуре: <b>LC</b>	SLL	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batc	h ID: <b>R2</b>	7323	RunNo: 27323						
Prep Date:	Analysis [	Date: <b>7/</b>	7/2015	S	eqNo: 8	18886	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	147	50	150			
Barium	0.0022	0.0020	0.002000	0	112	50	150			

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID LLLCS	Samp	Type: <b>LC</b>	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: BatchQC	Bato	h ID: <b>R2</b>	7323	R	RunNo: 2	7323				
Prep Date:	Analysis	Date: <b>7/</b>	7/2015	S	SeqNo: 8	18886	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	89.4	50	150			
Cadmium	0.0020	0.0020	0.002000	0	101	50	150			
Chromium	ND	0.0060	0.006000	0	89.8	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	ND	0.0060	0.006000	0	99.2	50	150			
Iron	0.022	0.020	0.02000	0	112	50	150			
Manganese	ND	0.0020	0.002000	0	98.0	50	150			
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150			
Nickel	ND	0.010	0.005000	0	92.4	50	150			
Silver	0.0055	0.0050	0.005000	0	109	50	150			
Zinc	ND	0.010	0.005000	0	90.4	50	150			

•		71								
Client ID: PBW	Bato	ch ID: R2	7323	F	RunNo: 2	7323				
Prep Date:	Analysis I	Date: <b>7/</b>	7/2015	5	SeqNo: 8	18887	Units: mg/L	•		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS	SampType: L	cs	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: R	27323	F	RunNo: 2	7323					
Prep Date:	Analysis Date: 7	/7/2015	8	SeqNo: 8	18888	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.54 0.020	0.5000	0	108	85	115				
Barium	0.48 0.0020	0.5000	0	95.6	85	115				
Boron	0.51 0.040	0.5000	0	101	85	115				
Cadmium	0.51 0.0020	0.5000	0	103	85	115				

#### Qualifiers:

Sample ID MB

- * 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

TestCode: EPA Method 200.7: Dissolved Metals

- 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS	Samp	Type: <b>LC</b>	s	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Bato	h ID: <b>R2</b>	7323	R	tunNo: 2	7323				
Prep Date:	Analysis	Date: <b>7/</b>	7/2015	S	SeqNo: 8	18888	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.48	0.0060	0.5000	0	96.3	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.5	85	115			
Copper	0.48	0.0060	0.5000	0	96.1	85	115			
Iron	0.49	0.020	0.5000	0	97.1	85	115			
Manganese	0.49	0.0020	0.5000	0	97.6	85	115			
Molybdenum	0.49	0.0080	0.5000	0	98.1	85	115			
Nickel	0.48	0.010	0.5000	0	96.1	85	115			
Silver	0.10	0.0050	0.1000	0	99.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.0	85	115			

Sample ID LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: BatchQC	Bato	ch ID: R2	7323	R	RunNo: 2	7323				
Prep Date:	Analysis	Date: <b>7/</b>	7/2015	S	SeqNo: 8	18889	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	133	50	150			
Barium	0.0024	0.0020	0.002000	0	118	50	150			
Boron	ND	0.040	0.04000	0	89.1	50	150			
Cadmium	ND	0.0020	0.002000	0	89.0	50	150			
Chromium	ND	0.0060	0.006000	0	75.2	50	150			
Cobalt	0.0065	0.0060	0.006000	0	108	50	150			
Copper	0.0066	0.0060	0.006000	0	110	50	150			
Iron	0.021	0.020	0.02000	0	106	50	150			
Manganese	0.0020	0.0020	0.002000	0	103	50	150			
Molybdenum	0.011	0.0080	0.008000	0	140	50	150			
Nickel	ND	0.010	0.005000	0	104	50	150			
Silver	ND	0.0050	0.005000	0	72.0	50	150			
Zinc	ND	0.010	0.005000	0	88.8	50	150			

#### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Project:	_	Refining Company ly RO Reject								
Sample ID	LCS	SampType: LC	s	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	LCSW	Batch ID: R2	7474	F	RunNo: 2	7474				
Prep Date:		Analysis Date: 7/	13/2015	8	SeqNo: 8	24374	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.012 0.00050	0.01250	0	96.3	85	115			
Uranium		0.012 0.00050	0.01250	0	95.6	85	115			
Sample ID	LCS	SampType: <b>LC</b>	s	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	LCSW	Batch ID: R2	7474	F	RunNo: 2	7474				
Prep Date:		Analysis Date: 7/	13/2015	8	SeqNo: 8	24375	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.012 0.00050	0.01250	0	96.4	85	115			
Uranium		0.012 0.00050	0.01250	0	96.3	85	115			
Sample ID	LCSLL	SampType: <b>LC</b>	SLL	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	BatchQC	Batch ID: R2	7474	F	RunNo: 2	7474				
Prep Date:		Analysis Date: 7/	13/2015	S	SeqNo: 8	24376	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND 0.00050	0.0005000	0	94.0	50	150			
Uranium		ND 0.00050	0.0005000	0	92.9	50	150			
Sample ID	LCSLL	SampType: LC	SLL	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	BatchQC	Batch ID: R2	7474	F	RunNo: 2	7474				
Prep Date:		Analysis Date: 7/	13/2015	S	SeqNo: 8	24377	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.00051 0.00050	0.0005000	0	102	50	150			
Uranium		0.00050 0.00050	0.0005000	0	101	50	150			
Sample ID	MB	SampType: MI	BLK	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	PBW	Batch ID: R2	7474	F	RunNo: 2	7474				
Prep Date:		Analysis Date: 7/	13/2015	S	SeqNo: 8	24379	Units: mg/L			
Analyte		Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND 0.00050					<u> </u>			
Uranium		ND 0.00050								
Sample ID	MB	SampType: <b>M</b> I	BLK	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		

#### Qualifiers:

Analyte

Prep Date:

Client ID: PBW

* Value exceeds Maximum Contaminant Level.

Batch ID: R27474

Analysis Date: 7/13/2015

Result

- 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

Units: mg/L

HighLimit

%RPD

ND Not Detected at the Reporting Limit

RunNo: 27474

SeqNo: 824380

P Sample pH Not In Range

SPK value SPK Ref Val %REC LowLimit

RL Reporting Detection Limit

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Qual

**RPDLimit** 

**Client:** 

### Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: **1507157** 

22-Jul-15

Project:		Monthly RO Reje	ect								
Sample ID	MB	Sam	pType: <b>N</b>	IBLK	Tes	tCode: El	PA 200.8: [	Dissolved Met	als		
Client ID:	PBW	Ва	tch ID: R	27474	R	unNo: 2	7474				
Prep Date:		Analysis	Date: 7	7/13/2015	S	SeqNo: 8	24380	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead Uranium		ND ND	0.00050 0.00050								
Sample ID	LCS	Sam	pType: L	cs	Tes	tCode: El	PA 200.8: [	Dissolved Met	als		
Client ID:	LCSW	Ва	tch ID: R	27505	R	unNo: 2	7505				
Prep Date:		Analysis	Date:	7/14/2015	S	SeqNo: 8	25388	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	101	85	115			
Selenium		0.025	0.0010	0.02500	0	100	85	115			
Sample ID	LCS	Sam	pType: L	cs	Tes	tCode: El	PA 200.8: [	Dissolved Me	als		
Client ID:	LCSW	Ba	tch ID: R	27505	R	tunNo: 2	7505				
		Du			_		25200	Units: mg/L			
Prep Date:			Date: 7	7/14/2015	S	seqNo: 8	20009	Office Ing/L			
Prep Date: Analyte			Date: 7		SPK Ref Val	•	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte		Analysis		SPK value		•		ŭ	%RPD	RPDLimit	Qual
Analyte Arsenic		Analysis Result	PQL	SPK value 0.02500	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
•	LLLCS	Analysis Result 0.025 0.026	PQL 0.0010	SPK value 0 0.02500 0 0.02500	SPK Ref Val 0 0	%REC 100 104	LowLimit 85 85	HighLimit		RPDLimit	Qual
Analyte Arsenic Selenium Sample ID	LLLCS BatchQ	Analysis Result 0.025 0.026 Sam	PQL 0.0010 0.0010	SPK value 0 0.02500 0 0.02500 CSLL	SPK Ref Val 0 0	%REC 100 104	LowLimit 85 85 PA 200.8: I	HighLimit 115 115		RPDLimit	Qual
Analyte Arsenic Selenium Sample ID		Analysis Result 0.025 0.026 Sam CC Ba	PQL 0.0010 0.0010 pType: <b>L</b> tch ID: <b>R</b>	SPK value 0 0.02500 0 0.02500 CSLL	SPK Ref Val 0 0 Tes:	%REC 100 104 tCode: <b>El</b>	LowLimit 85 85 PA 200.8: <b>D</b>	HighLimit 115 115		RPDLimit	Qual
Analyte Arsenic Selenium Sample ID Client ID:		Analysis Result 0.025 0.026 Sam CC Ba	PQL 0.0010 0.0010 pType: L tch ID: R	SPK value 0 0.02500 0 0.02500 CSLL 27505 7/14/2015	SPK Ref Val 0 0 Tes:	%REC 100 104 tCode: <b>El</b>	LowLimit 85 85 PA 200.8: <b>D</b>	HighLimit 115 115 Oissolved Met		RPDLimit  RPDLimit	Qual
Analyte Arsenic Selenium Sample ID Client ID: Prep Date:		Analysis  Result 0.025 0.026  Sam  RC Ba  Analysis	PQL 0.0010 0.0010 pType: L tch ID: R	SPK value 0 0.02500 0 0.02500 CSLL 27505 7/14/2015 SPK value	SPK Ref Val 0 0 Tes:	%REC 100 104 Code: El cunNo: 2'	LowLimit 85 85 PA 200.8: [7505 25390	HighLimit 115 115  Dissolved Med Units: mg/L	als		
Analyte Arsenic Selenium Sample ID Client ID: Prep Date: Analyte		Analysis  Result  0.025  0.026  Sam  QC Ba  Analysis  Result	PQL 0.0010 0.0010 pType: L tch ID: R s Date: 7	SPK value 0 0.02500 0 0.02500 CSLL 27505 7/14/2015 SPK value 0 0.001000	SPK Ref Val  0 0 Tes:  R SPK Ref Val	%REC 100 104 Code: El cunNo: 2 deqNo: 8	LowLimit 85 85 PA 200.8: [7505	HighLimit 115 115 Dissolved Med Units: mg/L HighLimit	als		

#### Qualifiers:

Analyte

Client ID: BatchQC

Prep Date:

Analyte

Arsenic

Selenium

Sample ID MB

Client ID:

Prep Date:

* Value exceeds Maximum Contaminant Level.

Batch ID: R27505

**PQL** 

0.0010

0.0010

Batch ID: R27505

Analysis Date: 7/14/2015

SampType: MBLK

SPK value SPK Ref Val

0

0

SPK value SPK Ref Val %REC

0.001000

0.001000

Analysis Date: 7/14/2015

Result

0.0010

0.0011

Result

- 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

RunNo: 27505

SeqNo: 825391

LowLimit

50

50

TestCode: EPA 200.8: Dissolved Metals

LowLimit

%REC

102

108

RunNo: 27505

SeqNo: 825392

Units: mg/L

HighLimit

Units: mg/L

HighLimit

150

150

%RPD

%RPD

**RPDLimit** 

**RPDLimit** 

Qual

Qual

- P Sample pH Not In Range
- RL Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R27505 RunNo: 27505

Prep Date: Analysis Date: 7/14/2015 SeqNo: 825392 Units: mg/L

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

 Arsenic
 ND
 0.0010

 Selenium
 ND
 0.0010

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R27505 RunNo: 27505

Prep Date: Analysis Date: 7/14/2015 SeqNo: 825393 Units: mg/L

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

 Arsenic
 ND
 0.0010

 Selenium
 ND
 0.0010

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20160 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 20160 RunNo: 27365

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820623 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-20160 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 20160 RunNo: 27365

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820626 Units: mg/L

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

Mercury 0.0049 0.00020 0.005000 0 98.8 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-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: R27319 RunNo: 27319

Prep Date: Analysis Date: 7/6/2015 SeqNo: 818775 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

 Nitrate+Nitrite as N
 ND
 0.20

Sample ID LCS TestCode: EPA Method 300.0: Anions SampType: LCS Client ID: LCSW Batch ID: R27319 RunNo: 27319 Prep Date: Analysis Date: 7/6/2015 SeqNo: 818776 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

0 Fluoride 0.51 0.10 0.5000 102 90 110 Chloride 4.7 0.50 5.000 0 93.6 90 110 0.20 3.500 0 99.2 90 110 Nitrate+Nitrite as N 3.5

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions

Client ID: PBW Batch ID: R27535 RunNo: 27535

Prep Date: Analysis Date: 7/15/2015 SeqNo: 826667 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: R27535 RunNo: 27535

Prep Date: Analysis Date: 7/15/2015 SeqNo: 826668 Units: mg/L

Analyte SPK value SPK Ref Val %REC %RPD **RPDLimit** Result LowLimit HighLimit Qual Sulfate 10 0.50 10.00 0 100 90

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20171 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 20171 RunNo: 27393

Prep Date: 7/9/2015 Analysis Date: 7/9/2015 SeqNo: 821853 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-20171 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 20171 RunNo: 27393

Prep Date: 7/9/2015 Analysis Date: 7/9/2015 SeqNo: 821854 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 0 107 70 130

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20109 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 20109 RunNo: 27291 Prep Date: 7/6/2015 Analysis Date: 7/6/2015 SeqNo: 818285 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 0.88 1.000 88.5 76.5 150

Sample ID LCS-20109 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Client ID: LCSW Batch ID: 20109 RunNo: 27291 Prep Date: 7/6/2015 Analysis Date: 7/6/2015 SeqNo: 818286 Units: mg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 81.8 60.1 4.1 5.000 156 Surr: DNOP 0.49 0.5000 97.8 76.5 150

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-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: **R27335** RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819311 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Gasoline Range Organics (GRO) ND 0.050

20.00 Surr: BFB 18 89.3 57.8 137

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R27335 RunNo: 27335

SeqNo: 819312 Prep Date: Analysis Date: 7/7/2015 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 95.0 80 120 Surr: BFB 19 20.00 94.6 57.8 137

TestCode: EPA Method 8015D: Gasoline Range Sample ID 1507157-001JMS SampType: MS

Client ID: R.O. Reject Batch ID: R27335 RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819318 Units: mg/L

PQL SPK Ref Val %REC %RPD **RPDLimit** Analyte Result SPK value LowLimit HighLimit Qual Gasoline Range Organics (GRO) 0.51 0.050 0.5000 0.04740 92.4 51 131

Surr: BFB 19 20.00 92.6 57.8 137

Sample ID 1507157-001JMSD SampType: MSD TestCode: EPA Method 8015D: Gasoline Range

Client ID: R.O. Reject Batch ID: R27335 RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819319 Units: mg/L

%REC Analyte Result **PQL** SPK value SPK Ref Val LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.48 0.050 0.5000 0.04740 85.8 51 131 6.70 20 Surr: BFB 18 20.00 91.6 57.8 137 0 0

#### Qualifiers:

Value exceeds Maximum Contaminant Level.

Е Value above quantitation range

Analyte detected below quantitation limits J

0 RSD is greater than RSDlimit

R RPD outside accepted recovery limits

Spike Recovery outside accepted recovery limits

В Analyte detected in the associated Method Blank

Η Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

P Sample pH Not In Range

Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Navajo Refining Company **Client: Project:** Monthly RO Reject

Sample ID MB-20149	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8082: PCB's	•		•
Client ID: PBW	Batch	ID: <b>20</b>	149	F	RunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: <b>7/</b>	14/2015	5	SeqNo: 8	24114	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	1.5		2.500		60.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.8	31.8	95.7			
Sample ID LCS-20149	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: <b>20</b>	149	F	RunNo: 2	7467				

Sample ID LCS-20149	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: <b>20</b>	149	F	RunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: <b>7/</b>	14/2015	8	SeqNo: 8	24697	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.6	1.0	5.000	0	72.5	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	84.4	25.6	164			
Surr: Decachlorobiphenyl	1.7		2.500		68.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.9		2.500		76.8	31.8	95.7			

Sample ID 1507157-001DMS	SampT	уре: М	6	Tes	Code: El	PA Method	8082: PCB's			
Client ID: R.O. Reject	Batch	ID: <b>20</b>	149	R	tunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: <b>7/</b>	14/2015	S	seqNo: 8	24698	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.2	14.5	105			
Aroclor 1260	3.7	1.0	5.000	0	74.5	21.4	125			
Surr: Decachlorobiphenyl	1.5		2.500		58.4	44.5	110			
Surr: Tetrachloro-m-xylene	1.4		2.500		56.8	31.8	95.7			

Sample ID 1507157-001DMS	<b>D</b> SampT	уре: МS	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: R.O. Reject	Batch	ID: <b>20</b>	149	R	RunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: <b>7/</b>	14/2015	S	SeqNo: 8	24699	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.2	1.0	5.000	0	64.0	14.5	105	2.85	20	
Aroclor 1260	3.8	1.0	5.000	0	76.2	21.4	125	2.23	27.6	
Surr: Decachlorobiphenyl	1.5		2.500		60.8	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		58.4	31.8	95.7	0	0	

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Sample pH Not In Range
- Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb1 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: R27395 RunNo: 27395 Prep Date: Analysis Date: 7/9/2015 SeqNo: 821898 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 ND Toluene 1.0 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 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 ND 1,2-Dichloropropane 1.0 1,3-Dichloropropane ND 1.0 2,2-Dichloropropane ND 2.0

#### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb1	SampT	уре: МЕ	BLK	Test	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: <b>R2</b>	7395	R	unNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21898	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	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID 100ng Ics	SampT	ype: <b>LC</b>	S	Tes	tCode: El					
Client ID: LCSW	Batch	Batch ID: R27395			RunNo: 2	7395				
Prep Date:	Analysis D	ate: <b>7/</b>	9/2015	S	SeqNo: 82	21903	Units: µg/L			
Analyte	Result	PQL	SDK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
7 ti laiy to	rtoodit	ı «L	of it value	Si K Kei vai	OILLO	LOWLIIIII	riigiiLiiiii	/01 XI	IXI DEIIIII	Quai
Benzene	20	1.0	20.00	0	100	70	130	701KI D	TAI DEIIIII	Quai
				0 0			3	701 (1 D	NI DEIIII	Quai

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 100ng lcs	SampT	ype: <b>LC</b>	s	Tes	TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW	Batch	n ID: <b>R2</b>	7395	F	RunNo: <b>27395</b>					
Prep Date:	Analysis D	Analysis Date: 7/9/2015			SeqNo: <b>821903</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID rb7	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES									
Client ID: PBW	Batch	n ID: <b>R2</b>	27395	F	RunNo: 2	7395				
Prep Date:	Analysis D	)ate: 7/	9/2015	S	SeqNo: 8	21963	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								

#### Qualifiers:

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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb7	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: <b>R2</b>	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	5	SeqNo: 8	21963	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
=	9.9	1.3	10.00		98.9	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		90.9	70	130			

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb7	SampType: MBLK			Tes	tCode: El					
Client ID: PBW	Batch ID: <b>R27395</b>			F	RunNo: 2	7395				
Prep Date:	Analysis D	Analysis Date: 7/9/2015			SeqNo: <b>821963</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID 100ng lcs2	SampT	ype: LC	s	Tes								
Client ID: LCSW	ent ID: LCSW Batch ID: R27395						RunNo: <b>27395</b>					
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: <b>821965</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Benzene	20	1.0	20.00	0	101	70	130					
Toluene	22	1.0	20.00	0	108	70	130					
Chlorobenzene	20	1.0	20.00	0	102	70	130					
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130					
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130					
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130					
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130					
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130					
Surr: Toluene-d8	10		10.00		103	70	130					

#### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20150	SampT	SampType: MBLK			tCode: El	PA Method				
Client ID: PBW	Batch	Batch ID: 20150			RunNo: 27333					
Prep Date: 7/8/2015	Analysis D	oate: <b>7/</b>	8/2015	SeqNo: <b>820082</b>			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	17		20.00		82.6	37.2	136			

Sample ID LCS-20150	SampType: LCS			Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batch ID: 20150			F	RunNo: 2	7333				
Prep Date: 7/8/2015	Analysis D	Date: 7/	8/2015	SeqNo: <b>820084</b>			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.3	57.8	83.9			S
1-Methylnaphthalene	75	2.0	80.20	0	93.1	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	90.5	34.2	94.5			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.7	37.2	136			

#### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20119 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 20119 RunNo: 27307

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818519 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-20119 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 20119 RunNo: 27307

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818520 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 92.4 64.4 135

### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R27657 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R27657 RunNo: 27657

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830507 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R27657 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R27657 RunNo: 27657

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830508 Units: mg/L

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

Cyanide 0.512 0.5000 0 102 90 110

### Qualifiers:

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

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# Hall Environmental Analysis Laboratory, Inc.

0.303

0.682

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Radium-228 ±

Sample ID MB-R27657	SampT	уре: М	BLK	Tes	tCode: El	PA 903.1: R	a 226 and EP	A 904.0: F	Ra 228-Subbe	ed
Client ID: PBW	Batch	n ID: <b>R2</b>	7657	F	tunNo: 2	7657				
Prep Date:	Analysis D	ate: 7/	16/2015	S	SeqNo: 8	30510	Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.294	0.541								
Radium-226 ±	0.354	0.541								
Radium-228	0.097	0.682								

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20140 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821530 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-20140 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821531 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.
- 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

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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	r: 1507157		RcptNo: 1
Received by/date: 07/03/15		900	
Logged By: Lindsay Mangin 7/3/2015 9:45:00 AM		of yellings	
Completed By: Lindsay Mangin 7/6/2015 8:30:01 AM		July Algo	
Reviewed By: MS_ OTINOI!	5	0 - 0	
Chain of Custody			
1. Custody seals intact on sample bottles?	Yes	No 🗆	Not Present 🗸
2. Is Chain of Custody complete?	Yes 🗸	No 🗆	Not Present
3. How was the sample delivered?	Courier		
Log In			
4. Was an attempt made to cool the samples?	Yes 🔽	No 🗆	na 🗆
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes 🔽	No 🗆	NA 🗆
6. Sample(s) in proper container(s)?	Yes 🔽	No 🗆	
7. Sufficient sample volume for indicated test(s)?	Yes 🗸	No 🗆	
8. Are samples (except VOA and ONG) properly preserved?	Yes 🗸	No 🗌	
9. Was preservative added to bottles?	Yes 🗌	No 🗸	NA 🗆
10.VOA vials have zero headspace?	Yes 🗸	No 🗆	No VOA Vials
11. Were any sample containers received broken?	Yes	No 🗹	# of preserved
12. Does paperwork match bottle labels?	Yes 🗸	No 🗔	bottles checked 6
(Note discrepancies on chain of custody)	0.000		(<2) or {12) unless no
13. Are matrices correctly identified on Chain of Custody?	Yes 🗸	No 🗆	Adjusted?
14. Is it clear what analyses were requested?	Yes 🗸	No 🗆	Observed how Od
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes 🗸	No 🗌	Checked by:
			370.
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:	- omen		
Client Instructions:			
17. Additional remarks:			
11. Additional Ginaria.			
18. Cooler Information	Seal Date	Signed By	I
Cooler No Temp °C Condition Seal Intact Seal No 1 2.1 Good Yes	Seal Date	Signed by	1

### VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibrompethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform Total Dissolved Solids × Wetals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Viryl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** Chloride Sulfate × Radioactivity (Ra-226+Ra-228) × **bCB**2 :2808 × Tel. 505-345-3975 еко, рко, око :6108 Mercury :0747 × Total Cyanide 335.4 × 6010B: WQCC Metals × 8270C: WQCC list SVOCs × Remarks 8260B:WQCC List VOCs × Time 49年6 HEAL No. RE Date Elizabeth Salsberry Sample Temperature: 25.9 C Rush Preservative Project #. P.O. # 167796 unpres X Yes HN03 NaOH 2 - 1L Glass unpres 2-40ml VOA unpres -unpres HN03 HN03 Monthly R.O. Reject H2S04 Turn-Around Time: 3-40ml VOA HCL 3-40ml VOA HCL 2-40ml VOA HCL Project Manager: Robert Combs Project Name: 1 - 1L Glass X Standard Type and # 2 - 500ml P Container 1-500ml P 1-125ml P 1-500ml P Received by: Received by Sampler: 2-1L P On Ice: ☐ Level 4 (Full Validation) Relinquished by: Elizabeth Sapperry Sample Request ID LEVICE Chain-of-Custody Record Trip Blank Evaluate da house Mailing Address: P.O. Box 159 Artesia, Relinquished by: email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 2.50pm liquid 1 lam NM 88211-0159 2.50pm 2.50pm 2.SOpm 250pm 7-1-15 2:Stam 7-1-15/2-Stym 7-1-15 2:Stym 7-1-15/2:50pm 250pm Time 7-1-15 250pm QA/QC Package: EDD (Type) Time: Time X Standard □ Other 7-1-5 7-15 7-15 7-1-15 7-FIS Date 5-1-12 725

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



Artesia, NM 88210 (Tel) 575.748.3311 (Fax) 575.746.5451 Navajo Refining Company, LLC SOLE Main

# Reject Sample Biannual RO Attachment Details

# HOLLYFRONTIER

The HollyFrontier Companies

			正次
Sludge	Liquid	Solid	Phys
	E		ical Prop

Type of Sampler Directly to sample jars

End Date and Time 7/1/2015 @ 2:54 pm Start Date and Time 7/1/2015 @ 2:43 pm Samplers Affiliation Navajo Refining Co. LLC Samplers Name Elizabeth Salsberry Project Name Biannual RO Reject

Outfall / Sample Location:

☐ North Field R.O. Reject Discarge Parts / Sample Intervals One South Field R.O. Reject Discarge

Time Weighted Composite

Sample Type

Grab 🖸

container 9 6 4 w 10 00 Ch 500ml 125ml 500ml 500ml 40ml 40ml Glass Plastic VOA Plastic Plastic Plastic Plastic Glass VOA Containers # of w (None) Neat ×× HCL × HNO3 × H2S04 × NaCH Preservatives × Na2S203 NaHSO4 Other Analysis and/or Method Requested pH, CI, F, S04, NO2/NO3, TDS 6020 total metals, 7470 Hg 8270 see attached list 6020 Dissolved Metals 8260 see attached list Radium 226/228 Radium 226/228 8082 PCBs 8015 GRO 8015 DRO Cyanide

CONTRACTOR	08
	Refigerated
eld Temp, 25.9 C Field pH 7.83	Other
	Shipping Media
	000 C
	Other

D	Refinoerated	108	Storage Method
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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

July 22, 2015

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly RO Reject OrderNo.: 1507158

### Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/3/2015 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 <a href="www.hallenvironmental.com">www.hallenvironmental.com</a> or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman

Laboratory Manager

and st

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1507158

Received Date: 7/3/2015 9:45:00 AM

Hall Environmental Analysis Laboratory, Inc. Date Reported: 7/22/2015

**CLIENT:** Navajo Refining Company **Client Sample ID:** Temporary R.O.

1507158-001

Lab ID:

**Project:** Monthly RO Reject **Collection Date:** 7/1/2015 3:02:00 PM Matrix: AQUEOUS

Analyses	Result	RL (	Qual U	nits	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: DBD
Arsenic	ND	0.0050	n	ng/L	5	7/14/2015 1:51:42 PM	R27505
Lead	ND	0.00050	n	ng/L	1	7/14/2015 1:14:57 PM	R27505
Selenium	0.0082	0.0010	n	ng/L	1	7/14/2015 1:14:57 PM	R27505
Uranium	0.0055	0.00050	n	ng/L	1	7/14/2015 1:14:57 PM	R27505
EPA 903.1: RA 226 AND EPA 904.0: R	A 228-SUBBE	D				Analyst	SUB
Radium-226	1.05	0.202	р	Ci/L	1	7/16/2015	R27658
Radium-226 ±	0.561	0.202	р	Ci/L	1	7/16/2015	R27658
Radium-228	0.158	0.824	р	Ci/L	1	7/16/2015	R27658
Radium-228 ±	0.38	0.824	р	Ci/L	1	7/16/2015	R27658
<b>EPA METHOD 300.0: ANIONS</b>						Analyst	: LGT
Fluoride	3.4	2.0	n	ng/L	20	7/6/2015 10:42:35 PM	R27319
Chloride	130	10	n	ng/L	20	7/6/2015 10:42:35 PM	R27319
Sulfate	1500	50	n	ng/L	100	7/15/2015 4:21:52 PM	R27535
Nitrate+Nitrite as N	1.8	1.0	n	ng/L	5	7/6/2015 11:44:37 PM	R27319
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst	: KS
Total Dissolved Solids	3100	20.0	* n	ng/L	1	7/9/2015 2:45:00 PM	20140
EPA 335.4: TOTAL CYANIDE SUBBEI	)					Analyst	SUB
Cyanide	ND	0.0100	n	ng/L	1	7/13/2015	R27658
SM4500-H+B: PH						Analyst	: JRR
рН	8.06	1.68	Н р	H units	1	7/9/2015 10:09:14 PM	R27410
EPA METHOD 200.7: DISSOLVED ME	TALS					Analyst	ELS
Aluminum	ND	0.020	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Barium	0.063	0.0020	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Boron	0.076	0.040	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Cadmium	ND	0.0020	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Chromium	ND	0.0060	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Cobalt	ND	0.0060	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Copper	ND	0.0060	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Iron	ND	0.020	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Manganese	0.010	0.0020		ng/L	1	7/7/2015 3:26:45 PM	R27323
Molybdenum	ND	0.0080	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Nickel	ND	0.010		ng/L	1	7/7/2015 3:26:45 PM	R27323
Silver	ND	0.0050	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
Zinc	0.065	0.010	n	ng/L	1	7/7/2015 3:26:45 PM	R27323
EPA METHOD 245.1: MERCURY						Analyst	: JLF
Mercury	ND	0.00020	n	ng/L	1	7/8/2015 4:37:50 PM	20160

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

**Qualifiers:** Value exceeds Maximum Contaminant Level.

- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 1 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Date Reported: 7/22/2015

Lab Order 1507158

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Navajo Refining Company

Client Sample ID: Temporary R.O.

**Project:** Monthly RO Reject
 Collection Date: 7/1/2015 3:02:00 PM

 **Lab ID:** 1507158-001
 Matrix: AQUEOUS
 Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL (	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst	KJH
1,2-Dibromoethane	ND	0.010	μg/L	1	7/9/2015 5:30:06 PM	20171
EPA METHOD 8082: PCB'S					Analyst	SCC
Aroclor 1016	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1221	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1232	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1242	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1248	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1254	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1260	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Surr: Decachlorobiphenyl	70.8	44.5-110	%REC	1	7/14/2015 10:41:50 AM	20149
Surr: Tetrachloro-m-xylene	58.8	31.8-95.7	%REC	1	7/14/2015 10:41:50 AM	20149
EPA METHOD 8015M/D: DIESEL RANG	E				Analyst	KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	7/6/2015 8:59:32 PM	20109
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	7/6/2015 8:59:32 PM	20109
Surr: DNOP	100	76.5-150	%REC	1	7/6/2015 8:59:32 PM	20109
EPA METHOD 8015D: GASOLINE RANG	GE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	7/7/2015 5:26:23 PM	R27335
Surr: BFB	86.8	57.8-137	%REC	1	7/7/2015 5:26:23 PM	R27335
EPA METHOD 8310: PAHS					Analyst	scc
Naphthalene	ND	2.0	μg/L	1	7/8/2015 3:41:21 PM	20150
1-Methylnaphthalene	ND	2.0	μg/L	1	7/8/2015 3:41:21 PM	20150
2-Methylnaphthalene	ND	2.0	μg/L	1	7/8/2015 3:41:21 PM	20150
Benzo(a)pyrene	ND	0.070	μg/L	1	7/8/2015 3:41:21 PM	20150
Surr: Benzo(e)pyrene	81.0	37.2-136	%REC	1	7/8/2015 3:41:21 PM	20150
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Toluene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Ethylbenzene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Carbon Tetrachloride	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Chloroform	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1-Dichloroethane	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1-Dichloroethene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Methylene Chloride	ND	3.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395

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
  - Page 2 of 26
- P Sample pH Not In Range
- RL Reporting Detection Limit

### Lab Order **1507158**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/22/2015

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O.

**Project:** Monthly RO Reject **Collection Date:** 7/1/2015 3:02:00 PM

**Lab ID:** 1507158-001 **Matrix:** AQUEOUS **Received Date:** 7/3/2015 9:45:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	cadg
1,1,1-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Trichloroethene (TCE)	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Vinyl chloride	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Xylenes, Total	ND	1.5	μg/L	1	7/10/2015 5:46:58 AM	R27395
Surr: 1,2-Dichloroethane-d4	93.4	70-130	%REC	1	7/10/2015 5:46:58 AM	R27395
Surr: 4-Bromofluorobenzene	106	70-130	%REC	1	7/10/2015 5:46:58 AM	R27395
Surr: Dibromofluoromethane	88.7	70-130	%REC	1	7/10/2015 5:46:58 AM	R27395
Surr: Toluene-d8	105	70-130	%REC	1	7/10/2015 5:46:58 AM	R27395
TOTAL PHENOLICS BY SW-846 9067					Analyst	SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	7/7/2015	20119

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

Page 3 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

### Lab Order **1507158**

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject Collection Date:

**Lab ID:** 1507158-002 **Matrix:** TRIP BLANK **Received Date:** 7/3/2015 9:45:00 AM

Analyses	Result	RL (	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst	: KJH
1,2-Dibromoethane	ND	0.010	μg/L	1	7/9/2015 5:43:48 PM	20171
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	7/8/2015 2:03:47 AM	R27335
Surr: BFB	86.3	57.8-137	%REC	1	7/8/2015 2:03:47 AM	R27335
EPA METHOD 8260B: VOLATILES					Analys	: cadq
Benzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Toluene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Ethylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,3,5-Trimethylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Naphthalene	ND ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1-Methylnaphthalene	ND	4.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2-Methylnaphthalene	ND	4.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Acetone	ND ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Bromobenzene	ND ND	1.0	· -	1	7/10/2015 6:15:42 AM	R27395
Bromodichloromethane	ND ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Bromoform	ND ND	1.0	μg/L	1		R27395
			μg/L	1	7/10/2015 6:15:42 AM	R27395 R27395
Bromomethane	ND	3.0	μg/L	1	7/10/2015 6:15:42 AM	
2-Butanone	ND	10	μg/L		7/10/2015 6:15:42 AM	R27395
Carbon disulfide	ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Carbon Tetrachloride	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Chloropene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Chloroethane	ND	2.0	μg/L "	1	7/10/2015 6:15:42 AM	R27395
Chloroform	ND	1.0	μg/L "	1	7/10/2015 6:15:42 AM	R27395
Chloromethane	ND	3.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2-Chlorotoluene	ND	1.0	μg/L "	1	7/10/2015 6:15:42 AM	R27395
4-Chlorotoluene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
cis-1,2-DCE	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Dibromochloromethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Dibromomethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichlorobenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,3-Dichlorobenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,4-Dichlorobenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395

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

Page 4 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1507158

Date Reported: 7/22/2015

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject **Collection Date:** 

1507158-002 Received Date: 7/3/2015 9:45:00 AM Lab ID: Matrix: TRIP BLANK

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Dichlorodifluoromethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1-Dichloroethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1-Dichloroethene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichloropropane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,3-Dichloropropane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2,2-Dichloropropane	ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1-Dichloropropene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Hexachlorobutadiene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2-Hexanone	ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Isopropylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
4-Isopropyltoluene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
4-Methyl-2-pentanone	ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Methylene Chloride	ND	3.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
n-Butylbenzene	ND	3.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
n-Propylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
sec-Butylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Styrene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
tert-Butylbenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
trans-1,2-DCE	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,1-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,2-Trichloroethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Trichloroethene (TCE)	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Trichlorofluoromethane	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,3-Trichloropropane	ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Vinyl chloride	ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Xylenes, Total	ND	1.5	μg/L	1	7/10/2015 6:15:42 AM	R27395
Surr: 1,2-Dichloroethane-d4	101	70-130	%REC	1	7/10/2015 6:15:42 AM	R27395
Surr: 4-Bromofluorobenzene	103	70-130	%REC	1	7/10/2015 6:15:42 AM	R27395
Surr: Dibromofluoromethane	97.8	70-130	%REC	1	7/10/2015 6:15:42 AM	R27395
Surr: Toluene-d8	104	70-130	%REC	1	7/10/2015 6:15:42 AM	R27395

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

### **Qualifiers:**

- Value exceeds Maximum Contaminant Level.
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH Not In Range
- RL Reporting Detection Limit

### Hall Environmental Analysis Laboratory, Inc.

ND

ND

ND

0.010

0.0050

0.010

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals **PBW** Client ID: Batch ID: **R27323** RunNo: 27323 Prep Date: Analysis Date: 7/7/2015 SeqNo: 818884 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 0.0060 Cobalt ND Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080

Sample ID LCS	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	Is	
Client ID: LCSW	Bato	ch ID: R2	7323	F	RunNo: 2	7323				
Prep Date:	Analysis	Date: <b>7/</b>	7/2015	5	SeqNo: 8	18885	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	106	85	115			
Barium	0.47	0.0020	0.5000	0	94.9	85	115			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.9	85	115			
Copper	0.47	0.0060	0.5000	0	95.0	85	115			
Iron	0.47	0.020	0.5000	0	93.1	85	115			
Manganese	0.48	0.0020	0.5000	0	96.9	85	115			
Molybdenum	0.49	0.0080	0.5000	0	98.0	85	115			
Nickel	0.48	0.010	0.5000	0	95.7	85	115			
Silver	0.099	0.0050	0.1000	0	99.3	85	115			
7inc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID LLLCS	Samp	Type: <b>LC</b>	SLL	Test	tCode: El	PA Method	200.7: Disso	lved Meta	ls	
Client ID: BatchQC	Bato	h ID: <b>R2</b>	7323	R	tunNo: 2	7323				
Prep Date:	Analysis I	Date: <b>7/</b>	7/2015	S	seqNo: 8	18886	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	147	50	150			
Barium	0.0022	0.0020	0.002000	0	112	50	150			

### Qualifiers:

Nickel

Silver

Zinc

- 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

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# Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: 1507158

22-Jul-15

**Client:** Navajo Refining Company **Project:** Monthly RO Reject

Sample ID LLLCS	Samp	Type: <b>LC</b>	SLL	Tes	tCode: El	PA Method	200.7: Disso	ved Meta	ls	
Client ID: BatchQC	Bato	h ID: <b>R2</b>	7323	F	RunNo: 2	7323				
Prep Date:	Analysis	Date: <b>7/</b>	7/2015	S	SeqNo: 8	18886	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	89.4	50	150			
Cadmium	0.0020	0.0020	0.002000	0	101	50	150			
Chromium	ND	0.0060	0.006000	0	89.8	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	ND	0.0060	0.006000	0	99.2	50	150			
Iron	0.022	0.020	0.02000	0	112	50	150			
Manganese	ND	0.0020	0.002000	0	98.0	50	150			
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150			
Nickel	ND	0.010	0.005000	0	92.4	50	150			
Silver	0.0055	0.0050	0.005000	0	109	50	150			
Zinc	ND	0.010	0.005000	0	90.4	50	150			

•		71								
Client ID: PBW	Bato	ch ID: R2	7323	F	RunNo: 2	7323				
Prep Date:	Analysis I	Date: <b>7/</b>	7/2015	5	SeqNo: 8	18887	Units: mg/L	•		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS	SampType: L	cs	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: R	27323	F	RunNo: 2	7323					
Prep Date:	Analysis Date: 7	/7/2015	8	SeqNo: 8	18888	Units: mg/L				
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.54 0.020	0.5000	0	108	85	115				
Barium	0.48 0.0020	0.5000	0	95.6	85	115				
Boron	0.51 0.040	0.5000	0	101	85	115				
Cadmium	0.51 0.0020	0.5000	0	103	85	115				

### Qualifiers:

Sample ID MB

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В

TestCode: EPA Method 200.7: Dissolved Metals

- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- P Sample pH Not In Range

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Reporting Detection Limit

# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS	Samp	Type: <b>LC</b>	s	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Bato	h ID: <b>R2</b>	7323	F	RunNo: 2	7323					
Prep Date:	Analysis Date: 7/7/2015			8	SeqNo: 8	18888	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Chromium	0.48	0.0060	0.5000	0	96.3	85	115				
Cobalt	0.49	0.0060	0.5000	0	98.5	85	115				
Copper	0.48	0.0060	0.5000	0	96.1	85	115				
Iron	0.49	0.020	0.5000	0	97.1	85	115				
Manganese	0.49	0.0020	0.5000	0	97.6	85	115				
Molybdenum	0.49	0.0080	0.5000	0	98.1	85	115				
Nickel	0.48	0.010	0.5000	0	96.1	85	115				
Silver	0.10	0.0050	0.1000	0	99.9	85	115				
Zinc	0.48	0.010	0.5000	0	95.0	85	115				

Sample ID LLLCS	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: BatchQC	Bato	ch ID: R2	7323	R	RunNo: 2	7323				
Prep Date:	Analysis	Date: 7/	7/2015	S	SeqNo: 8	18889	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	133	50	150			
Barium	0.0024	0.0020	0.002000	0	118	50	150			
Boron	ND	0.040	0.04000	0	89.1	50	150			
Cadmium	ND	0.0020	0.002000	0	89.0	50	150			
Chromium	ND	0.0060	0.006000	0	75.2	50	150			
Cobalt	0.0065	0.0060	0.006000	0	108	50	150			
Copper	0.0066	0.0060	0.006000	0	110	50	150			
Iron	0.021	0.020	0.02000	0	106	50	150			
Manganese	0.0020	0.0020	0.002000	0	103	50	150			
Molybdenum	0.011	0.0080	0.008000	0	140	50	150			
Nickel	ND	0.010	0.005000	0	104	50	150			
Silver	ND	0.0050	0.005000	0	72.0	50	150			
Zinc	ND	0.010	0.005000	0	88.8	50	150			

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client:	Navajo Refining Company
Project:	Monthly RO Reject

Sample ID	LCS	Samp	туре: <b>LC</b>	s	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Bat	ch ID: R2	7505	F	RunNo: 2	7505				
Prep Date:		Analysis	Date: 7/	14/2015	S	SeqNo: 8	25388	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	101	85	115			
Lead		0.013	0.00050	0.01250	0	100	85	115			
Selenium		0.025	0.0010	0.02500	0	100	85	115			
Uranium		0.013	0.00050	0.01250	0	100	85	115			
Sample ID	LCS	Samp	Type: <b>LC</b>	s	Tes	tCode: El	tals				
Client ID:	LCSW	Bat	ch ID: R2	7505	F	RunNo: 2	7505				
Prep Date:		Analysis	Date: 7/	14/2015	S	SeqNo: 8	25389	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		0.013	0.00050	0.01250	0	102	85	115			
Selenium		0.026	0.0010	0.02500	0	104	85	115			
Uranium		0.013	0.00050	0.01250	0	102	85	115			
Sample ID	LLLCS	Samp	Type: <b>LC</b>	SLL	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	D-1-1-00	D-4	-L ID. DO	7505		NI O	7505				
CHELLID.	BatchQC	ват	ch ID: R2	7505	r	RunNo: 2	/505				
Prep Date:	BatchQC		Date: <b>7/</b>			SeqNo: 8		Units: mg/L			
	BatchQC			14/2015				Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Prep Date:	BatchQC	Analysis	Date: <b>7/</b>	14/2015	S	SeqNo: 8	25390		%RPD	RPDLimit	Qual
Prep Date: Analyte	BatchQC	Analysis Result	Date: 7/	<b>14/2015</b> SPK value	SPK Ref Val	SeqNo: 8	25390 LowLimit	HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic	BatchQC	Analysis Result ND	PQL 0.0010	14/2015 SPK value 0.001000	SPK Ref Val	SeqNo: <b>8</b> . %REC 94.0	<b>25390</b> LowLimit 50	HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic Lead	BatchQC	Analysis Result ND 0.00052 ND	PQL 0.0010 0.00050 0.0010	14/2015 SPK value 0.001000 0.0005000	SPK Ref Val 0 0	%REC 94.0 103	25390 LowLimit 50 50	HighLimit 150 150	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic Lead Selenium		Analysis Result ND 0.00052 ND 0.00050	PQL 0.0010 0.00050 0.0010	SPK value 0.001000 0.0005000 0.001000 0.0005000	SPK Ref Val 0 0 0 0	%REC 94.0 103 98.3 100	25390 LowLimit 50 50 50 50	HighLimit 150 150 150		RPDLimit	Qual
Prep Date: Analyte Arsenic Lead Selenium Uranium		Analysis  Result  ND 0.00052  ND 0.00050  Samp	PQL 0.0010 0.00050 0.0010 0.00050	SPK value 0.001000 0.0005000 0.001000 0.0005000	SPK Ref Val  0 0 0 0 Tes	%REC 94.0 103 98.3 100	25390 LowLimit 50 50 50 50 50	HighLimit 150 150 150 150		RPDLimit	Qual
Prep Date: Analyte Arsenic Lead Selenium Uranium  Sample ID	LLLCS	Analysis  Result  ND 0.00052  ND 0.00050  Samp	PQL 0.0010 0.00050 0.0010 0.00050	SPK value 0.001000 0.0005000 0.001000 0.0005000 SSLL 7505	SPK Ref Val  0 0 0 0 Tes	%REC 94.0 103 98.3 100 tCode: El	25390 LowLimit 50 50 50 50 PA 200.8: I	HighLimit 150 150 150 150		RPDLimit	Qual
Prep Date: Analyte Arsenic Lead Selenium Uranium  Sample ID Client ID:	LLLCS	Analysis  Result  ND 0.00052  ND 0.00050  Samp	PQL 0.0010 0.00050 0.0010 0.00050 DType: LC	SPK value 0.001000 0.0005000 0.001000 0.0005000 SSLL 7505	SPK Ref Val  0 0 0 0 Tes	%REC 94.0 103 98.3 100 tCode: El RunNo: 2	25390 LowLimit 50 50 50 50 PA 200.8: I	HighLimit 150 150 150 150 150 Oissolved Me		RPDLimit  RPDLimit	Qual
Prep Date: Analyte Arsenic Lead Selenium Uranium  Sample ID Client ID: Prep Date:	LLLCS	Analysis  Result  ND 0.00052  ND 0.00050  Samp  Bat  Analysis	PQL 0.0010 0.00050 0.0010 0.00050 DType: LC ch ID: R2	SPK value 0.001000 0.0005000 0.001000 0.0005000 SSLL 7505	SPK Ref Val  0 0 0 0 Tes	%REC 94.0 103 98.3 100 tCode: El RunNo: 2	25390 LowLimit 50 50 50 50 PA 200.8: I 7505 25391	HighLimit 150 150 150 150 150 Oissolved Med	tals		
Prep Date: Analyte Arsenic Lead Selenium Uranium  Sample ID Client ID: Prep Date: Analyte	LLLCS	Analysis  Result  ND 0.00052  ND 0.00050  Samp  Bat  Analysis  Result	PQL 0.0010 0.00050 0.0010 0.00050 DType: LC ch ID: R2 Date: 7/ PQL 0.0010	SPK value 0.001000 0.0005000 0.001000 0.0005000 SSLL 7505 14/2015 SPK value	SPK Ref Val  0 0 0 0 Tes F S SPK Ref Val	%REC 94.0 103 98.3 100 tCode: El RunNo: 2 SeqNo: 8 %REC	25390  LowLimit  50  50  50  750  PA 200.8: I  7505  25391  LowLimit	HighLimit 150 150 150 150 150 Oissolved Med Units: mg/L HighLimit	tals		
Prep Date: Analyte Arsenic Lead Selenium Uranium  Sample ID Client ID: Prep Date: Analyte Arsenic	LLLCS	Analysis  Result  ND 0.00052  ND 0.00050  Samp Bat Analysis  Result 0.0010	PQL 0.0010 0.00050 0.0010 0.00050 DType: LC ch ID: R2 Date: 7/ PQL 0.0010	SPK value 0.001000 0.0005000 0.0015000 0.0005000 SSLL 7505 14/2015 SPK value 0.001000	SPK Ref Val  0 0 0 0 Tes F SPK Ref Val 0	%REC 94.0 103 98.3 100 tCode: El RunNo: 2 SeqNo: 8 %REC 102	25390  LowLimit  50 50 50 50 PA 200.8: I 7505 25391  LowLimit 50	HighLimit 150 150 150 150 Oissolved Mer Units: mg/L HighLimit 150	tals		
Prep Date: Analyte Arsenic Lead Selenium Uranium  Sample ID Client ID: Prep Date: Analyte Arsenic Lead	LLLCS	Analysis Result ND 0.00052 ND 0.00050 Samp Bat Analysis Result 0.0010 0.00052 0.0011	PQL 0.0010 0.00050 0.0010 0.00050 DType: LC ch ID: R2 Date: 7/ PQL 0.0010 0.00050 0.0010	SPK value 0.001000 0.0005000 0.0005000 0.0005000 SSLL 7505 14/2015 SPK value 0.001000 0.0005000	SPK Ref Val  0 0 0 0 Tes F SPK Ref Val 0 0	%REC 94.0 103 98.3 100 tCode: El %REC 964No: 8 %REC 102 104	25390  LowLimit  50 50 50 50  PA 200.8: I 7505 25391  LowLimit 50 50	HighLimit 150 150 150 150 150  Dissolved Med Units: mg/L HighLimit 150 150	tals		

### Qualifiers:

Analyte

Prep Date:

Client ID: PBW

* Value exceeds Maximum Contaminant Level.

Batch ID: R27505

Analysis Date: 7/14/2015

Result

- 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

Units: mg/L

HighLimit

%RPD

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

RunNo: 27505

SeqNo: 825392

P Sample pH Not In Range

SPK value SPK Ref Val %REC LowLimit

RL Reporting Detection Limit

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Qual

**RPDLimit** 

### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R27505 RunNo: 27505

Prep Date: Analysis Date: 7/14/2015 SeqNo: 825392 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

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R27505 RunNo: 27505

Prep Date: Analysis Date: 7/14/2015 SeqNo: 825393 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.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20160 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 20160 RunNo: 27365

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820623 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-20160 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 20160 RunNo: 27365

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820626 Units: mg/L

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

Mercury 0.0049 0.00020 0.005000 0 98.8 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	МВ	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	300.0: Anions	<b>S</b>		
Client ID:	PBW	Batch	ID: <b>R2</b>	7319	F	RunNo: 2	7319				
Prep Date:		Analysis D	ate: <b>7/</b>	6/2015	S	SeqNo: 8	18775	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								
Nitrate+Nitrite as	s N	ND	0.20								

Sample ID LCS	SampT	ype: <b>LC</b>	s	Tes	tCode: El	S				
Client ID: LCSW	Batch	1D: <b>R2</b>	7319	R	RunNo: 2	7319				
Prep Date:	Analysis D	ate: <b>7/</b>	6/2015	S	SeqNo: 8	18776	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Analyte Fluoride	Result 0.51	PQL 0.10	0.5000	SPK Ref Val	%REC 102	LowLimit 90	HighLimit 110	%RPD	RPDLimit	Qual
				SPK Ref Val 0 0			<u> </u>	%RPD	RPDLimit	Qual

Sample ID MB	SampType: MBLK	TestCode: EPA Method 300	).0: Anions
Client ID: PBW	Batch ID: <b>R27535</b>	RunNo: <b>27535</b>	
Prep Date:	Analysis Date: 7/15/2015	SeqNo: <b>826667</b> Ur	nits: mg/L
Analyte	Result PQL SPK value S	SPK Ref Val %REC LowLimit H	ighLimit %RPD RPDLimit Qual
Sulfate	ND 0.50	_	

Sample ID LCS	SampT	s	Tes	tCode: El	PA Method	5				
Client ID: LCSW	Batch	ID: <b>R2</b>	7535	R	RunNo: 2	7535				
Prep Date:	Analysis Da	ate: <b>7/</b>	15/2015	S	SeqNo: 8	26668	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10	0.50	10.00	0	100	90	110			•

### Qualifiers:

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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20171 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 20171 RunNo: 27393

Prep Date: 7/9/2015 Analysis Date: 7/9/2015 SeqNo: 821853 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-20171 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 20171 RunNo: 27393

Prep Date: 7/9/2015 Analysis Date: 7/9/2015 SeqNo: 821854 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 0 107 70 130

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20109 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: PBW Batch ID: 20109 RunNo: 27291 Prep Date: 7/6/2015 Analysis Date: 7/6/2015 SeqNo: 818285 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 0.88 1.000 88.5 76.5 150

Sample ID LCS-20109 SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Client ID: LCSW Batch ID: 20109 RunNo: 27291 Prep Date: 7/6/2015 Analysis Date: 7/6/2015 SeqNo: 818286 Units: mg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Diesel Range Organics (DRO) 1.0 81.8 60.1 4.1 5.000 156 Surr: DNOP 0.49 0.5000 97.8 76.5 150

### Qualifiers:

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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-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: R27335 RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819311 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 89.3 57.8 137

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R27335 RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819312 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
 95.0
 80
 120

 Surr: BFB
 19
 20.00
 94.6
 57.8
 137

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20149	SampT	ype: ME	BLK	Tes	tCode: El	PA Method				
Client ID: PBW	Batch	ID: <b>20</b>	149	F	RunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: 7/	14/2015	S	SeqNo: 8	24114	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	1.5		2.500		60.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.8	31.8	95.7			

Sample ID LCS-20149	SampType: LCS			Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 20149			F	RunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: 7/	14/2015	8	SeqNo: 8	24697	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.6	1.0	5.000	0	72.5	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	84.4	25.6	164			
Surr: Decachlorobiphenyl	1.7		2.500		68.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.9		2.500		76.8	31.8	95.7			

### Qualifiers:

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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb1 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: R27395 RunNo: 27395 Prep Date: Analysis Date: 7/9/2015 SeqNo: 821898 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Benzene ND 1.0 ND Toluene 1.0 ND Ethylbenzene 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 ND 1-Methylnaphthalene 4.0 2-Methylnaphthalene ND 4.0 ND 10 Acetone ND 1.0 Bromobenzene 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 ND Dibromomethane 1.0 ND 1.2-Dichlorobenzene 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 ND 1,2-Dichloropropane 1.0 1,3-Dichloropropane ND 1.0 2,2-Dichloropropane ND 2.0

### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb1	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES									
Client ID: PBW	Batch	1D: <b>R2</b>	7395	R	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21898	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	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: <b>R2</b>	7395	R	RunNo: 2	7395				
Prep Date:	Analysis D	oate: <b>7/</b>	9/2015	S	SeqNo: 8	21903	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			

### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 100ng Ics	SampT	SampType: LCS TestCode: EPA Metho					8260B: VOL	ATILES						
Client ID: LCSW	Batch	n ID: <b>R2</b>	7395	F	RunNo: 2	7395								
Prep Date:	Analysis D	ate: <b>7/</b>	9/2015	9	SeqNo: 8	21903								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130							
Trichloroethene (TCE)	18	1.0	20.00	0	89.2	70	130							
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130							
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130							
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130							
Surr: Toluene-d8	10		10.00		104	70	130							

Sample ID rb7	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES									
Client ID: PBW	Batch	1D: <b>R2</b>	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 82	21963	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								

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit
- Sample pH Not In Range P
- Reporting Detection Limit

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb7 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: R27395 RunNo: 27395 Analysis Date: 7/9/2015 Prep Date: SeqNo: 821963 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 1,2-Dibromo-3-chloropropane ND 2.0 ND Dibromochloromethane 1.0 ND Dibromomethane 1.0 1,2-Dichlorobenzene ND 1.0 1,3-Dichlorobenzene ND 1.0 1,4-Dichlorobenzene ND 1.0 Dichlorodifluoromethane ND 1.0 ND 1,1-Dichloroethane 1.0 1,1-Dichloroethene ND 1.0 ND 1.0 1,2-Dichloropropane 1,3-Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 1,1-Dichloropropene ND 1.0 Hexachlorobutadiene ND 1.0 ND 10 2-Hexanone 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 ND Styrene 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 ND 1,2,3-Trichlorobenzene 1.0 ND 1.2.4-Trichlorobenzene 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 9.9 10.00 98.9 70 130

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb7	SampT	SampType: MBLK			tCode: El					
Client ID: PBW	Batch ID: R27395			F	RunNo: 2	7395				
Prep Date:	Analysis Date: 7/9/2015			8	SeqNo: <b>821963</b> Units: μg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID 100ng lcs2	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	n ID: <b>R2</b>	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21965	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

### 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

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### Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20150	SampT	SampType: MBLK			tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batch	Batch ID: 20150			RunNo: 2	7333				
Prep Date: 7/8/2015	Analysis D	Date: 7/	8/2015	SeqNo: <b>820082</b>			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	17		20.00		82.6	37.2	136			

Sample ID LCS-20150	SampT	SampType: LCS TestCode: EPA Method					8310: PAHs			
Client ID: LCSW	Batch	n ID: <b>20</b>	150	F	RunNo: 2	7333				
Prep Date: 7/8/2015	Analysis D	ate: 7/	8/2015	SeqNo: <b>820084</b>			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.3	57.8	83.9			S
1-Methylnaphthalene	75	2.0	80.20	0	93.1	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	90.5	34.2	94.5			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.7	37.2	136			

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20119 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 20119 RunNo: 27307

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818519 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-20119 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 20119 RunNo: 27307

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818520 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 92.4 64.4 135

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R27658 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R27658 RunNo: 27658

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830512 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R27658 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R27658 RunNo: 27658

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830513 Units: mg/L

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

Cyanide 0.512 0.5000 0 102 90 110

### Qualifiers:

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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R27658	SampT	уре: МЕ	BLK	Tes	tCode: El	PA 903.1: F	Ra 226 and EP	A 904.0: I	Ra 228-Subbe	ed
Client ID: PBW	Batch ID: <b>R27658</b>			RunNo: 27658						
Prep Date:	Analysis D	oate: 7/	16/2015	S	SeqNo: 8	30515	Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.294	0.541								
Radium-226 ±	0.354	0.541								
Radium-228	0.523	0.758								
Radium-228 ±	0.388	0.758								

### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158** 

22-Jul-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-20140 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821530 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-20140 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821531 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.
- 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

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

# Sample Log-In Check List

NAVAJO REFINING CO Work Order Number: 1507158 RcptNo: 1 Client Name: Received by/date: Logged By: Lindsay Mangin 7/3/2015 9:45:00 AM 7/6/2015 8:34:53 AM Completed By: Lindsay Mangin Reviewed By: Chain of Custody Yes No Not Present V 1. Custody seals intact on sample bottles? Yes V No Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In No NA _ Yes 🗸 4. Was an attempt made to cool the samples? NA No Were all samples received at a temperature of >0° C to 6.0°C No Yes V Sample(s) in proper container(s)? No _ 7. Sufficient sample volume for indicated test(s)? Yes No 8. Are samples (except VOA and ONG) properly preserved? Yes NA No V 9. Was preservative added to bottles? Yes No _ No VOA Vials 10. VOA vials have zero headspace? No V Yes 11. Were any sample containers received broken? # of preserved bottles checked for pH: No . 12. Does paperwork match bottle labels? Yes V 12 unless noted) (Note discrepancies on chain of custody) Adjusted No 13. Are matrices correctly identified on Chain of Custody? No . 14. Is it clear what analyses were requested? Yes V No _ Checked by 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) NA V 16. Was client notified of all discrepancies with this order? Yes __ No _ Person Notified: Date By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Condition | Seal Intact | Seal No | Seal Date Cooler No Temp °C Signed By Good

### VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2. SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane: 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited (aboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report Dibromoethane, 1,2-Dichloroethane, Benzene, Carbon Tetrachloride, Chloroform Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite Dichloromethane; Ethylbenzene; Toluene; Total Xylenes. Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com Analysis Request Chloride × Sulfate × Radioactivity (Ra-226+Ra-228) × **b**CB2 :2808 × Tel. 505-345-3975 GRO, DRO, ORO :9108 × Mercury :0747 × Total Cyanide 335.4: × 6010B: WOCC Metals × 8270C: WQCC list SVOCs × Remarks 8560B:WQCC List VOCs × クナルの HEAL No. Date ON L Elizabeth Salsberry Sample Temperature 29.1 G Rush Preservative Project #: P.O. # 167796 1 - 1L Glass Junpres X Yes -unpres 2 - 1L Glass unpres 2-40rnl VOA Junpres HN03 HN03 HN03 Monthly R.O. Reject H2S04 NaOH Turn-Around Time: 340ml VOA HCL 3-40ml VOA HCL 2-40ml VOA HCL Project Manager: Robert Combs Project Name X Standard Type and # 2 - 500ml P Container 1-500ml P 1-500ml P 1-125ml P Relinquished by: Elizabeth Salsparry Received by: Received by Sampler. 2-1L P On Ice □ Level 4 (Full Validation) Sample Request ID Chain-of-Custody Record EMPORARYR. Trip Blank Chippen Bobber Mailing Address: P.O. Box 159 Artesia. Relinquished by email or Fax# 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 S'ozpm liquid NM 88211-0159 800m 3.02pm 3.ozpm 3.00m 7-1-15 3:czpm S. Clapa 3000 QA/QC Package: Sicretors. State Time 80zpm EDD (Type) 1 lam Time: me: X Standard Other 7-1-15 7-1-5 7-1-5 1-7-15 7-1-15 Date 7-1-15 7-1-15 5-12 4-1-5 51-12 7-1-15 Date Date:



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

# Reject Sample Biannual RO Attachment Details

HOLLYFRONTI	The HollyFrontier Companies	Physical Prop	Solid	Liquid 2	Sludge
-------------	-----------------------------	---------------	-------	----------	--------

Start Date and Time 7/1/2015 @ 3:02 pm End Date and Time 7/1/2015 @ 3:11 pm Sampler's Attiliation Navajo Retining Co. LLC Samplers Name Elizabeth Salsberry Project Name Biannual RO Reject

Outfall / Sample Location:

North Field R.O. Reject Discarge Parts / Sample intervals One South Field R.O. Reject Discarge

Type of Sampler Directly to sample jars

Flow Weighted Composite Time Weighted Composite

Sample Type

Grab 

Container 10 5 4 1 9 00 6 ω 40ml 500ml 500ml 125ml 40ml 40m 40m Plastic Plastic Plastic Plastic Glass Glass Plastic VOA VOA VOA Containers # of w (d) (None) Neat × × × HCL × × HNO3 × H2SC4 × Preservatives NaOH × Na2S2O3 NaHSO4 Other pH, CI, F, S04, NO2/NO3, TDS 6020 total metals, 7470 Hg 6020 Dissolved Metals 8270 see attached list 8280 see attached list Radium 226/228 Radium 226/228 8015 GRO 8015 DRO 8082 PCBs Cyanide

Field	-	Date:	Field
Temp. 2		and Time	Data (W
9.1 C		e:	eather,
	9	140	Obsen
Field			/ations
pH 7.6			Etc):
5			7
			/1/2014
			3:02 p
			m Tmp
			93.2
			F. Hu
			midity2
			6%. V
			(ind Di
			SE,
			Wind S
			speed
			9.2 mp
			h,
			Con
			Conditions

Other	Refrigerated	ice 🗹	Storage Metho
			od

Other	lce	St
	Z.	nipping Media
		8

#### Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

**Sent:** Wednesday, July 15, 2015 5:15 PM

**To:** Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Denton, Scott; Coons, Christina (Christie)

**Subject:** ACO Monthly Report for June 2015 **Attachments:** ACO Monthly report for June 150715.pdf

Jim & Carl,

Attached it the monthly report for June concerning the RO Reject.

Let me know if you have any questions.

Thanks,

**SMD** 

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487 (o) 970-581-7268 (c)

#### Scott.Denton@HollyFrontier.com

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July 15, 2015

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

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

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

Dear Sirs:

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

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

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

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

#### Daily RO Reject Fluid Discharge Flow Measurements

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

#### Stipulated Penalties

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

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

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

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

#### Monthly Discharge Sample Results

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

#### Updates Regarding Treatment and Disposal of RO Reject Fluid

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

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

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

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

Sincerely,

Scott M. Denton

Environmental Manager

**Enclosures:** 

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

# Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

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

Attachment 2 Stipulated Penalty Calculation

## Calculation of Stipulated Penalties - June 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			77770 (4
2.b.i.1	- <b>Prior</b> to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels <b>after</b> Navajo submits discharge permit modification application	\$100	26	\$2,600
2.b.i.2	- If the daily volume exceeds 15,000 barrels <b>after</b> Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	Amount:	\$2,600

Attachment 3 Analytical Lab Report



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

June 22, 2015

Robert Combs Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly Temporary RO Reject OrderNo.: 1506316

#### **Dear Robert Combs:**

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/6/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

## **Analytical Report**

#### Lab Order **1506316**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/22/2015

CLIENT: Navajo Refining Company

Client Sample ID: South Field RO Reject Discharge

 Project:
 Monthly Temporary RO Reject
 Collection Date: 6/5/2015 1:54:00 PM

 Lab ID:
 1506316-001
 Matrix: AQUEOUS
 Received Date: 6/6/2015 12:15:00 PM

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

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

#### Qualifiers:

- * 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
- D. Complement of the Dones

Page 1 of 21

- P Sample pH Not In Range
- RL Reporting Detection Limit

## **Analytical Report**

#### Lab Order **1506316**

Date Reported: 6/22/2015

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: South Field RO Reject Discharge

 Project:
 Monthly Temporary RO Reject
 Collection Date: 6/5/2015 1:54:00 PM

 Lab ID:
 1506316-001
 Matrix: AQUEOUS
 Received Date: 6/6/2015 12:15:00 PM

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

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

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

# **Analytical Report**Lab Order **1506316**

Date Reported: 6/22/2015

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: South Field RO Reject Discharge

 Project:
 Monthly Temporary RO Reject
 Collection Date: 6/5/2015 1:54:00 PM

 Lab ID:
 1506316-001
 Matrix: AQUEOUS
 Received Date: 6/6/2015 12:15:00 PM

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

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

#### Qualifiers:

- * 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

## **Analytical Report**Lab Order **1506316**

#### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/22/2015

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly Temporary RO Reject **Collection Date:** 

**Lab ID:** 1506316-002 **Matrix:** TRIP BLANK **Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF Date	e Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analyst	: DJF
Benzene	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Toluene	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Ethylbenzene	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Carbon Tetrachloride	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Chloroform	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,1-Dichloroethane	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,1-Dichloroethene	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Methylene Chloride	ND	3.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,1,1-Trichloroethane	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
1,1,2-Trichloroethane	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Trichloroethene (TCE)	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Vinyl chloride	ND	1.0	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Xylenes, Total	ND	1.5	μg/L	1 6/13	3/2015 9:25:05 AM	R26817
Surr: 1,2-Dichloroethane-d4	95.4	70-130	%REC	1 6/13	3/2015 9:25:05 AM	R26817
Surr: 4-Bromofluorobenzene	98.6	70-130	%REC	1 6/13	3/2015 9:25:05 AM	R26817
Surr: Dibromofluoromethane	95.4	70-130	%REC	1 6/13	3/2015 9:25:05 AM	R26817
Surr: Toluene-d8	98.5	70-130	%REC	1 6/13	3/2015 9:25:05 AM	R26817

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

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals **PBW** Client ID: Batch ID: R26882 RunNo: 26882 Prep Date: Analysis Date: 6/16/2015 SeqNo: 802272 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium Boron ND 0.040 Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010 Silver ND 0.0050 ND 0.010 Zinc

Sample ID LCS	Samp	SampType: LCS TestCode: EPA Method 200.7: Dissolved I					ved Meta	ls			
Client ID: LCSW	Bato	ch ID: R2	6882	F	RunNo: 2	6882					
Prep Date:	Analysis	Date: 6/	16/2015	5	SeqNo: 802273		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.53	0.020	0.5000	0	107	85	115				
Barium	0.50	0.0020	0.5000	0	99.3	85	115				
Boron	0.53	0.040	0.5000	0	105	85	115				
Cadmium	0.54	0.0020	0.5000	0	107	85	115				
Chromium	0.51	0.0060	0.5000	0	101	85	115				
Cobalt	0.52	0.0060	0.5000	0	103	85	115				
Copper	0.49	0.0060	0.5000	0	97.4	85	115				
Iron	0.50	0.020	0.5000	0	99.7	85	115				
Manganese	0.48	0.0020	0.5000	0	96.4	85	115				
Molybdenum	0.51	0.0080	0.5000	0	102	85	115				
Nickel	0.50	0.010	0.5000	0	100	85	115				
Silver	0.10	0.0050	0.1000	0	101	85	115				
Zinc	0.51	0.010	0.5000	0	101	85	115				

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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**Client:** 

## Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1506316

22-Jun-15

Project:		Monthly Tempora	ry RO R	eject							
Sample ID	LCS	Samp	Type: <b>LC</b>	s	Tes	TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Bat	ch ID: R2	26876	F	RunNo: <b>26876</b>					
Prep Date:		Analysis	Date: 6	/16/2015	S	SeqNo: 8	02096	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.013	0.00050	0.01250	0	101	85	115			
Selenium		0.025	0.0010	0.02500	0	99.4	85	115			
Uranium		0.013	0.00050	0.01250	0	102	85	115			
Sample ID	LCS	Samp	Type: LC	cs	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	LCSW	Bat	ch ID: R2	26876	F	RunNo: 2	6876				
Prep Date:		Analysis	Date: 6	/16/2015	\$	SeqNo: 8	02099	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.012	0.00050	0.01250	0	96.3	85	115			
Selenium		0.025	0.0010	0.02500	0	100	85	115			
Uranium		0.012	0.00050	0.01250	0	96.9	85	115			
Sample ID	МВ	Samp	туре: Мі	BLK	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	PBW	Bat	Batch ID: R26876			RunNo: <b>26876</b>					
Prep Date:		Analysis	Date: 6	/16/2015	SeqNo: <b>802100</b>		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	МВ	Samp	туре: М	BLK	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	PBW	Bat	ch ID: R2	26876	F	RunNo: 2	6876				
Prep Date:		Analysis	Date: 6	/16/2015	9	SeqNo: 8	02101	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.00050								
Selenium		ND	0.0010								
Uranium		ND	0.00050								
Sample ID	LCS	Samp	Type: <b>LC</b>	s	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID:	LCSW	Bat	ch ID: R2	26904	F	RunNo: 2	6904				
Prep Date:		Analysis	Date: 6	/17/2015	\$	SeqNo: 8	03447	Units: mg/L			
		Result			00140 4144		LowLimit	HighLimit	%RPD	RPDLimit	Qual

#### Qualifiers:

Arsenic

Value exceeds Maximum Contaminant Level.

0.024

0.0010

0.02500

- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Η Holding times for preparation or analysis exceeded

85

115

Not Detected at the Reporting Limit

97.9

- P Sample pH Not In Range
- Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID LCS SampType: LCS TestCode: EPA 200.8: Dissolved Metals

Client ID: LCSW Batch ID: R26904 RunNo: 26904

Prep Date: Analysis Date: 6/17/2015 SeqNo: 803448 Units: mg/L

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

Arsenic 0.024 0.0010 0.02500 0 97.8 85 115

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R26904 RunNo: 26904

Prep Date: Analysis Date: 6/17/2015 SeqNo: 803449 Units: mg/L

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

Arsenic ND 0.0010

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R26904 RunNo: 26904

Prep Date: Analysis Date: 6/17/2015 SeqNo: 803450 Units: mg/L

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

Arsenic ND 0.0010

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-19630 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 19630 RunNo: 26705

Prep Date: 6/9/2015 Analysis Date: 6/9/2015 SeqNo: 795807 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-19630 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 19630 RunNo: 26705

Prep Date: 6/9/2015 Analysis Date: 6/9/2015 SeqNo: 795808 Units: mg/L

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

Mercury 0.0050 0.00020 0.005000 0 100 80 120

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

5.1

11

0.50

0.50

5.000

10.00

WO#: **1506316** 

22-Jun-15

Client: Project:		Navajo Refining C Monthly Temporar									
Sample ID I	ИΒ	Samp	Гуре: М	BLK	Tes	tCode: E	PA Method	300.0: Anions	5		
Client ID:	PBW	Bato	h ID: R	26695	F	RunNo: 2	26695				
Prep Date:		Analysis I	Date: 6	/8/2015	9	SeqNo: 7	795454	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride Nitrate+Nitrite as	N	ND ND	0.10 0.20								
Sample ID I	_cs	Samp	Гуре: <b>L</b> (	cs	Tes	tCode: E	PA Method	300.0: Anions	5		
Client ID: I	csw	Bato	h ID: R	26695	F	RunNo: 2	26695				
Prep Date:		Analysis I	Date: 6	/8/2015	5	SeqNo: 7	795455	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		0.48	0.10	0.5000	0	95.8	90	110			
Nitrate+Nitrite as	N	3.5	0.20	3.500	0	100	90	110			
Sample ID I	ИΒ	Samp	Гуре: <b>М</b>	BLK	Tes	tCode: E	PA Method	300.0: Anions	3		
Client ID:	PBW	Bato	h ID: R	26721	F	RunNo: 2	26721				
Prep Date:		Analysis I	Date: 6	/9/2015	5	SeqNo: 7	796475	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	0.50								
Sulfate		ND	0.50								
Sample ID I	_cs	Samp	Гуре: <b>L</b> (	cs	Tes	tCode: E	PA Method	300.0: Anions	5		
Client ID: I	csw	Bato	h ID: R	26721	F	RunNo: 2	26721				
Prep Date:		Analysis I	Date: 6	/9/2015	5	SeqNo: 7	796476	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

0

0

103

106

90

90

110

110

#### Qualifiers:

Chloride Sulfate

- * 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-19674 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 19674 RunNo: 26780

Prep Date: 6/11/2015 Analysis Date: 6/11/2015 SeqNo: 798570 Units: μg/L

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

1,2-Dibromoethane ND 0.010

Sample ID LCS-19674 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 19674 RunNo: 26780

Prep Date: 6/11/2015 Analysis Date: 6/11/2015 SeqNo: 798571 Units: µg/L

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

1,2-Dibromoethane 0.11 0.010 0.1000 0 109 70 130

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-19616 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range PBW RunNo: 26673 Client ID: Batch ID: 19616 6/8/2015 Analysis Date: 6/9/2015 SeqNo: 796030 Prep Date: Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) ND 1.0 Motor Oil Range Organics (MRO) ND 5.0 Surr: DNOP 0.94 1.000 94.1 76.5 150

Sample ID LCS-19616	SampT	ype: <b>LC</b>	s	Test	tCode: El	PA Method	8015D: Diese	l Range		
Client ID: LCSW	Batch	ID: <b>19</b>	616	R	tunNo: 2	6673				
Prep Date: 6/8/2015	Analysis D	ate: 6/	9/2015	S	SeqNo: 7	96031	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.3	60.1	156			
Surr: DNOP	0.45		0.5000		89.8	76.5	150			

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R26753 RunNo: 26753

Prep Date: Analysis Date: 6/10/2015 SeqNo: 797263 Units: mg/L

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

Gasoline Range Organics (GRO) ND 0.050

Surr: BFB 18 20.00 88.9 57.8 137

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R26753 RunNo: 26753

Prep Date: Analysis Date: 6/10/2015 SeqNo: 797264 Units: mg/L

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

#### 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

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**Client:** 

## Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1506316

22-Jun-15

Project: Monthl	y Temporary RO Reje	ect							
Sample ID MB-19626	SampType: MBL	K	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch ID: 1962	6	F	RunNo: 20	6808				
Prep Date: 6/9/2015	Analysis Date: 6/12	/2015	8	SeqNo: <b>7</b> 9	99539	Units: µg/L			
Analyte	Result PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND 1.0								
Aroclor 1221	ND 1.0								
Aroclor 1232	ND 1.0								
Aroclor 1242	ND 1.0								
Aroclor 1248	ND 1.0								
Aroclor 1254	ND 1.0								
Aroclor 1260	ND 1.0								
Surr: Decachlorobiphenyl	1.8	2.500		72.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6	2.500		63.2	31.8	95.7			
Sample ID MB-19672	SampType: <b>MBL</b>	K	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch ID: 1967	2	F	RunNo: 20	6808				
Prep Date: 6/11/2015	Analysis Date: 6/12	/2015	S	SeqNo: <b>7</b> 9	99540	Units: %REC	С		
Analyte	Result PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.3	2.500		92.0	44.5	110			
Surr: Tetrachloro-m-xylene	1.9	2.500		75.2	31.8	95.7			
Sample ID LCS-19672	SampType: LCS		Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 1967	2	F	RunNo: 20	808				
Prep Date: 6/11/2015	Analysis Date: 6/12	/2015	8	SeqNo: 79	99541	Units: %REC	C		
Analyte	Result PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.0	2.500		82.0	44.5	110			
Surr: Tetrachloro-m-xylene	1.8	2.500		70.4	31.8	95.7			
Sample ID LCSD-19626	SampType: LCSI	<b>D</b>	Tes	tCode: El	PA Method	8082: PCB's	·		
Client ID: LCSS02	Batch ID: 1962	6	F	RunNo: 20	6808				
Prep Date: 6/9/2015	Analysis Date: 6/12	/2015	S	SeqNo: <b>7</b> 9	99543	Units: µg/L			
Analyte	Result PQL S	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1 1.0	5.000	0	61.8	22.6	127	4.98	26.9	
Aroclor 1260	4.7 1.0	5.000	0	94.3	20.4	122	8.96	29.1	
Surr: Decachlorobiphenyl	1.7	2.500		69.2	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	1.5	2.500		58.4	31.8	95.7	0	0	

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID LCS-19626	SampT	ype: <b>LC</b>	S	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	1D: <b>19</b>	626	R	RunNo: 20	6808				
Prep Date: 6/9/2015	Analysis D	ate: 6/	12/2015	S	SeqNo: <b>7</b> 9	99548	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	58.8	22.6	127			
Aroclor 1260	5.2	1.0	5.000	0	103	20.4	122			
Surr: Decachlorobiphenyl	1.9		2.500		74.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.4	31.8	95.7			

#### Qualifiers:

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- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID rb1	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	n ID: <b>R2</b>	6817	F	RunNo: 2	6817				
Prep Date:	Analysis D	oate: 6/	12/2015	5	SeqNo: 7	99790	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.8		10.00		87.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.7	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID 100nglcs200T2lcs	<b>s</b> SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1D: <b>R2</b>	6817	F	RunNo: 2	6817				
Prep Date:	Analysis D	ate: <b>6/</b>	12/2015	S	SeqNo: 7	99792	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	113	75.6	144			
Trichloroethene (TCE)	19	1.0	20.00	0	95.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	9.1		10.00		90.8	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

#### Qualifiers:

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- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-19627 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: **PBW** Batch ID: 19627 RunNo: 26846 Prep Date: 6/9/2015 Analysis Date: 6/16/2015 SeqNo: 801380 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 ND 0.30 Pyrene Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 65.6 Surr: Benzo(e)pyrene 13 20.00 37.2 136

Sample ID LCS-19627	Samp	Гуре: <b>LC</b>	S	Tes	tCode: El	PA Method	8310: PAHs				
Client ID: LCSW	Batc	h ID: <b>19</b>	627	F	RunNo: 2	6846					
Prep Date: 6/9/2015	Analysis [	Date: <b>6/</b>	16/2015	S	SeqNo: 8	01381	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Naphthalene	74	2.0	80.00	0	92.9	57.8	83.9			S	
1-Methylnaphthalene	76	2.0	80.20	0	94.6	43.5	88.5			S	
2-Methylnaphthalene	74	2.0	80.00	0	92.8	34.2	94.5				
Acenaphthylene	77	2.5	80.20	0	95.6	58.5	93.6			S	
Acenaphthene	74	2.0	80.00	0	91.9	45.5	90.9			S	
Fluorene	7.0	0.80	8.020	0	86.7	46.6	90.3				
Phenanthrene	3.6	0.60	4.020	0	89.1	47.2	102				
Anthracene	3.6	0.60	4.020	0	88.8	45.4	99.1				
Fluoranthene	7.3	0.30	8.020	0	90.8	45.3	101				
Pyrene	7.5	0.30	8.020	0	93.0	51.9	104				
Benz(a)anthracene	0.72	0.070	0.8020	0	89.8	46.9	104				
Chrysene	3.6	0.20	4.020	0	89.3	53.6	95.1				
Benzo(b)fluoranthene	0.87	0.10	1.002	0	86.8	54.3	97.9				
Benzo(k)fluoranthene	0.46	0.070	0.5000	0	92.0	47.4	109				

#### Qualifiers:

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- 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

Reporting Detection Limit

P Sample pH Not In Range

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID LCS-19627 Client ID: LCSW Prep Date: 6/9/2015	·	ype: <b>LC</b> n ID: <b>19</b> Date: <b>6</b> /	627	R	tCode: El tunNo: 2 SeqNo: 8	6846	8310: PAHs Units: μg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.46	0.070	0.5020	0	91.6	56.3	98.6			
Dibenz(a,h)anthracene	0.90	0.12	1.002	0	89.8	57.5	95.7			
Benzo(g,h,i)perylene	0.92	0.12	1.000	0	92.0	55.9	98.6			
Indeno(1,2,3-cd)pyrene	1.8	0.25	2.004	0	90.8	52.8	95.3			
Surr: Benzo(e)pyrene	13		20.00		66.2	37.2	136			

Sample ID LCSD-19627	SampT	ype: <b>LC</b>	SD	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSS02	Batch	n ID: <b>19</b>	627	F	RunNo: 2	6846				
Prep Date: 6/9/2015	Analysis D	ate: <b>6/</b>	16/2015	S	SeqNo: 8	01382	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	70	2.0	80.00	0	88.1	57.8	83.9	5.29	20	S
1-Methylnaphthalene	73	2.0	80.20	0	90.7	43.5	88.5	4.20	20	S
2-Methylnaphthalene	71	2.0	80.00	0	88.8	34.2	94.5	4.35	20	
Acenaphthylene	75	2.5	80.20	0	93.1	58.5	93.6	2.66	20	
Acenaphthene	72	2.0	80.00	0	89.8	45.5	90.9	2.37	20	
Fluorene	6.8	0.80	8.020	0	85.4	46.6	90.3	1.45	20	
Phenanthrene	3.6	0.60	4.020	0	89.8	47.2	102	0.834	24	
Anthracene	3.6	0.60	4.020	0	89.8	45.4	99.1	1.11	20	
Fluoranthene	7.4	0.30	8.020	0	91.9	45.3	101	1.23	20.9	
Pyrene	7.6	0.30	8.020	0	94.4	51.9	104	1.46	20.8	
Benz(a)anthracene	0.71	0.070	0.8020	0	88.5	46.9	104	1.40	20	
Chrysene	3.6	0.20	4.020	0	89.3	53.6	95.1	0	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.3	97.9	1.16	20.6	
Benzo(k)fluoranthene	0.45	0.070	0.5000	0	90.0	47.4	109	2.20	20.8	
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6	2.20	20	
Dibenz(a,h)anthracene	0.87	0.12	1.002	0	86.8	57.5	95.7	3.39	20	
Benzo(g,h,i)perylene	0.89	0.12	1.000	0	89.0	55.9	98.6	3.31	20	
Indeno(1,2,3-cd)pyrene	1.8	0.25	2.004	0	87.8	52.8	95.3	3.35	20	
Surr: Benzo(e)pyrene	14		20.00		69.4	37.2	136	0		

#### Qualifiers:

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- 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
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- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-19794 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 19794 RunNo: 26937

Prep Date: 6/18/2015 Analysis Date: 6/18/2015 SeqNo: 804126 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-19794 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 19794 RunNo: 26937

Prep Date: 6/18/2015 Analysis Date: 6/18/2015 SeqNo: 804127 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 0 108 64.4 135

#### Qualifiers:

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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company **Project:** Monthly Temporary RO Reject

Sample ID MB-R26972 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R26972 RunNo: 26972

Prep Date: Analysis Date: 6/18/2015 SeqNo: 805487 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Cyanide ND 0.0100

Sample ID LCS-R26972 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R26972 RunNo: 26972

0.501

Units: mg/L Prep Date: Analysis Date: 6/18/2015 SeqNo: 805488

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL LowLimit HighLimit Qual 0

100

110

0.5000 Sample ID MB-R26972 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: **PBW** Batch ID: R26972 RunNo: 26972

Prep Date: Analysis Date: 6/16/2015 SeqNo: 805490 Units: mg/L

SPK value SPK Ref Val %REC LowLimit Result **PQL** HighLimit %RPD **RPDLimit** Qual Analyte

Cyanide ND 0.0100

Sample ID LCS-R26972 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: **LCSW** Batch ID: R26972 RunNo: 26972

Prep Date: Analysis Date: 6/16/2015 SeqNo: 805491 Units: mg/L

Analyte Result SPK value SPK Ref Val %REC I owl imit HighLimit %RPD **RPDLimit** Qual

90 Cyanide 0.503 0.5000 0 101 110

#### Qualifiers:

Cyanide

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range

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Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-R26972	SampT	ype: ME	BLK	Tes	tCode: E	PA 903.1: R	a 226 and EP	A 904.0: F	Ra 228-Subbe	d
Client ID: PBW	Batch	1D: <b>R2</b>	6972	R	RunNo: 2	6972				
Prep Date:	Analysis D	ate: 6/	16/2015	S	SeqNo: 8	05511	Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.071	0.659								
Radium-226 ±	0.324	0.659								
Radium-228	0.112	0.774								
Radium-228 ±	0.344	0.774								

#### Qualifiers:

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- O RSD is greater than RSDlimit
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- S Spike Recovery outside accepted recovery limits
- 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
- RL Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506316** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB-19636 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 19636 RunNo: 26730

Prep Date: 6/9/2015 Analysis Date: 6/10/2015 SeqNo: 796757 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-19636 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 19636 RunNo: 26730

Prep Date: 6/9/2015 Analysis Date: 6/10/2015 SeqNo: 796758 Units: mg/L

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

Total Dissolved Solids 1010 20.0 1000 0 101 80 120

#### Qualifiers:

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

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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

**NAVAJO REFINING CO** Client Name: Work Order Number: 1506316 RcptNo: 1 Received by/date: Logged By: **Ashley Gallegos** 6/6/2015 12:15:00 PM Completed By: 6/8/2015 9:51:07,AM **Ashley Gallegos** Reviewed By: Chain of Custod No 🗔 Not Present 1. Custody seals intact on sample bottles? No ... Yes 🖈 Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? <u>FedEx</u> Log In No 🗌 NA 🔲 4. Was an attempt made to cool the samples? Yes 🖈 NA 🗀 Were all samples received at a temperature of >0° C to 6.0°C Yes 🖈 No 🗔 No [] Sample(s) in proper container(s)? Yes 7. Sufficient sample volume for indicated test(s)? No L_ 8. Are samples (except VOA and ONG) properly preserved? No NA 🗔 9. Was preservative added to bottles? No VOA Vials 10. VOA vials have zero headspace? No 🗀 No 🖈 11. Were any sample containers received broken? Yes # of preserved bottles checked 12. Does paperwork match bottle labels? No for pH: (Note discrepancies on chain of custody) Adjusted? No 🛄 13. Are matrices correctly identified on Chain of Custody? 14. Is it clear what analyses were requested? No No 🔲 15. Were all holding times able to be met? Checked by (If no, notify customer for authorization.) Special Handling (if applicable) 16. Was client notified of all discrepancies with this order? Yes 🗌 NA 💆 No 🗌 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 Good Yes

#### Air Bubbles (Y or N) VOCs 11,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethylene, 1,1,2-SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene: 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Po, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vnyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** Chloride × Sulfate × Radioactivity (Ra-226+Ra-228) 2808 **b**CB2 × Tel. 505-345-3975 **СВО, DRO, ОРО** 3108 × Mercury :0747 × :4.855 Total Cyanide × 6010B: WQCC Metals Remarks 8270C: WQCC list SVOCs × 8260B:WQCC List VOCs × 5062110 Time -009 HEAL No. Salstoern Date Monthly Temporary RO Reject Preservative Rush Project #: P.O. # 167796 Sampler: Elizobeth Sample Temperature: 2-40ml VOA unpres 2 - 1L Glass unpres 1 - 1L Glass unpres -unpres HN03 HN03 HN03 NaOH H2S04 Turn-Around Time 3-40ml VOA HCL 3-40ml VOA HCL 2-40ml VOA HCL Project Manager: Robert Combs Project Name. Container X Standard Type and # 2 - 500ml P 1-500ml P Relinquished by. Elizaboth Balsbarn, Received by. 1-500ml P 1-125ml P Received by: 2-1LP On Ice South Field RO Reject ☐ Level 4 (Full Validation) Euzabeth Salobarn Sample Request ID J180/00/00/12 Chain-of-Custody Record Trip Blank DISHCHAME ailing Address: P.O. Box 159 Artesia, Relinquished by nail or Fax#: 575-746-5451 Matrix ient: Navajo Refinery none #: 575-748-3311 liguid 1:29 1:29 1:29 1:29 1:29 1:29 1:29 1:29 1:29 1:27 M 88211-0159 8pm Time A/QC Package EDD (Type) Time Standard Other 5-15 5-15 5-15 -5-15 -5-15 -5-15 5-1-2-1 5-15 5-15 5-15 5 Date 5-15 ate: Sate.

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



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

# Monthly RO Reject Sample Details Attachment

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Sample Type	
Grab	7
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Sample s Affiliation Navajo Refining Co. LLC Start Date and Time 6(5/2015 @ 1.25 pm End Date and Time 6(5/2015 @ 1.54 pm

Project Name Monthly RO Reject Samplers Name Flizabeth Salsberry South Field R.O. Reject Discarge

O. Reject Discarge

Preservatives	# of Neat Analysis and/or Method Requested Other Analysis and/or Method Requested	×	3 ×	, x	×	2 X	×	2 X	X I	2 x	2 x	2 ×
	SIS		3	1	-	2	3	2	×			2
	Material		VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA
Section 1	Size	500mi	40ml	500mi	125ml	500mi	11	40ml	11	11	40ml	40ml
	Container	· · · · · · · · · · · · · · · · · · ·	2	3	4	5	9	7	8	6	10	THE PARTY NAMED IN

nicity 38%, Wind Dir SE, Wind Speed 16.1 mph, Conditions Clear		Refrigerated	Other	Shipping Media	[2] application	Caper
Field Data (Weather, Observations, Etc): 6/5/2015 01:35 Tmp. 89.6	Date and Time:		Field Temp. 25.9 C Field pH 7.94			



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

June 22, 2015

Robert Combs
Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly RO Reject OrderNo.: 1506320

#### Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/6/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

and st

4901 Hawkins NE

Albuquerque, NM 87109

## Lab Order 1506320

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/22/2015

Client Sample ID: South Field RO Reject Discharge **CLIENT:** Navajo Refining Company

**Project:** Monthly RO Reject **Collection Date:** 6/5/2015 1:54:00 PM 1506320-001 Lab ID: Matrix: AQUEOUS Received Date: 6/6/2015 12:15:00 PM

Analyses	Result	RL (	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: DBD
Arsenic	ND	0.0010		mg/L	1	6/16/2015 7:46:40 PM	R26876
Lead	ND	0.0010		mg/L	1	6/16/2015 7:46:40 PM	R26876
Selenium	0.0062	0.0010		mg/L	1	6/16/2015 7:46:40 PM	R26876
Uranium	0.0053	0.0010		mg/L	1	6/16/2015 7:46:40 PM	R26876
EPA 903.1: RA 226 AND EPA 904.0: RA	228-SUBBE	D				Analyst	: SUB
Radium-226	1.59	0.615		pCi/L	1	6/16/2015	R26972
Radium-226 ±	0.712	0.615		pCi/L	1	6/16/2015	R26972
Radium-228	0.427	0.757		pCi/L	1	6/16/2015	R26972
Radium-228 ±	0.375	0.757		pCi/L	1	6/16/2015	R26972
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	2.9	0.10		mg/L	1	6/8/2015 1:35:07 PM	R26695
Chloride	380	10		mg/L	20	6/8/2015 2:12:21 PM	R26695
Sulfate	1800	25		mg/L	50	6/10/2015 1:41:18 AM	R26721
Nitrate+Nitrite as N	4.5	1.0		mg/L	5	6/9/2015 4:28:42 AM	R26695
SM2540C MOD: TOTAL DISSOLVED SO	DLIDS					Analyst	: KS
Total Dissolved Solids	3640	20.0	*	mg/L	1	6/11/2015 4:07:00 PM	19650
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst	: SUB
Cyanide	ND	0.0100		mg/L	1	6/16/2015	R26972
SM4500-H+B: PH						Analyst	: JRR
рН	8.06	1.68	Н	pH units	1	6/9/2015 10:02:04 PM	R26740
EPA METHOD 200.7: DISSOLVED META	ALS					Analyst	: JLF
Aluminum	ND	0.020		mg/L	1	6/16/2015 5:09:17 PM	R26882
Barium	0.055	0.0020		mg/L	1	6/16/2015 5:09:17 PM	R26882
Boron	0.092	0.040		mg/L	1	6/16/2015 5:09:17 PM	R26882
Cadmium	ND	0.0020		mg/L	1	6/16/2015 5:09:17 PM	R26882
Chromium	0.0077	0.0060		mg/L	1	6/16/2015 5:09:17 PM	R26882
Cobalt	ND	0.0060		mg/L	1	6/16/2015 5:09:17 PM	R26882
Copper	ND	0.0060		mg/L	1	6/16/2015 5:09:17 PM	R26882
Iron	ND	0.020		mg/L	1	6/16/2015 5:09:17 PM	R26882
Manganese	0.0021	0.0020		mg/L	1	6/16/2015 5:09:17 PM	R26882
Molybdenum	ND	0.0080		mg/L	1	6/16/2015 5:09:17 PM	R26882
Nickel	ND	0.010		mg/L	1	6/16/2015 5:09:17 PM	R26882
Silver	ND	0.0050		mg/L	1	6/16/2015 5:09:17 PM	R26882
Zinc	0.042	0.010		mg/L	1	6/16/2015 5:09:17 PM	R26882
EPA METHOD 245.1: MERCURY						Analyst	: MED
Mercury	ND	0.00020		mg/L	1	6/9/2015 3:15:08 PM	19630

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

#### **Qualifiers:**

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
  - Page 1 of 22
- P Sample pH Not In Range
- RL Reporting Detection Limit

## Lab Order 1506320

Date Reported: 6/22/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: South Field RO Reject Discharge

 Project:
 Monthly RO Reject
 Collection Date: 6/5/2015 1:54:00 PM

 Lab ID:
 1506320-001
 Matrix: AQUEOUS
 Received Date: 6/6/2015 12:15:00 PM

Analyses	Result	RL (	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analy	st: <b>JME</b>
1,2-Dibromoethane	ND	0.010	μg/L	1	6/11/2015 5:29:43 PM	1 19674
EPA METHOD 8082: PCB'S					Analy	st: SCC
Aroclor 1016	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Aroclor 1221	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Aroclor 1232	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Aroclor 1242	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Aroclor 1248	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Aroclor 1254	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Aroclor 1260	ND	1.0	μg/L	1	6/12/2015 3:35:55 PM	1 19626
Surr: Decachlorobiphenyl	81.2	44.5-110	%REC	1	6/12/2015 3:35:55 PM	1 19626
Surr: Tetrachloro-m-xylene	69.6	31.8-95.7	%REC	1	6/12/2015 3:35:55 PM	1 19626
EPA METHOD 8015D: DIESEL RANG	E				Analy	st: <b>KJH</b>
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	6/9/2015 10:29:45 PM	1 19616
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	6/9/2015 10:29:45 PM	1 19616
Surr: DNOP	100	76.5-150	%REC	1	6/9/2015 10:29:45 PM	1 19616
EPA METHOD 8015D: GASOLINE RA	NGE				Analy	st: NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	6/10/2015 8:13:18 PM	1 R26753
Surr: BFB	89.2	57.8-137	%REC	1	6/10/2015 8:13:18 PM	1 R26753
EPA METHOD 8310: PAHS					Analy	st: SCC
Naphthalene	ND	2.0	μg/L	1	6/16/2015 12:38:08 P	M 19627
1-Methylnaphthalene	ND	2.0	μg/L	1	6/16/2015 12:38:08 P	
2-Methylnaphthalene	ND	2.0	μg/L	1	6/16/2015 12:38:08 P	
Benzo(a)pyrene	ND	0.070	μg/L	1	6/16/2015 12:38:08 P	M 19627
Surr: Benzo(e)pyrene	73.2	37.2-136	%REC	1	6/16/2015 12:38:08 P	M 19627
EPA METHOD 8260B: VOLATILES					Analy	st: cadg
Benzene	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	1 R26777
Toluene	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	1 R26777
Ethylbenzene	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	1 R26777
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	1 R26777
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	1 R26777
Carbon Tetrachloride	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	1 R26777
Chloroform	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	
1,1-Dichloroethane	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	
1,1-Dichloroethene	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	
Methylene Chloride	ND	3.0	μg/L	1	6/12/2015 5:41:45 AM	
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	6/12/2015 5:41:45 AM	
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	

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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

## Lab Order **1506320**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/22/2015

CLIENT: Navajo Refining Company

Client Sample ID: South Field RO Reject Discharge

 Project:
 Monthly RO Reject
 Collection Date: 6/5/2015 1:54:00 PM

 Lab ID:
 1506320-001
 Matrix: AQUEOUS
 Received Date: 6/6/2015 12:15:00 PM

Analyses	Result RL Qual Units		DF	Batch		
EPA METHOD 8260B: VOLATILES					Analyst	cadg
1,1,1-Trichloroethane	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	R26777
1,1,2-Trichloroethane	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	R26777
Trichloroethene (TCE)	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	R26777
Vinyl chloride	ND	1.0	μg/L	1	6/12/2015 5:41:45 AM	R26777
Xylenes, Total	ND	1.5	μg/L	1	6/12/2015 5:41:45 AM	R26777
Surr: 1,2-Dichloroethane-d4	95.7	70-130	%REC	1	6/12/2015 5:41:45 AM	R26777
Surr: 4-Bromofluorobenzene	107	70-130	%REC	1	6/12/2015 5:41:45 AM	R26777
Surr: Dibromofluoromethane	96.0	70-130	%REC	1	6/12/2015 5:41:45 AM	R26777
Surr: Toluene-d8	102	70-130	%REC	1	6/12/2015 5:41:45 AM	R26777
TOTAL PHENOLICS BY SW-846 9067					Analyst	SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	6/18/2015	19794

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

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- S Spike Recovery outside accepted recovery limits
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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 3 of 22

- P Sample pH Not In Range
- RL Reporting Detection Limit

## Lab Order **1506320**

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 6/22/2015

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject Collection Date:

**Lab ID:** 1506320-002 **Matrix:** TRIP BLANK **Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL Qu	al Units	DF	Batch	
EPA METHOD 8260B: VOLATILES					Analyst	: cadg
Benzene	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Toluene	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Ethylbenzene	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Carbon Tetrachloride	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Chloroform	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,1-Dichloroethane	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,1-Dichloroethene	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Methylene Chloride	ND	3.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,1,1-Trichloroethane	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
1,1,2-Trichloroethane	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Trichloroethene (TCE)	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Vinyl chloride	ND	1.0	μg/L	1	6/12/2015 7:07:57 AM	R26777
Xylenes, Total	ND	1.5	μg/L	1	6/12/2015 7:07:57 AM	R26777
Surr: 1,2-Dichloroethane-d4	100	70-130	%REC	1	6/12/2015 7:07:57 AM	R26777
Surr: 4-Bromofluorobenzene	105	70-130	%REC	1	6/12/2015 7:07:57 AM	R26777
Surr: Dibromofluoromethane	102	70-130	%REC	1	6/12/2015 7:07:57 AM	R26777
Surr: Toluene-d8	103	70-130	%REC	1	6/12/2015 7:07:57 AM	R26777

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

#### Qualifiers:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

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- P Sample pH Not In Range
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-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: **R26882** RunNo: **26882** 

Prep Date: Analysis Date: 6/16/2015 SeqNo: 802272 Units: mg/L

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

Sample ID LCS	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: LCSW	Bato	ch ID: R2	6882	F	RunNo: 2	6882				
Prep Date:	Analysis	Date: 6/	16/2015	S	SeqNo: 8	02273	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	107	85	115			
Barium	0.50	0.0020	0.5000	0	99.3	85	115			
Boron	0.53	0.040	0.5000	0	105	85	115			
Cadmium	0.54	0.0020	0.5000	0	107	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Cobalt	0.52	0.0060	0.5000	0	103	85	115			
Copper	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.50	0.020	0.5000	0	99.7	85	115			
Manganese	0.48	0.0020	0.5000	0	96.4	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.50	0.010	0.5000	0	100	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
7inc	0.51	0.010	0.5000	0	101	85	115			

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
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- 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

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**Client:** 

**Project:** 

# Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

Monthly RO Reject

WO#: **1506320** 

22-Jun-15

Sample ID LCS	SampType: LCS TestCode: EPA 200.8: Dissolved Metals								
Client ID: LCSW		Batch ID: <b>R26876</b> RunNo: <b>26876</b>							
Prep Date:	Analysis Date: 6/16/2	015	S	eqNo: 80	02096	Units: mg/L			
Analyte	Result PQL SP	K value SF	PK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025 0.0010	0.02500	0	99.0	85	115			
Lead	0.013 0.00050	0.01250	0	101	85	115			
Selenium	0.025 0.0010	0.02500	0	99.4	85	115			
Uranium	0.013 0.00050	0.01250	0	102	85	115			
Sample ID LCS	SampType: <b>LCS</b>		Test	Code: <b>EF</b>	PA 200.8: D	Dissolved Met	tals		
Client ID: LCSW	Batch ID: R2687	6	R	unNo: <b>26</b>	6876				
Prep Date:	Analysis Date: 6/16/2	015	S	eqNo: <b>80</b>	02099	Units: mg/L			
Analyte	Result PQL SP	K value SF	PK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025 0.0010	0.02500	0	98.9	85	115			
Lead	0.012 0.00050	0.01250	0	96.3	85	115			
Selenium	0.025 0.0010	0.02500	0	100	85	115			
Uranium	0.012 0.00050	0.01250	0	96.9	85	115			
Sample ID MB	SampType: MBLK	-	Test	Code: <b>EF</b>	PA 200.8: D	issolved Me	tals	-	-
Client ID: PBW	Batch ID: R2687	6	R	unNo: <b>26</b>	6876				

Client ID: PBW	Batch ID:	F	RunNo: 2	6876					
Prep Date:	Analysis Date:	9	SeqNo: 8	02100	Units: mg/L				
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND 0.00	10							
Lead	ND 0.000	50							
Selenium	ND 0.00	10							
Uranium	ND 0.000	50							

Sample ID	МВ	Samp	Туре: М	BLK	Tes	tCode: E	PA 200.8:	Dissolved Met	als		
Client ID:	PBW	Bate	ch ID: R	26876	F	RunNo: 26876					
Prep Date:		Analysis	Date: 6	/16/2015	8	SeqNo: 8	02101	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								

## Qualifiers:

Uranium

* Value exceeds Maximum Contaminant Level.

ND 0.00050

- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-19630 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 19630 RunNo: 26705

Prep Date: 6/9/2015 Analysis Date: 6/9/2015 SeqNo: 795807 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-19630 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 19630 RunNo: 26705

Prep Date: 6/9/2015 Analysis Date: 6/9/2015 SeqNo: 795808 Units: mg/L

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

Mercury 0.0050 0.00020 0.005000 0 100 80 120

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-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: R26695 RunNo: 26695 SeqNo: 795454 Prep Date: Analysis Date: 6/8/2015 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.10 Fluoride ND Chloride ND 0.50 ND 0.20 Nitrate+Nitrite as N Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions Client ID: LCSW Batch ID: R26695 RunNo: 26695 Analysis Date: 6/8/2015 SeqNo: 795455 Prep Date: Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Result 95.8 Fluoride 0.48 0.10 0 90 110 0.5000 Chloride 4.8 0.50 5.000 0 96.7 90 110 0.20 0 100 90 Nitrate+Nitrite as N 3.5 3.500 110 Sample ID 1506320-001EMS TestCode: EPA Method 300.0: Anions SampType: MS Client ID: South Field RO Reje Batch ID: R26695 RunNo: 26695 Prep Date: Analysis Date: 6/8/2015 SeqNo: 795461 Units: mg/L SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL SPK value LowLimit HighLimit Qual Fluoride 3.3 0.10 0.5000 2.860 84.6 75.3 Sample ID 1506320-001EMSD TestCode: EPA Method 300.0: Anions SampType: MSD Client ID: South Field RO Reje Batch ID: R26695 RunNo: 26695 Prep Date: Analysis Date: 6/8/2015 SeqNo: 795462 Units: mg/L %RPD **RPDLimit** Analyte Result POL SPK value SPK Ref Val %REC LowLimit HighLimit Qual Fluoride 3.2 0.10 0.5000 2.860 77.6 75.3 111 1.07 20 Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions

# Qualifiers:

Analyte

Sulfate

Prep Date:

Client ID:

Prep Date:

Sample ID LCS

Client ID: LCSW

Analyte

Sulfate

PBW

Value exceeds Maximum Contaminant Level.

Batch ID: R26721

0.50

Analysis Date: 6/9/2015

SampType: LCS

Batch ID: R26721

**PQL** 

0.50

Analysis Date: 6/9/2015

Result

Result

ND

- 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

TestCode: EPA Method 300.0: Anions

LowLimit

90

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

RunNo: 26721

SeqNo: 796475

RunNo: 26721

SeqNo: 796476

%REC

106

SPK value SPK Ref Val %REC LowLimit

0

SPK value SPK Ref Val

10.00

Units: mg/L

HighLimit

Units: mq/L

HighLimit

110

- P Sample pH Not In Range
- RL Reporting Detection Limit

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**RPDLimit** 

**RPDLimit** 

Qual

Qual

%RPD

%RPD

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506320

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-19674 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 19674 RunNo: 26780

Prep Date: 6/11/2015 Analysis Date: 6/11/2015 SeqNo: 798570 Units: μg/L

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

1,2-Dibromoethane ND 0.010

Sample ID LCS-19674 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 19674 RunNo: 26780

Prep Date: 6/11/2015 Analysis Date: 6/11/2015 SeqNo: 798571 Units: µg/L

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

1,2-Dibromoethane 0.11 0.010 0.1000 0 109 70 130

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-19616 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: PBW Batch ID: 19616 RunNo: 26673 Prep Date: 6/8/2015 Analysis Date: 6/9/2015 SeqNo: 796030 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) ND 1.0 Motor Oil Range Organics (MRO) ND 5.0 Surr: DNOP 0.94 1.000 94.1 76.5 150

Sample ID LCS-19616 SampType: LCS TestCode: EPA Method 8015D: Diesel Range Client ID: LCSW Batch ID: 19616 RunNo: 26673 Prep Date: 6/8/2015 Analysis Date: 6/9/2015 SeqNo: 796031 Units: mg/L Analyte SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 99.3 60.1 5.0 5.000 156 Surr: DNOP 0.45 0.5000 89.8 76.5 150

#### 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506320

22-Jun-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: R26753 RunNo: 26753

Prep Date: Analysis Date: 6/10/2015 SeqNo: 797263 Units: mg/L

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

Gasoline Range Organics (GRO) ND 0.050

Surr: BFB 18 20.00 88.9 57.8 137

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R26753 RunNo: 26753

21

Prep Date: Analysis Date: 6/10/2015 SeqNo: 797264 Units: mg/L

20.00

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.49 0.050 0.5000 98.5 80 120

103

57.8

137

#### Qualifiers:

Surr: BFB

- * 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client:	Navajo Refining Company
Project:	Monthly RO Reject

Project: Monthl	y RO Reject			
Sample ID MB-19626	SampType: MBLK	TestCode: EPA Method	8082: PCB's	
Client ID: PBW	Batch ID: 19626	RunNo: 26808		
Prep Date: 6/9/2015	Analysis Date: 6/12/2015	SeqNo: <b>799539</b>	Units: µg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Aroclor 1016	ND 1.0			
Aroclor 1221	ND 1.0			
Aroclor 1232	ND 1.0			
Aroclor 1242	ND 1.0			
Aroclor 1248	ND 1.0			
Aroclor 1254	ND 1.0			
Aroclor 1260	ND 1.0			
Surr: Decachlorobiphenyl	1.8 2.500	72.8 44.5	110	
Surr: Tetrachloro-m-xylene	1.6 2.500	63.2 31.8	95.7	
Sample ID MB-19672	SampType: <b>MBLK</b>	TestCode: <b>EPA Method</b>	9092, BCB's	
Client ID: PBW	Batch ID: <b>19672</b>	RunNo: 26808	0002. FCD 5	
Prep Date: 6/11/2015	Analysis Date: 6/12/2015	SeqNo: <b>799540</b>	Units: %REC	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Surr: Decachlorobiphenyl	2.3 2.500	92.0 44.5	110	
Surr: Tetrachloro-m-xylene	1.9 2.500	75.2 31.8	95.7	
Comple ID I CC 40672	CompTuper I CC	TestCode: <b>EPA Method</b>	9092. DCDIa	
Sample ID LCS-19672	SampType: LCS		0002: PCB S	
Client ID: LCSW	Batch ID: 19672	RunNo: <b>26808</b>		
Prep Date: 6/11/2015	Analysis Date: 6/12/2015	SeqNo: <b>799541</b>	Units: <b>%REC</b>	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Surr: Decachlorobiphenyl	2.0 2.500	82.0 44.5	110	
Surr: Tetrachloro-m-xylene	1.8 2.500	70.4 31.8	95.7	
Sample ID LCSD-19626	SampType: LCSD	TestCode: EPA Method	8082: PCB's	
Client ID: LCSS02	Batch ID: 19626	RunNo: <b>26808</b>		
Prep Date: 6/9/2015	Analysis Date: 6/12/2015	SeqNo: <b>799543</b>	Units: µg/L	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Aroclor 1016	3.1 1.0 5.000		127 4.98	26.9
Aroclor 1260	4.7 1.0 5.000		122 8.96	29.1
Surr: Decachlorobiphenyl	1.7 1.0 3.000		110 0	0
Surr: Tetrachloro-m-xylene	1.5 2.500		95.7 0	0
Juli. Tellacillolu-III-Aylette	1.5 2.500	30.4 31.0	95.7	U

## 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS-19626	SampT	ype: <b>LC</b>	s	Tes	PA Method					
Client ID: LCSW	Batch ID: 19626			RunNo: <b>26808</b>						
Prep Date: 6/9/2015	Analysis D	ate: 6/	12/2015	8	SeqNo: <b>799548</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	58.8	22.6	127			
Aroclor 1260	5.2	1.0	5.000	0	103	20.4	122			
Surr: Decachlorobiphenyl	1.9		2.500		74.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.4	31.8	95.7			

## Qualifiers:

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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID rb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch	n ID: <b>R2</b>	6777	R	RunNo: 20	6777				
Prep Date:	Analysis D	ate: <b>6/</b>	11/2015	S	SeqNo: 79	98456	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 100ng Ics	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1D: <b>R2</b>	6777	R	RunNo: 2	6777				
Prep Date:	Analysis D	ate: 6/	11/2015	S	SeqNo: 7	98458	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	110	75.6	144			
Trichloroethene (TCE)	18	1.0	20.00	0	89.3	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

## 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb3	SampT	ype: <b>ME</b>	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: <b>R2</b>	6777	F	RunNo: 2	6777				
Prep Date:	Analysis D	ate: <b>6/</b>	11/2015	S	SeqNo: 7	98468	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 100ng lcs2	SampT	ype: <b>LC</b>	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	1D: <b>R2</b>	6777	F	RunNo: 2	6777				
Prep Date:	Analysis D	ate: 6/	11/2015	8	SeqNo: <b>7</b>	98470	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	111	75.6	144			
Trichloroethene (TCE)	19	1.0	20.00	0	92.9	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

## 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506320

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 1506320-001a ms SampType: MS TestCode: EPA Method 8260B: VOLATILES Client ID: South Field RO Reje Batch ID: R26777 RunNo: 26777 SeqNo: **798483** Prep Date: Analysis Date: 6/12/2015 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 20 1.0 20.00 0 102 70 Benzene 130 21 20.00 0 103 70 Toluene 1.0 130 22 0 70 1,1-Dichloroethene 1.0 20.00 110 130 Trichloroethene (TCE) 18 1.0 20.00 0 89.9 70 130 Surr: 1,2-Dichloroethane-d4 9.9 10.00 98.7 70 130 Surr: 4-Bromofluorobenzene 11 10.00 106 70 130 Surr: Dibromofluoromethane 9.8 10.00 98.4 70 130 Surr: Toluene-d8 10 10.00 102 70 130

Sample ID 1506320-001A M	<b>SD</b> SampT	ype: <b>MS</b>	SD	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: South Field RO F	<b>Reje</b> Batch	1D: <b>R2</b>	6777	F	RunNo: 2	6777				
Prep Date:	Analysis D	ate: 6/	12/2015	S	SeqNo: 7	98484	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.9	70	130	6.43	20	
Toluene	20	1.0	20.00	0	102	70	130	0.642	20	
1,1-Dichloroethene	19	1.0	20.00	0	96.6	70	130	13.4	20	
Trichloroethene (TCE)	17	1.0	20.00	0	83.8	70	130	7.06	20	
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.6	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130	0	0	
Surr: Dibromofluoromethane	9.3		10.00		92.9	70	130	0	0	
Surr: Toluene-d8	10		10.00		103	70	130	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

Page 16 of 22

# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-19627 SampType: MBLK TestCode: EPA Method 8310: PAHs Client ID: **PBW** Batch ID: 19627 RunNo: 26846 Prep Date: 6/9/2015 Analysis Date: 6/16/2015 SeqNo: 801380 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 ND 0.30 Pyrene Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 65.6 Surr: Benzo(e)pyrene 13 20.00 37.2 136

Sample ID LCS-19627	Samp	Гуре: <b>LC</b>	S	Tes	tCode: El	PA Method	8310: PAHs				
Client ID: LCSW	Batc	h ID: <b>19</b>	627	F	RunNo: 2	6846					
Prep Date: 6/9/2015	Analysis [	Date: <b>6/</b>	16/2015	S	SeqNo: 8	01381	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Naphthalene	74	2.0	80.00	0	92.9	57.8	83.9			S	
1-Methylnaphthalene	76	2.0	80.20	0	94.6	43.5	88.5			S	
2-Methylnaphthalene	74	2.0	80.00	0	92.8	34.2	94.5				
Acenaphthylene	77	2.5	80.20	0	95.6	58.5	93.6			S	
Acenaphthene	74	2.0	80.00	0	91.9	45.5	90.9			S	
Fluorene	7.0	0.80	8.020	0	86.7	46.6	90.3				
Phenanthrene	3.6	0.60	4.020	0	89.1	47.2	102				
Anthracene	3.6	0.60	4.020	0	88.8	45.4	99.1				
Fluoranthene	7.3	0.30	8.020	0	90.8	45.3	101				
Pyrene	7.5	0.30	8.020	0	93.0	51.9	104				
Benz(a)anthracene	0.72	0.070	0.8020	0	89.8	46.9	104				
Chrysene	3.6	0.20	4.020	0	89.3	53.6	95.1				
Benzo(b)fluoranthene	0.87	0.10	1.002	0	86.8	54.3	97.9				
Benzo(k)fluoranthene	0.46	0.070	0.5000	0	92.0	47.4	109				

#### 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

Page 17 of 22

# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS-19627	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 19	627	F	RunNo: 2	6846				
Prep Date: 6/9/2015	Analysis D	oate: 6/	16/2015	S	SeqNo: 8	01381	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.46	0.070	0.5020	0	91.6	56.3	98.6			
Dibenz(a,h)anthracene	0.90	0.12	1.002	0	89.8	57.5	95.7			
Benzo(g,h,i)perylene	0.92	0.12	1.000	0	92.0	55.9	98.6			
Indeno(1,2,3-cd)pyrene	1.8	0.25	2.004	0	90.8	52.8	95.3			
Surr: Benzo(e)pyrene	13		20.00		66.2	37.2	136			

Sample ID LCSD-19627	Samp1	ype: <b>LC</b>	SD	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSS02	Batcl	h ID: <b>19</b>	627	F	RunNo: 2	6846				
Prep Date: 6/9/2015	Analysis D	Date: <b>6/</b>	16/2015	\$	SeqNo: 8	01382	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	70	2.0	80.00	0	88.1	57.8	83.9	5.29	20	S
1-Methylnaphthalene	73	2.0	80.20	0	90.7	43.5	88.5	4.20	20	S
2-Methylnaphthalene	71	2.0	80.00	0	88.8	34.2	94.5	4.35	20	
Acenaphthylene	75	2.5	80.20	0	93.1	58.5	93.6	2.66	20	
Acenaphthene	72	2.0	80.00	0	89.8	45.5	90.9	2.37	20	
Fluorene	6.8	0.80	8.020	0	85.4	46.6	90.3	1.45	20	
Phenanthrene	3.6	0.60	4.020	0	89.8	47.2	102	0.834	24	
Anthracene	3.6	0.60	4.020	0	89.8	45.4	99.1	1.11	20	
Fluoranthene	7.4	0.30	8.020	0	91.9	45.3	101	1.23	20.9	
Pyrene	7.6	0.30	8.020	0	94.4	51.9	104	1.46	20.8	
Benz(a)anthracene	0.71	0.070	0.8020	0	88.5	46.9	104	1.40	20	
Chrysene	3.6	0.20	4.020	0	89.3	53.6	95.1	0	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.3	97.9	1.16	20.6	
Benzo(k)fluoranthene	0.45	0.070	0.5000	0	90.0	47.4	109	2.20	20.8	
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6	2.20	20	
Dibenz(a,h)anthracene	0.87	0.12	1.002	0	86.8	57.5	95.7	3.39	20	
Benzo(g,h,i)perylene	0.89	0.12	1.000	0	89.0	55.9	98.6	3.31	20	
Indeno(1,2,3-cd)pyrene	1.8	0.25	2.004	0	87.8	52.8	95.3	3.35	20	
Surr: Benzo(e)pyrene	14		20.00		69.4	37.2	136	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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506320

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-19794 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: PBW Batch ID: 19794 RunNo: 26937

Prep Date: 6/18/2015 Analysis Date: 6/18/2015 SeqNo: 804126 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-19794 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 19794 RunNo: 26937

Prep Date: 6/18/2015 Analysis Date: 6/18/2015 SeqNo: 804127 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 0 108 64.4 135

#### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1506320

22-Jun-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R26972 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R26972 RunNo: 26972

Prep Date: Analysis Date: 6/18/2015 SeqNo: 805487 Units: mg/L

Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual

Cyanide ND 0.0100

Sample ID LCS-R26972 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R26972 RunNo: 26972

Units: mg/L Prep Date: Analysis Date: 6/18/2015 SeqNo: 805488

SPK value SPK Ref Val %REC %RPD **RPDLimit** Analyte Result PQL LowLimit HighLimit Qual 0

100

110

Sample ID MB-R26972 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

0.5000

Client ID: **PBW** Batch ID: R26972 RunNo: 26972

0.501

Prep Date: Analysis Date: 6/16/2015 SeqNo: 805490 Units: mg/L

SPK value SPK Ref Val %REC LowLimit Result **PQL** HighLimit %RPD **RPDLimit** Qual Analyte

Cyanide ND 0.0100

Sample ID LCS-R26972 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R26972 RunNo: 26972

Prep Date: Analysis Date: 6/16/2015 SeqNo: 805491 Units: mg/L

Analyte Result SPK value SPK Ref Val %REC I owl imit HighLimit %RPD **RPDLimit** Qual

Cyanide 0.503 0.5000 0 101 90 110

#### Qualifiers:

Cyanide

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- Reporting Detection Limit

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R26972 SampType: MBLK TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed PBW Client ID: Batch ID: R26972 RunNo: 26972 Analysis Date: 6/16/2015 SeqNo: 805511 Prep Date: Units: pCi/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Radium-226 0.071 0.659 Radium-226 ± 0.324 0.659 Radium-228 0.112 0.774 Radium-228 ± 0.344 0.774

#### 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1506320** 

22-Jun-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-19650 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 19650 RunNo: 26772

Prep Date: 6/10/2015 Analysis Date: 6/11/2015 SeqNo: 798169 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-19650 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 19650 RunNo: 26772

Prep Date: 6/10/2015 Analysis Date: 6/11/2015 SeqNo: 798170 Units: mg/L

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

Total Dissolved Solids 1000 20.0 1000 0 100 80 120

#### Qualifiers:

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

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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: 1506320 RcptNo: 1 Received by/date: Logged By: Ashley Gallegos 6/6/2012 Completed By: 6/8/2015 10:03:30 AM Ashley Gallegos Reviewed By: Chain of Custody 1. Custody seals intact on sample bottles? No 🗌 Not Present No 🗍 2. Is Chain of Custody complete? Not Present ... Yes 🖈 3. How was the sample delivered? FedEx Log In 4. Was an attempt made to cool the samples? No 🗔 NA 🗌 5. Were all samples received at a temperature of >0° C to 6.0°C No 🗔 NA 🗔 Sample(s) in proper container(s)? No 🗀 7. Sufficient sample volume for indicated test(s)? 8. Are samples (except VOA and ONG) properly preserved? 9. Was preservative added to bottles? NA 🗌 Yes 10. VOA vials have zero headspace? No VOA Vials Yes No 🗀 11. Were any sample containers received broken? Yes # of preserved bottles checked 12. Does paperwork match bottle labels? for pH: No 🗔 (Note discrepancies on chain of custody) unless noted) 13. Are matrices correctly identified on Chain of Custody? Adjusted' No 🗀 14. Is it clear what analyses were requested? No 🗀 15. Were all holding times able to be met? 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 🗌 Person Notified: Date By Whom: Via: ☐ eMail Phone Fax Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No | Temp °C | Condition Seal Intact | Seal No Seal Date Signed By 5.8 Good Yes

#### VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane; 1,1,2-Trichloroethylane; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2if necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, NI, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane, Ethylbenzene, Toluene, Total Xylenes, Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** Chloride × Sulfate × Radioactivity (Ra-226+Ra-228) × 8085: PCBs × Tel. 505-345-3975 8015: GRO, DRO, ORO × Mercury × :0747 Total Cyanide 335.4: × 6010B: WQCC Metals × WQCC list SVOCs × Remarks 8260B: WQCC List VOCs × -00B Time 16891 HEAL NO Sampler: Elizabeth Salshpry Preservative □ Rush Project # P.O. # 167796 Sample Temperature: -unpres 2 - 1L Glass unpres 1 - 1L Glass unpres 2 49m YOA unpres HN03 NaOH HN03 H2S04 HN03 Monthly RO Reject Turn-Around Time: 3-40ml VOA HCL 3-40ml VOA HCL 2-40ml VOA | HCL Project Manager: Robert Combs Project Name: X Standard Type and # 2 - 500ml P Container 1-500ml P 1-500ml P 1-125ml P Relinquished by Elizolocth Salsony Received by Received by 2-1L P On loe: ☐ Level 4 (Full Validation) South Field PORelect Sample Request ID Pirabouth Soubbers Chain-of-Custody Record Discharg Trip Blank Mailing Address: P.O. Box 159 Artesia Relinquished by email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 202 liquid NM 88211-0159 2:02 2:02 2:02 2:02 2:02 2:02 2:02 2:02 2:02 2:02 Time QA/QC Package: 3pm EDD (Type) Time: Time: X Standard □ Other 18/18 6-5-15 6-5-15 6-5-15 6-5-15 6-5-15 6-5-15 6-5-15 Date 6-5-15 6-5-15 6-5-15 6-5-15



Navajo Refining Company, LLC 501 E. Main Artesia, NM 88210 (Tel) 575,748.3311 (Fax) 575,746.5451

# Monthly RO Reject Sample Details Attachment

11	ONTIER
d-	HOLLYFRC The HollyFrontier of

Sample Type	1000000000000000000000000000000000000
Grab	0
ne Weighted Composite	
ow Weighted Composite	

Samplers Name Elizabeth Salsberry
Samplers Affiliation Navejo Refining Co. LLC
Start Cate and Time 6/5/2015 @ 2:05 pm
End Date and Time 6/5/2015 @ 1:54 pm

Project Name Monthly RO Reject

erty			
Physical Prope	Solid	Liquid	Sludge
7	Market St.	111111111111111111111111111111111111111	

Type of Sampler | Directly to sample jars

South Field R.C. Reject Discarge	
U North Field R.O. Reject Discarge	
onial / Sample Location	

North Field R.O. Reject Discarge

Outfal / Sample Location:

Containers (None)   THE STATE OF				がはは			Preservatives	ives	THE REAL PROPERTY.			
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Storage Method

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Other Refrigerated

Field Temp, 25.7 C

Field pH 7.69

Shipping Med a Other

## Chavez, Carl J, EMNRD

From: Denton, Scott <Scott.Denton@HollyFrontier.com>

**Sent:** Friday, May 15, 2015 9:58 AM

**To:** Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD

Cc: Marks, Allison, EMNRD; Brancard, Bill, EMNRD; McWatters, Denise; O'Brien, Robert

(Bob) K.; Holder, Mike; Denton, Scott

**Subject:** RO Reject - Analytical Data

Attachments: Attachment 2b - Analytical Rpt PermRO collected 042815.pdf; Attachment 2a -

Analytical Rpt TRO collected 042815.pdf

Jim & Carl,

Attached are the analytical data reports for the samples collected on April 28, 2015. The sample collection and this submittal of the reports are to meet requirements in Exhibit A.3 of the ACO.

Let me know if you have any questions.

Thanks,

**SMD** 

Scott M. Denton Environmental Manager

The HollyFrontier Companies P.O. Box 159 Artesia, NM 88211-0159 575-746-5487

## Scott.Denton@HollyFrontier.com

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

May 13, 2015

Scott Denton Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly RO Reject OrderNo.: 1504C23

## Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/29/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O.

 Project:
 Monthly RO Reject
 Collection Date: 4/28/2015 8:30:00 AM

 Lab ID:
 1504C23-001
 Matrix: AQUEOUS
 Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: <b>JME</b>
1,2-Dibromoethane	ND	0.010		μg/L	1	4/30/2015 5:05:45 PM
EPA METHOD 8082: PCB'S						Analyst: SCC
Aroclor 1016	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Aroclor 1221	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Aroclor 1232	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Aroclor 1242	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Aroclor 1248	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Aroclor 1254	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Aroclor 1260	ND	1.0		μg/L	1	5/5/2015 3:05:44 PM
Surr: Decachlorobiphenyl	96.4	44.5-110		%REC	1	5/5/2015 3:05:44 PM
Surr: Tetrachloro-m-xylene	107	31.8-95.7	S	%REC	1	5/5/2015 3:05:44 PM
EPA METHOD 8015D: DIESEL RANGI	Ε					Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/29/2015 3:54:05 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/29/2015 3:54:05 PM
Surr: DNOP	106	76.5-150		%REC	1	4/29/2015 3:54:05 PM
EPA METHOD 8015D: GASOLINE RA	NGE					Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2015 3:32:42 PM
Surr: BFB	94.3	80-120		%REC	1	5/4/2015 3:32:42 PM
EPA METHOD 8310: PAHS						Analyst: SCC
Naphthalene	ND	2.0		μg/L	1	5/5/2015 11:03:03 AM
1-Methylnaphthalene	ND	2.0		μg/L	1	5/5/2015 11:03:03 AM
2-Methylnaphthalene	ND	2.0		μg/L	1	5/5/2015 11:03:03 AM
Benzo(a)pyrene	ND	0.070		μg/L	1	5/5/2015 11:03:03 AM
Surr: Benzo(e)pyrene	94.8	30.8-125		%REC	1	5/5/2015 11:03:03 AM
EPA METHOD 300.0: ANIONS						Analyst: <b>LGT</b>
Fluoride	2.9	2.0		mg/L	20	4/29/2015 3:12:59 PM
Chloride	52	10		mg/L	20	4/29/2015 3:12:59 PM
Nitrogen, Nitrate (As N)	2.1	2.0		mg/L	20	4/29/2015 3:12:59 PM
Sulfate	1500	50		mg/L	100	5/6/2015 12:47:21 AM
EPA METHOD 200.7: DISSOLVED ME	TALS					Analyst: <b>JLF</b>
Aluminum	ND	0.020		mg/L	1	4/29/2015 6:12:35 PM
Barium	0.062	0.0020		mg/L	1	4/29/2015 6:12:35 PM
Boron	0.10	0.040		mg/L	1	4/29/2015 6:12:35 PM
Cadmium	ND	0.0020		mg/L	1	4/30/2015 1:03:21 PM
Chromium	ND	0.0060		mg/L	1	4/29/2015 6:12:35 PM
Cobalt	ND	0.0060		mg/L	1	4/29/2015 6:12:35 PM

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 Page 1 of 19
- P Sample pH Not In Range
- RL Reporting Detection Limit

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/13/2015

**CLIENT:** Navajo Refining Company Client Sample ID: Temporary R.O.

 Project:
 Monthly RO Reject
 Collection Date: 4/28/2015 8:30:00 AM

 Lab ID:
 1504C23-001
 Matrix: AQUEOUS
 Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED MET	ALS				Analyst: <b>JLF</b>
Copper	ND	0.0060	mg/L	1	4/29/2015 6:12:35 PM
Iron	ND	0.020	mg/L	1	4/29/2015 6:12:35 PM
Manganese	ND	0.0020	mg/L	1	4/29/2015 6:12:35 PM
Molybdenum	ND	0.0080	mg/L	1	4/30/2015 1:03:21 PM
Nickel	ND	0.010	mg/L	1	4/29/2015 6:12:35 PM
Silver	ND	0.0050	mg/L	1	4/30/2015 1:03:21 PM
Zinc	0.11	0.010	mg/L	1	4/29/2015 6:12:35 PM
EPA 200.8: DISSOLVED METALS					Analyst: <b>DBD</b>
Arsenic	ND	0.0050	mg/L	5	5/7/2015 2:26:28 PM
Lead	ND	0.0010	mg/L	1	5/5/2015 11:01:02 AM
Selenium	0.0088	0.0010	mg/L	1	5/5/2015 11:01:02 AM
Uranium	0.0066	0.0010	mg/L	1	5/5/2015 11:01:02 AM
EPA METHOD 245.1: MERCURY					Analyst: <b>MED</b>
Mercury	ND	0.00020	mg/L	1	5/4/2015 2:00:03 PM
EPA METHOD 8260B: VOLATILES					Analyst: cadg
Benzene	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Toluene	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Ethylbenzene	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Chloroform	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Methylene Chloride	ND	3.0	μg/L	1	4/29/2015 5:03:52 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/29/2015 5:03:52 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Vinyl chloride	ND	1.0	μg/L	1	4/29/2015 5:03:52 PM
Xylenes, Total	ND	1.5	μg/L	1	4/29/2015 5:03:52 PM
Surr: 1,2-Dichloroethane-d4	92.3	70-130	%REC	1	4/29/2015 5:03:52 PM
Surr: 4-Bromofluorobenzene	91.6	70-130	%REC	1	4/29/2015 5:03:52 PM
Surr: Dibromofluoromethane	98.8	70-130	%REC	1	4/29/2015 5:03:52 PM
Surr: Toluene-d8	102	70-130	%REC	1	4/29/2015 5:03:52 PM
TOTAL BUENOLIOG BY OW 040 0007					A 1 4 000

TOTAL PHENOLICS BY SW-846 9067

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
- Page 2 of 19

Analyst: SCC

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Analytical Report Lab Order 1504C23

Date Reported: 5/13/2015

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Navajo Refining Company Client Sample ID: Temporary R.O.

 Project:
 Monthly RO Reject
 Collection Date: 4/28/2015 8:30:00 AM

 Lab ID:
 1504C23-001
 Matrix: AQUEOUS
 Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 906	7				Analyst: SCC
Phenolics, Total Recoverable	ND	2.5	μg/L	1	4/30/2015
<b>EPA 335.4: TOTAL CYANIDE SUBBE</b>	:D				Analyst: SUB
Cyanide	ND	0.0100	mg/L	1	5/5/2015
SM4500-H+B: PH					Analyst: JRR
рН	7.92	1.68	H pH units	1	5/5/2015 5:53:07 PM
SM2540C MOD: TOTAL DISSOLVED	SOLIDS				Analyst: KS
Total Dissolved Solids	3390	20.0	* mg/L	1	5/1/2015 3:30:00 PM

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

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

Page 3 of 19

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Analytical Report Lab Order 1504C23

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject Collection Date:

**Lab ID:** 1504C23-002 **Matrix:** TRIP BLANK **Received Date:** 4/29/2015 9:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB					Analyst: <b>JME</b>
1,2-Dibromoethane	ND	0.010	μg/L	1	4/30/2015 5:19:35 PM
EPA METHOD 8260B: VOLATILES					Analyst: cadg
Benzene	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Toluene	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Ethylbenzene	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Carbon Tetrachloride	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Chloroform	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
1,1-Dichloroethane	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
1,1-Dichloroethene	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Methylene Chloride	ND	3.0	μg/L	1	4/29/2015 5:32:34 PM
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/29/2015 5:32:34 PM
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Vinyl chloride	ND	1.0	μg/L	1	4/29/2015 5:32:34 PM
Xylenes, Total	ND	1.5	μg/L	1	4/29/2015 5:32:34 PM
Surr: 1,2-Dichloroethane-d4	96.6	70-130	%REC	1	4/29/2015 5:32:34 PM
Surr: 4-Bromofluorobenzene	103	70-130	%REC	1	4/29/2015 5:32:34 PM
Surr: Dibromofluoromethane	103	70-130	%REC	1	4/29/2015 5:32:34 PM
Surr: Toluene-d8	104	70-130	%REC	1	4/29/2015 5:32:34 PM

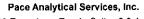
Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

#### 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

Page 4 of 19

- P Sample pH Not In Range
- RL Reporting Detection Limit



1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

## **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project:

1504C23

Pace Project No.:

30147056

Sample: 1504C23-001H Temporary

Lab ID: 30147056001

Collected: 04/28/15 08:30 Received: 05/01/15 09:35 Matrix: Water

PWS:

Site ID:

Sample Type:

F VV3,	OILO ID.	Campio Typo.				
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	1.41 ± 0.654 (0.675) C:NA T:80%	pCi/L	05/13/15 10:06	13982-63-3	
Radium-228	EPA 904.0	0.441 ± 0.439 (0.877) C:75% T:74%	pCi/L	05/11/15 17:31	15262-20-1	

## **REPORT OF LABORATORY ANALYSIS**

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## Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

## **QUALITY CONTROL - RADIOCHEMISTRY**

Project:

1504C23

Pace Project No.:

30147056

QC Batch:

RADC/24384

Analysis Method:

EPA 904.0

QC Batch Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:
METHOD BLANK: 890250

oles: 30147056001

Matrix: Water

Associated Lab Samples:

30147056001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

0.437 ± 0.426 (0.869) C:70% T:70%

pCi/L

05/11/15 17:33

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

## **REPORT OF LABORATORY ANALYSIS**

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Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

## **QUALITY CONTROL - RADIOCHEMISTRY**

Project:

1504C23

Pace Project No.:

30147056

QC Batch:

RADC/24322

30147056001

-----

Analysis Method:

EPA 903.1

QC Batch Method:

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples:

oles: 30147056001

Matrix: Water

METHOD BLANK: 888781
Associated Lab Samples:

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

0.256 ± 0.438 (0.767) C:NA T:98%

pCi/L

05/13/15 09:55

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

## **REPORT OF LABORATORY ANALYSIS**

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: R25851 RunNo: 25851 Prep Date: Analysis Date: 4/29/2015 SeqNo: 766029 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium 0.040 Boron ND Chromium ND 0.0060 Cobalt ND 0.0060 ND 0.0060 Copper Iron ND 0.020 ND 0.0020 Manganese Nickel ND 0.010 ND 0.010 Zinc

Sample ID LCS	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls				
Client ID: LCSW	Bato	h ID: <b>R2</b>	5851	R	RunNo: 2	5851				
Prep Date:	Analysis I	Date: <b>4/</b>	29/2015	S	SeqNo: 7	66030	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	85	115			
Barium	0.47	0.0020	0.5000	0	93.0	85	115			
Boron	0.49	0.040	0.5000	0	97.9	85	115			
Chromium	0.48	0.0060	0.5000	0	95.5	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115			
Copper	0.47	0.0060	0.5000	0	94.3	85	115			
Iron	0.47	0.020	0.5000	0	94.6	85	115			
Manganese	0.44	0.0020	0.5000	0	88.9	85	115			
Nickel	0.48	0.010	0.5000	0	96.6	85	115			
Zinc	0.48	0.010	0.5000	0	95.6	85	115			

Sample ID	MB	SampType	MBLK		Test	Code: E	PA Method	200.7: Dissolv	ed Metal:	s		
Client ID:	PBW	Batch ID:	R25881		R	unNo: 2	5881					
Prep Date:		Analysis Date:	4/30/201	5	S	eqNo: 7	67040	Units: mg/L				
Analyte		Result P	QL SPK	value S	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cadmium		ND 0.0	020									
Malyhdanum		ND 00	080									

Cadmium	ND	0.0020
Molybdenum	ND	0.0080
Silver	ND	0.0050

#### 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

Page 5 of 19

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C23

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS	SampType: <b>LCS</b>				TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: LCSW	Batch ID: R25881			R	RunNo: 2	5881				
Prep Date:	Analysis [	Date: <b>4/</b>	30/2015	S	SeqNo: <b>767041</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.51	0.0020	0.5000	0	103	85	115			
Molybdenum	0.49	0.0080	0.5000	0	97.4	85	115			
Silver	0.088	0.0050	0.1000	0	87.9	85	115			

## Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

SampType: I CS

Batch ID: R26042

PQL

Analysis Date: 5/7/2015

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID LCS	Sampiy	pe: LC	S	I es	Code: El	PA 200.8: L	Dissolved Me	tais		
Client ID: LCSW	Batch I	ID: <b>R2</b>	5950	R	tunNo: 2	5950				
Prep Date:	Analysis Da	te: <b>5/</b>	5/2015	S	SeqNo: 7	69414	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.024 0	0.0010	0.02500	0	96.4	85	115			
Selenium	0.024 0	0.0010	0.02500	0	94.9	85	115			
Jranium	0.025 0	0.0010	0.02500	0	98.7	85	115			
Sample ID MB	SampTyp	ре: МВ	BLK	Tes	tCode: El	PA 200.8: [	Dissolved Me	tals		
Client ID: PBW	Batch I	ID: <b>R2</b>	5950	R	tunNo: 2	5950				
Prep Date:	Analysis Da	te: <b>5/</b>	5/2015	S	eqNo: 7	69415	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
_ead	ND 0	0.0010								
Selenium	ND 0	0.0010								
Jranium	ND 0	0.0010								
Sample ID LCS	SampTy			Tes						

TostCodo: EDA 200 8: Dissolved Metals

Analyte	Result PQL SPK va	ue SPK Ref Val %RE	C LowLimit	HighLimit %	RPD	RPDLimit	Qual
Arsenic	0.024 0.0010 0.025	00 0 97	4 85	115			
Sample ID MB	SampType: <b>MBLK</b>	TestCode:	EPA 200.8: Di	issolved Metals	}		
Client ID: PBW	Batch ID: R26042	RunNo:	26042				
Prep Date:	Analysis Date: 5/7/2015	SeqNo:	772041	Units: mg/L			

SPK value SPK Ref Val %REC LowLimit

RunNo: 26042

SeqNo: 772040

Units: mg/L

HighLimit

%RPD

**RPDLimit** 

Qual

Arsenic ND 0.0010

Result

Client ID: LCSW

Prep Date:

Analyte

#### 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

Page 7 of 19

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C23

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18982 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 18982 RunNo: 25930

Prep Date: 4/30/2015 Analysis Date: 5/4/2015 SeqNo: 768647 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-18982 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 18982 RunNo: 25930

Prep Date: 4/30/2015 Analysis Date: 5/4/2015 SeqNo: 768648 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 102 80 120

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

Page 8 of 19

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: **PBW** Batch ID: R25872 RunNo: 25872 Prep Date: Analysis Date: 4/29/2015 SeqNo: 766806 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Fluoride ND 0.10 Chloride ND 0.50 ND Nitrogen, Nitrate (As N) 0.10

Sample ID LCS TestCode: EPA Method 300.0: Anions SampType: LCS Client ID: LCSW Batch ID: R25872 RunNo: 25872 Prep Date: Analysis Date: 4/29/2015 SeqNo: 766807 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 0.10 0 92.4 Fluoride 0.46 0.5000 90 110 Chloride 4.5 0.50 5.000 0 91.0 90 110 0.10 2.500 0 96.2 90 110 Nitrogen, Nitrate (As N) 2.4

Sample ID MB SampType: MBLK TestCode: EPA Method 300.0: Anions Client ID: RunNo: 25994 PBW Batch ID: R25994 Prep Date: Analysis Date: 5/5/2015 SeqNo: 770620 Units: mg/L Result SPK value SPK Ref Val %REC LowLimit %RPD **RPDLimit** Analyte **PQL** HighLimit Qual Sulfate ND 0.50

Sample ID LCS TestCode: EPA Method 300.0: Anions SampType: LCS Client ID: LCSW Batch ID: R25994 RunNo: 25994 Prep Date: Analysis Date: 5/5/2015 SeqNo: 770621 Units: mg/L SPK value SPK Ref Val Analyte %REC %RPD **RPDLimit** Result LowLimit HighLimit Qual Sulfate 9.7 0.50 10.00 0 97.2

#### 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18974 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: **PBW** Batch ID: **18974** RunNo: **25898** 

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767691 Units: μg/L

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

1,2-Dibromoethane ND 0.010

Sample ID LCS-18974 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 18974 RunNo: 25898

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767692 Units: μg/L

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

1,2-Dibromoethane 0.11 0.010 0.1000 0 114 70 130

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

0.61

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-18947	SampType:	MBLK	Test	Code: EPA Metho	d 8015D: Diese	I Range		
Client ID: PBW	Batch ID:		R	unNo: <b>25835</b>		J		
Prep Date: 4/29/2015	Analysis Date:	4/29/2015	S	eqNo: <b>766304</b>	Units: mg/L			
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND 1	.0						
Motor Oil Range Organics (MRO)	ND 5	.0						
Surr: DNOP	1.1	1.000		109 76.5	150			
Sample ID LCS-18947	SampType:	LCS	Test	Code: <b>EPA Metho</b>	d 8015D: Diese	I Range		
Client ID: LCSW	Batch ID:	18947	R	unNo: <b>25835</b>				
Prep Date: 4/29/2015	Analysis Date:	4/29/2015	S	eqNo: <b>766305</b>	Units: mg/L			
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2 1	.0 5.000	0	104 60.1	156			
Surr: DNOP	0.57	0.5000		115 76.5	5 150			
Sample ID 1504C23-001LMS	SampType:	MS	Test	Code: <b>EPA Metho</b>	d 8015D: Diese	I Range		
Client ID: Temporary R.O.	Batch ID:	18947	R	unNo: <b>25835</b>				
Prep Date: 4/29/2015	Analysis Date:	4/29/2015	S	eqNo: <b>766307</b>	Units: mg/L			
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC LowLimi	t HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.7 1	.0 5.000	0	114 75.9	164			

Sample ID 150	4C23-001LMSD	SampTy	/pe: <b>MS</b>	SD	Tes	tCode: El	PA Method	8015D: Diese	I Range		
Client ID: Tem	nporary R.O.	Batch	ID: 18	947	R	RunNo: 2	5835				
Prep Date: 4/2	29/2015	Analysis Da	ate: <b>4/</b>	29/2015	S	SeqNo: 7	66308	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organ	nics (DRO)	5.5	1.0	5.000	0	111	75.9	164	2.80	22.1	
Surr: DNOP		0.61		0.5000		122	76.5	150	0	0	

121

76.5

150

0.5000

#### Qualifiers:

Surr: DNOP

- * 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C23

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R25939 RunNo: 25939

Prep Date: Analysis Date: 5/4/2015 SeqNo: 768862 Units: mg/L

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

Gasoline Range Organics (GRO) ND 0.050

Surr: BFB 18 20.00 88.4 80 120

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R25939 RunNo: 25939

Prep Date: Analysis Date: 5/4/2015 SeqNo: 768863 Units: mg/L

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

 Gasoline Range Organics (GRO)
 0.46
 0.050
 0.5000
 0
 92.2
 80
 120

 Surr: BFB
 18
 20.00
 91.1
 80
 120

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

4.9

5.1

2.9

4.2

1.0

1.0

5.000

5.000

2.500

2.500

WO#: **1504C23** 

S

S

13-May-15

Client:	Navajo Refining Company
Project:	Monthly RO Reject

Sample ID MB-18997	SampType: M	Type: MBLK TestCode: EPA Method 8082: PCB's							
Client ID: PBW	Batch ID: 18	997	R	RunNo: 2	5944				
Prep Date: 5/1/2015	Analysis Date: 5	/5/2015	S	SeqNo: 7	69049	Units: µg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND 1.0								
Aroclor 1221	ND 1.0								
Aroclor 1232	ND 1.0								
Aroclor 1242	ND 1.0								
Aroclor 1248	ND 1.0								
Aroclor 1254	ND 1.0								
Aroclor 1260	ND 1.0								
Surr: Decachlorobiphenyl	2.2	2.500		87.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.4	2.500		97.6	31.8	95.7			S
Sample ID LCS-18997	SampType: <b>L</b> (	cs	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch ID: 18	997	R	RunNo: 2	5944				
Prep Date: 5/1/2015	Analysis Date: 5	/5/2015	S	SeqNo: 7	69942	Units: µg/L			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sample ID LCSD-18997	SampT	ype: <b>LC</b>	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	Batch ID: 18997			RunNo: 2	5944				
Prep Date: 5/1/2015	Analysis D	ate: <b>5/</b>	5/2015	8	SeqNo: 7	69944	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.6	1.0	5.000	0	93.0	22.6	127	6.03	26.9	
Aroclor 1260	5.3	1.0	5.000	0	107	20.4	122	4.45	29.1	
Surr: Decachlorobiphenyl	3.0		2.500		118	44.5	110	0	0	S
Surr: Tetrachloro-m-xylene	3.8		2.500		150	31.8	95.7	0	0	S

0

0

98.7

102

114

169

#### Qualifiers:

Aroclor 1016

Aroclor 1260

Surr: Decachlorobiphenyl

Surr: Tetrachloro-m-xylene

- * 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

22.6

20.4

44.5

31.8

127

122

110

95.7

- 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

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## Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1504C23** 

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 5mL rb

Sample ID 100ng lcs	SampT	ype: <b>LC</b>	S	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch	n ID: <b>R2</b>	5860	F	RunNo: 2	5860				
Prep Date:	Analysis D	oate: <b>4/</b>	29/2015	8	SeqNo: 7	66354	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.6	70	130			
Toluene	20	1.0	20.00	0	98.9	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	108	75.6	144			
Trichloroethene (TCE)	20	1.0	20.00	0	98.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	1D: <b>R2</b>	5860	F	RunNo: 2	5860				
Prep Date:	Analysis D	ate: 4/	29/2015	8	SeqNo: <b>7</b>	66361	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.9		10.00		99.2	70	130			

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-18998 SampType: MBLK TestCode: EPA Method 8310: PAHs **PBW** Client ID: Batch ID: 18998 RunNo: 25938 5/1/2015 Prep Date: Analysis Date: 5/5/2015 SeqNo: 769391 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 ND 0.30 Pyrene Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 71.8 30.8 Surr: Benzo(e)pyrene 14 20.00 125

Sample ID LCS-18998	Samp	Гуре: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 18	998	F	RunNo: 2	5938				
Prep Date: 5/1/2015	Analysis [	Date: <b>5/</b>	5/2015	S	SeqNo: 7	69392	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	55	2.0	80.00	0	69.3	41	76.8			
1-Methylnaphthalene	57	2.0	80.20	0	71.0	24.7	81			
2-Methylnaphthalene	56	2.0	80.00	0	70.4	17.4	81.9			
Acenaphthylene	60	2.5	80.20	0	75.4	50.3	77.5			
Acenaphthene	57	2.0	80.00	0	71.8	27.7	81.1			
Fluorene	5.8	0.80	8.020	0	72.8	34.2	75.1			
Phenanthrene	2.9	0.60	4.020	0	72.4	44.6	88.3			
Anthracene	2.9	0.60	4.020	0	72.1	41.9	85.3			
Fluoranthene	6.1	0.30	8.020	0	76.2	40.6	88			
Pyrene	6.6	0.30	8.020	0	82.8	41	86.6			
Benz(a)anthracene	0.62	0.070	0.8020	0	77.3	43.8	86.7			
Chrysene	3.1	0.20	4.020	0	76.9	44.5	80.7			
Benzo(b)fluoranthene	0.81	0.10	1.002	0	80.8	44.3	87.1			
Benzo(k)fluoranthene	0.39	0.070	0.5000	0	78.0	39.9	94.3			

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS-18998	SampT	ype: <b>LC</b>	S	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batcl	Batch ID: 18998			RunNo: 2	5938				
Prep Date: 5/1/2015	Analysis D	Date: <b>5/</b>	5/2015	S	SeqNo: 7	69392	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.39	0.070	0.5020	0	77.7	44	86.5			
Dibenz(a,h)anthracene	0.78	0.12	1.002	0	77.8	48.8	83.6			
Benzo(g,h,i)perylene	0.83	0.12	1.000	0	83.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	77.3	49.2	91.1			
Surr: Benzo(e)pyrene	21		20.00		106	30.8	125			

Sample ID LCSD-18998	SampType: LCSD TestCode: EPA Method 8310: PAHs									
Client ID: LCSS02	Batcl	h ID: <b>18</b> 9	998	R	RunNo: 2	5938				
Prep Date: 5/1/2015	Analysis D	Date: 5/	5/2015	S	SeqNo: 7	69393	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	58	2.0	80.00	0	72.7	41	76.8	4.75	20	
1-Methylnaphthalene	60	2.0	80.20	0	74.4	24.7	81	4.68	20	
2-Methylnaphthalene	59	2.0	80.00	0	73.8	17.4	81.9	4.70	20	
Acenaphthylene	63	2.5	80.20	0	78.7	50.3	77.5	4.29	20	S
Acenaphthene	60	2.0	80.00	0	74.9	27.7	81.1	4.26	20	
Fluorene	6.1	0.80	8.020	0	75.7	34.2	75.1	3.86	20	S
Phenanthrene	3.1	0.60	4.020	0	76.1	44.6	88.3	5.03	24	
Anthracene	3.0	0.60	4.020	0	75.9	41.9	85.3	5.04	20	
Fluoranthene	6.4	0.30	8.020	0	79.9	40.6	88	4.79	20.9	
Pyrene	7.0	0.30	8.020	0	86.8	41	86.6	4.71	20.8	S
Benz(a)anthracene	0.65	0.070	0.8020	0	81.0	43.8	86.7	4.72	20	
Chrysene	3.3	0.20	4.020	0	80.8	44.5	80.7	5.05	20	S
Benzo(b)fluoranthene	0.84	0.10	1.002	0	83.8	44.3	87.1	3.64	20.6	
Benzo(k)fluoranthene	0.41	0.070	0.5000	0	82.0	39.9	94.3	5.00	20.8	
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	44	86.5	5.00	20	
Dibenz(a,h)anthracene	0.83	0.12	1.002	0	82.8	48.8	83.6	6.21	20	
Benzo(g,h,i)perylene	0.87	0.12	1.000	0	87.0	43.6	84.5	4.71	20	S
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	49.2	91.1	5.03	20	
Surr: Benzo(e)pyrene	22		20.00		112	30.8	125	0		

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C23

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18972 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: **PBW** Batch ID: **18972** RunNo: **25901** 

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767792 Units: μg/L

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

Phenolics, Total Recoverable ND 2.5

Sample ID LCS-18972 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 18972 RunNo: 25901

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767793 Units: μg/L

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

Phenolics, Total Recoverable 22 2.5 20.00 0 109 75.7 126

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C23** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R26153 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R26153 RunNo: 26153

Prep Date: Analysis Date: 5/5/2015 SeqNo: 775896 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R26153 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R26153 RunNo: 26153

Prep Date: Analysis Date: 5/5/2015 SeqNo: 775897 Units: mg/L

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

Cyanide 0.500 0.5000 0 100 90 110

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C23

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18979 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 18979 RunNo: 25912

Prep Date: 4/30/2015 Analysis Date: 5/1/2015 SeqNo: 768004 Units: mg/L

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

Total Dissolved Solids ND 20.0

Sample ID LCS-18979 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 18979 RunNo: 25912

Prep Date: 4/30/2015 Analysis Date: 5/1/2015 SeqNo: 768005 Units: mg/L

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

Total Dissolved Solids 999 20.0 1000 0 99.9 80 120

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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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 REFININ	NG CO Work Order Number	15040	023		RcptNo	1
Received by/date:	cu/ra/12	5				
Logged By: Lindsay Mangin	4/29/2015 9:15:00 AM			July H	90	
Completed By: Lindsay Mangin	4/29/2015 9:48:07 AM	l.		July All	90	
Reviewed By:	04/29/15			0 - 0	9	
Chain of Custody	0112111)					
1. Custody seals intact on sample	bottles?	Yes		No 🗆	Not Present 🗸	
2. Is Chain of Custody complete?		Yes	<b>v</b>	No 🗆	Not Present	
3. How was the sample delivered?	8	Cour	ier			
Log In						
4. Was an attempt made to cool to	he samples?	Yes	V	No [	□ NA □	
5. Were all samples received at a	temperature of >0° C to 6.0°C	Yes	<b>v</b>	No 🗆	NA □	
6. Sample(s) in proper container(s	3)?	Yes	V	No [		
7. Sufficient sample volume for inc	ficated test(s)?	Yes	~	No [		
8. Are samples (except VOA and 0	ONG) properly preserved?	Yes	<b>~</b>	No 🗆		
9. Was preservative added to bottl	les?	Yes		No I	/ 1	_
10 VOA : fala have assa handasassa	2	V	-	No 🗆	03 04/29/15 No VOA Vials	Samples -00
10.VOA vials have zero headspace		Yes	F-1	No 5	The state of the s	have bubbles
<ol><li>Were any sample containers re</li></ol>	ceived blokerry	163		140	# of preserved bottles checked	- 1
12. Does paperwork match bottle la (Note discrepancies on chain of		Yes	•	No [		or) 12 upless noted)
13. Are matrices correctly identified		Yes	~	No 🗆	Adjusted?	no
14. Is it clear what analyses were re		Yes	~	No [		0.0
<ol> <li>Were all holding times able to b (If no, notify customer for author)</li> </ol>		Yes	✓	No [	Checked by:	62
Successful Handling (If anniles	640)					
Special Handling (if applica		Yes		No [	NA ✓	
16, Was client notified of all discrep	ancies with this order?	res		NO L		
Person Notified:	Date	-				
By Whom:	Via	eM	ail	Phone F	ax In Person	
Regarding:						
Client Instructions:						
17. Additional remarks:						
18. Cooler Information						
~ ~ ~ ~ <del>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </del>	ondition   Seal Intact   Seal No	Seal D	ate I	Signed By	i 1	

HALL FNVIRONMENTAL	ANALYSIS LABORATORY	www.hallenvironmental.com	4901 Hawkins NE - Albuquerque, NM 87109	Tel. 505-345-3975 Fax 505-345-4107	Analysis Request						M		See Attachment											Time Remarks: Send results to Scott Denton, Mike Holder, Micki 09/15 Schultz, Robert Combs and Andrew Contreras.	e e
							4	IDS	rry 🗆 No	2.0'	HEAL NO.	100-	1	8	Q	8	- W-	8	0	-(20,	8	1 8	1	Date Time 04/23/15 091	Date Time
ſime:	□ Rush		eject	. # 167796		ger:	t of one	Nobell Con	abeth Salsber	verature: /	Preservative Type	1-unpres 1- H2SO4	HCL	HNO3	HN03	NaOH	HN03	HCL	nubres	Glass unpres	nubres	HCL		Sur o	
Turn-Around Time:	X Standard	Project Name:	Monthly RO R	Project #: P.O. # 167796		Project Manager:	6	Scott Denton / Robert Comps	Sampler: Elizabeth Salsberry On Ice. X Yes □	Sample Temperature:	Container Type and #	2 - 500ml P	3-40ml VOA	1-500ml P	1-125ml P	1-500mi P	2-1L P	3-40ml VOA HCL	2 - 1L Glass	1 - 1L Glass	2-40ml VOA unpres	2-40ml VOA		Received by:	Received by:
Chain-of-Custody Record			Mailing Address: P.O. Box 159 Artesia,			Σ.		Level 4 (Full validation)			Sample Request ID	Temporary R.O.									->	Trip Blank	1/15	Time: Relinquished by: ElvZaboth Salsberry 10.45am Secapouth Salsberry	d by:
of-Cus	fining Co.		P.O. Box '		8-3311	email or Fax#, 575-746-5451			Other		Matrix	Aa										<b>→</b>		Relinquisher Suc, about	Relinquished by
nain-	avajo Re		ddress:	1-0159	575-74	=ax# 57	ckage	ard	rtion:	Type)	Time	8:30AM	8:30AM	8:30AM	8:30AM	8:30AM	8:30AM	8:30AM	8:30AM	8:30AM	8:30AM	8:30AN		Time: 10:45cm	Time:
ਹ	Client: Navajo Refining Co		Mailing A	NM 88211-0159	Phone #: 575-748-3311	email or l	QA/QC Package	Standard	Accreditation:	□ EDD (Type)	Date	4/28/15 8:30AM	4/28/15 8:30,AM	4/28/15 8:30AM	4/28/15 8:30AM		Date: 4/28/15	Date.							

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Date: RO Discharge RO Descharge (* von

# Table 7 - Summary of Groundwater Sampling Analytical Results Fourth Quarter 2013 Flash Reyort - RO Reyort Uncertaint Preciss Review Asset of the County Andread Medical Sections (County)

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

May 13, 2015

Scott Denton Navajo Refining Company P.O. Box 159 Artesia, NM 88211-0159

TEL: (575) 748-3311

FAX

RE: Monthly RO Reject OrderNo.: 1504C24

## Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/29/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

Indest

4901 Hawkins NE

Albuquerque, NM 87109

# **Analytical Report**

## Lab Order 1504C24 Date Reported: 5/13/2015

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Navajo Refining Company Client Sample ID: R.O.

**Project:** Monthly RO Reject **Collection Date:** 4/28/2015 8:45:00 AM 1504C24-001 Matrix: AQUEOUS Lab ID: **Received Date:** 4/29/2015 9:15:00 AM

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

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

**Qualifiers:** 

- Value exceeds Maximum Contaminant Level.
- Е Value above quantitation range
- Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- Page 1 of 20
- P Sample pH Not In Range
- RL Reporting Detection Limit

# Analytical Report Lab Order 1504C24

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company Client Sample ID: R.O.

 Project:
 Monthly RO Reject
 Collection Date: 4/28/2015 8:45:00 AM

 Lab ID:
 1504C24-001
 Matrix: AQUEOUS
 Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED MET	ALS				Analyst	: JLF
Copper	ND	0.0060	mg/L	1	4/29/2015 6:14:42 PM	R25851
Iron	ND	0.020	mg/L	1	4/29/2015 6:14:42 PM	R25851
Manganese	ND	0.0020	mg/L	1	4/29/2015 6:14:42 PM	R25851
Molybdenum	ND	0.0080	mg/L	1	4/30/2015 1:05:27 PM	R25881
Nickel	ND	0.010	mg/L	1	4/29/2015 6:14:42 PM	R25851
Silver	ND	0.0050	mg/L	1	4/30/2015 1:05:27 PM	R25881
Zinc	0.075	0.010	mg/L	1	4/29/2015 6:14:42 PM	R25851
EPA 200.8: DISSOLVED METALS					Analyst	: DBD
Arsenic	ND	0.0050	mg/L	5	5/7/2015 2:35:40 PM	R26042
Lead	ND	0.0010	mg/L	1	5/5/2015 11:04:05 AM	R25950
Selenium	0.0053	0.0010	mg/L	1	5/5/2015 11:04:05 AM	R25950
Uranium	0.0042	0.0010	mg/L	1	5/5/2015 11:04:05 AM	R25950
EPA METHOD 245.1: MERCURY					Analyst	: MED
Mercury	ND	0.00020	mg/L	1	5/4/2015 2:01:49 PM	18982
EPA METHOD 8260B: VOLATILES					Analyst	cadg
Benzene	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Toluene	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Ethylbenzene	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Carbon Tetrachloride	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Chloroform	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,1-Dichloroethane	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,1-Dichloroethene	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Methylene Chloride	ND	3.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,1-Trichloroethane	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,2-Trichloroethane	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Trichloroethene (TCE)	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Vinyl chloride	ND	1.0	μg/L	1	4/29/2015 6:01:15 PM	R25860
Xylenes, Total	ND	1.5	μg/L	1	4/29/2015 6:01:15 PM	R25860
Surr: 1,2-Dichloroethane-d4	89.8	70-130	%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: 4-Bromofluorobenzene	99.8	70-130	%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: Dibromofluoromethane	92.8	70-130	%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: Toluene-d8	103	70-130	%REC	1	4/29/2015 6:01:15 PM	R25860
TOTAL DUENICUIOS DV 6W 646 666					A 1 4	

**TOTAL PHENOLICS BY SW-846 9067** 

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
  - Page 2 of 20

Analyst: SCC

- P Sample pH Not In Range
- RL Reporting Detection Limit

# Analytical Report Lab Order 1504C24

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company Client Sample ID: R.O.

 Project:
 Monthly RO Reject
 Collection Date: 4/28/2015 8:45:00 AM

 Lab ID:
 1504C24-001
 Matrix: AQUEOUS
 Received Date: 4/29/2015 9:15:00 AM

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

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

#### Qualifiers:

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

Page 3 of 20

# Analytical Report Lab Order 1504C24

## Hall Environmental Analysis Laboratory, Inc.

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

**Project:** Monthly RO Reject Collection Date:

**Lab ID:** 1504C24-002 **Matrix:** TRIP BLANK **Received Date:** 4/29/2015 9:15:00 AM

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

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

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

Page 4 of 20

- P Sample pH Not In Range
- RL Reporting Detection Limit



1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

## **ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project:

1504C24

Pace Project No.:

30147057

Sample: 1504C24-001H R.O.

**Parameters** 

Lab ID: 30147057001

Method

Collected: 04/28/15 08:45 Received: 05/01/15 09:35

Units

pCi/L

Matrix: Water

PW\$:

Site ID:

Sample Type:

Act ± Unc (MDC) Carr Trac

Analyzed CAS No. 05/13/15 10:06 13982-63-3 Qual

Radium-226

Radium-228

EPA 903.1

EPA 904.0

 $1.75 \pm 0.849 \quad (0.976)$ C:NA T:60% 0.398 ± 0.412 (0.851) C:72% T:77%

pCi/L 05/11/15 17:31 15262-20-1

## REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

### **QUALITY CONTROL - RADIOCHEMISTRY**

Project:

1504C24

Pace Project No.:

30147057

QC Batch:

RADC/24384

QC Batch Method:

EPA 904.0

Analysis Method:

EPA 904.0

Analysis Description:

904.0 Radium 228

Associated Lab Samples:

30147057001

METHOD BLANK: 890250

Matrix: Water

Associated Lab Samples:

30147057001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-228

 $0.437 \pm 0.426$  (0.869) C:70% T:70%

pCi/L

05/11/15 17:33

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

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc...



## Pace Analytical Services, Inc.

1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15601 (724)850-5600

## **QUALITY CONTROL - RADIOCHEMISTRY**

Project:

1504C24

Pace Project No.:

QC Batch Method:

30147057

QC Batch:

RADC/24322

Analysis Method:

EPA 903.1

EPA 903.1

Analysis Description:

903.1 Radium-226

Associated Lab Samples: METHOD BLANK: 888781

30147057001

Matrix: Water

Associated Lab Samples:

30147057001

Parameter

Act ± Unc (MDC) Carr Trac

Units

Analyzed

Qualifiers

Radium-226

0.256 ± 0.438 (0.767) C:NA T:98%

pCi/L

05/13/15 09:55

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

## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..

## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals PBW Client ID: Batch ID: R25851 RunNo: 25851 Prep Date: Analysis Date: 4/29/2015 SeqNo: 766029 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Aluminum ND 0.020 ND 0.0020 Barium 0.040 Boron ND Chromium ND 0.0060 Cobalt ND 0.0060 ND 0.0060 Copper Iron ND 0.020 ND 0.0020 Manganese Nickel ND 0.010 ND 0.010 Zinc

Sample ID LCS	SampTyp	oe: LCS	S	Test	Code: El	PA Method	200.7: Dissolved Metals					
Client ID: LCSW	Batch II	D: <b>R25</b>	5851	R	unNo: <b>2</b>	5851						
Prep Date:	Analysis Date	te: <b>4/2</b>	29/2015	S	eqNo: 70	66030	Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Aluminum	0.51 (	0.020	0.5000	0	103	85	115					
Barium	0.47 0.	.0020	0.5000	0	93.0	85	115					
Boron	0.49	0.040	0.5000	0	97.9	85	115					
Chromium	0.48 0.	.0060	0.5000	0	95.5	85	115					
Cobalt	0.47 0.	.0060	0.5000	0	94.4	85	115					
Copper	0.47 0.	.0060	0.5000	0	94.3	85	115					
Iron	0.47	0.020	0.5000	0	94.6	85	115					
Manganese	0.44 0.	.0020	0.5000	0	88.9	85	115					
Nickel	0.48	0.010	0.5000	0	96.6	85	115					
Zinc	0.48	0.010	0.5000	0	95.6	85	115					

Sample ID MB	SampType: MBLK	TestCode: EPA Method	200.7: Dissolved Metals
Client ID: PBW	Batch ID: R25881	RunNo: 25881	
Prep Date:	Analysis Date: 4/30/2015	SeqNo: <b>767040</b>	Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLimit Qual
Cadmium	ND 0.0020		

Caumium	ND	0.0020
Molybdenum	ND	0.0080
Silver	ND	0.0050

#### 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

Page 5 of 20

# Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS	Samp1	S	Tes	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batcl	h ID: <b>R2</b>	5881	R	RunNo: 2	5881				
Prep Date:	Analysis D	30/2015	S	SeqNo: 7	67041	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.51	0.0020	0.5000	0	103	85	115			
Molybdenum	0.49	0.0080	0.5000	0	97.4	85	115			
Silver	0.088	0.0050	0.1000	0	87.9	85	115			

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

Page 6 of 20

# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client:	Navajo Refining Company
Project:	Monthly RO Reject

Sample ID L	.cs	Samp	Type: <b>LC</b>	s	Tes	TestCode: EPA 200.8: Dissolved Metals					
Client ID: Lo	.csw	Bato	h ID: R2	25950	F	RunNo: <b>25950</b>					
Prep Date:		Analysis	Date: 5/	/5/2015	5	SeqNo: 769414 Units: mg/L					
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.024	0.0010	0.02500	0	96.4	85	115			
Selenium		0.024	0.0010	0.02500	0	94.9	85	115			
Uranium		0.025	0.0010	0.02500	0	98.7	85	115			
Sample ID M	ИВ	Samp	Туре: МІ	BLK	Tes	tCode: E	PA 200.8: [	Dissolved Met	als		
Client ID: P	PBW	Bato	h ID: R2	25950	F	RunNo: 2	25950				
Prep Date:		Analysis	Date: 5	/5/2015	(	SeqNo: 7	69415	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		ND	0.0010								
Selenium		ND	0.0010								
Uranium		ND	0.0010								
Sample ID L	.cs	Samp	Type: <b>LC</b>	s	Tes	tCode: E	PA 200.8: [	Dissolved Met	als		
Client ID: Lo	.csw	Bato	h ID: R2	26042	F	RunNo: 2	26042				
Prep Date:		Analysis	Date: 5/	7/2015	5	SeqNo: 7	72040	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	97.4	85	115			-

Sample ID MB	SampType: MBLK	TestCode: EPA 200.8: [	Dissolved Metals	
Client ID: PBW	Batch ID: R26042	RunNo: 26042		
Prep Date:	Analysis Date: 5/7/2015	SeqNo: <b>772041</b>	Units: mg/L	
Analyte	Result PQL SPK value S	SPK Ref Val %REC LowLimit	HighLimit %RPD RF	PDLimit Qual

Arsenic ND 0.0010

#### 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18982 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 18982 RunNo: 25930

Prep Date: 4/30/2015 Analysis Date: 5/4/2015 SeqNo: 768647 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-18982 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 18982 RunNo: 25930

Prep Date: 4/30/2015 Analysis Date: 5/4/2015 SeqNo: 768648 Units: mg/L

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

Mercury 0.0051 0.00020 0.005000 0 102 80 120

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

Client:	Navajo	Refining Co	mpany								
Project:	Monthl	ly RO Reject									
Sample ID	MB	SampT	уре: МЕ	3LK	Tesi	tCode: <b>E</b>	PA Method	300.0: Anion	s		
Client ID:	PBW	Batch	ID: <b>R2</b>	5872	R	RunNo: 25	5872				
Prep Date:		Analysis Da	ate: <b>4/</b> :	29/2015	S	SeqNo: <b>76</b>	66806	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, Nitra	te (As N)	ND	0.10								
Sample ID	LCS	SampT	ype: <b>LC</b>	s	Test	Code: EF	PA Method	300.0: Anion	s		
Client ID:	LCSW	Batch	ID: <b>R2</b>	5872	R	RunNo: 25	5872				
Prep Date:		Analysis Da	ate: <b>4/</b> :	29/2015	S	SeqNo: <b>76</b>	66807	Units: mg/L			
Analyte		Result	PQL		SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		0.46	0.10	0.5000	0	92.4	90	110			
Chloride		4.5	0.50	5.000	0	91.0	90	110			
Nitrogen, Nitra	te (As N)	2.4	0.10	2.500	0	96.2	90	110			
Sample ID	1504C24-001EN	<b>IS</b> SampT	ype: MS	;	Test	tCode: <b>EF</b>	PA Method	300.0: Anion	s		
Sample ID Client ID:			ype: MS			tCode: EF		300.0: Anion	s		
·	R.O.		ID: <b>R2</b>	5872	R		5872	300.0: Anion	_		
Client ID:	R.O.	Batch	ID: <b>R2</b>	5872 29/2015	R	RunNo: 25	5872		_	RPDLimit	Qual
Client ID: Prep Date:	R.O.	Batch Analysis D	ID: <b>R2</b> : ate: <b>4/</b> 2	5872 29/2015	R	RunNo: 25	5872 66822	Units: mg/L		RPDLimit	Qual S
Client ID: Prep Date: Analyte	R.O.	Batch Analysis Da Result	D: <b>R2</b> : ate: <b>4/</b> 2	<b>5872</b> <b>29/2015</b> SPK value	R S SPK Ref Val	RunNo: 25 SeqNo: 76 %REC	5872 66822 LowLimit	Units: <b>mg/L</b> HighLimit		RPDLimit	
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra	R.O.	Batch Analysis Date Result 2.5 3.3	D: <b>R2</b> : ate: <b>4/</b> ; PQL 0.10	5872 29/2015 SPK value 0.5000 2.500	SPK Ref Val 2.238 1.147	RunNo: 28 SeqNo: 76 %REC 55.2 86.1	5872 66822 LowLimit 66.1 84	Units: mg/L HighLimit	%RPD	RPDLimit	
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra	R.O. te (As N) 1504C24-001EN	Batch Analysis Da Result 2.5 3.3  MSD SampTy	PQL 0.10 0.10	5872 29/2015 SPK value 0.5000 2.500	SPK Ref Val 2.238 1.147	RunNo: 28 SeqNo: 76 %REC 55.2 86.1	5872 66822 LowLimit 66.1 84	Units: mg/L HighLimit 113 109	%RPD	RPDLimit	
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra  Sample ID	te (As N)  1504C24-001EN R.O.	Batch Analysis Da Result 2.5 3.3  MSD SampTy	PQL 0.10 0.10 0.10 pype: MS	5872 29/2015 SPK value 0.5000 2.500 6D 5872	SPK Ref Val 2.238 1.147 Test	RunNo: 28 SeqNo: 76 %REC 55.2 86.1	5872 66822 LowLimit 66.1 84 PA Method	Units: mg/L HighLimit 113 109	%RPD	RPDLimit	
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra  Sample ID Client ID:	te (As N)  1504C24-001EN R.O.	Batch Analysis Di Result 2.5 3.3  MSD SampTy Batch	PQL 0.10 0.10 0.10 pype: MS	5872 29/2015 SPK value 0.5000 2.500 6D 5872 29/2015	SPK Ref Val 2.238 1.147 Test	RunNo: 28 ReqNo: 76  %REC  55.2  86.1  tCode: EF	5872 66822 LowLimit 66.1 84 PA Method	Units: mg/L HighLimit 113 109 300.0: Aniona	%RPD	RPDLimit RPDLimit	
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra  Sample ID Client ID: Prep Date:	te (As N)  1504C24-001EN R.O.	Batch Analysis Da Result 2.5 3.3  MSD SampTy Batch Analysis Da	PQL 0.10 0.10 0.10 Wype: MS	5872 29/2015 SPK value 0.5000 2.500 6D 5872 29/2015	SPK Ref Val 2.238 1.147 Test	RunNo: 25 SeqNo: 76 %REC 55.2 86.1 tCode: EF RunNo: 25 SeqNo: 76	5872 66822 LowLimit 66.1 84 PA Method 5872 66823	Units: mg/L HighLimit 113 109  300.0: Anion: Units: mg/L	%RPD		S
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra  Sample ID Client ID: Prep Date: Analyte	te (As N)  1504C24-001EN R.O.	Batch Analysis Da Result 2.5 3.3  MSD SampTy Batch Analysis Da Result	PQL 0.10 0.10 0.10 PQL 0.10 PQL 0.10 PQL PQL PQL	5872 29/2015 SPK value 0.5000 2.500 6D 5872 29/2015 SPK value	SPK Ref Val 2.238 1.147  Test R S SPK Ref Val	RunNo: 25 SeqNo: 76 %REC 55.2 86.1 tCode: EF RunNo: 25 SeqNo: 76 %REC	5872 66822 LowLimit 66.1 84 PA Method 5872 66823 LowLimit	Units: mg/L HighLimit 113 109  300.0: Anion: Units: mg/L HighLimit	%RPD s	RPDLimit	S
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra  Sample ID Client ID: Prep Date: Analyte Fluoride	R.O.  te (As N)  1504C24-001EN  R.O.  te (As N)	Batch Analysis Da Result 2.5 3.3  ASD SampTy Batch Analysis Da Result 2.4 3.3	PQL 0.10 0.10 0.10 0.10 PQL 0.10 PQL 0.10 PQL 0.10 PQL 0.10	5872 29/2015 SPK value 0.5000 2.500 5BD 5872 29/2015 SPK value 0.5000 2.500	SPK Ref Val 2.238 1.147  Test R S SPK Ref Val 2.238 1.147	RunNo: 25 SeqNo: 76 %REC 55.2 86.1 tCode: EF RunNo: 25 SeqNo: 76 %REC 30.4 86.6	5872 66822 LowLimit 66.1 84 PA Method 5872 66823 LowLimit 66.1 84	Units: mg/L HighLimit 113 109 300.0: Anion: Units: mg/L HighLimit 113	%RPD \$ %RPD 5.06 0.363	RPDLimit 20	S
Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra  Sample ID Client ID: Prep Date: Analyte Fluoride Nitrogen, Nitra	R.O.  te (As N)  1504C24-001EN  R.O.  te (As N)	Result 2.5 3.3  MSD SampTy Batch Analysis Da Result 2.4 3.3  SampTy	PQL 0.10 0.10 wpe: MS PQL 0.10 0.10 PQL 0.10 0.10 PQL 0.10 0.10 0.10 PQL 0.10 0.10	5872 29/2015 SPK value 0.5000 2.500 6D 5872 29/2015 SPK value 0.5000 2.500	SPK Ref Val 2.238 1.147  Test  SSPK Ref Val 2.238 1.147  Test	RunNo: 25 SeqNo: 76 %REC 55.2 86.1 tCode: EF RunNo: 25 SeqNo: 76 %REC 30.4 86.6	5872 LowLimit 66.1 84 PA Method 5872 66823 LowLimit 66.1 84 PA Method	Units: mg/L HighLimit 113 109  300.0: Anion: Units: mg/L HighLimit 113 109	%RPD \$ %RPD 5.06 0.363	RPDLimit 20	S

#### Qualifiers:

Analyte

Sulfate

Value exceeds Maximum Contaminant Level.

Result

ND

0.50

- Е Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В

HighLimit

%RPD

**RPDLimit** 

Qual

- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range

SPK value SPK Ref Val %REC LowLimit

Reporting Detection Limit

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS SampType: LCS TestCode: EPA Method 300.0: Anions

Client ID: LCSW Batch ID: R25994 RunNo: 25994

Prep Date: Analysis Date: 5/5/2015 SeqNo: 770621 Units: mg/L

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

Sulfate 9.7 0.50 10.00 0 97.2 90 110

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18974 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: **PBW** Batch ID: **18974** RunNo: **25898** 

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767691 Units: μg/L

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

1,2-Dibromoethane ND 0.010

Sample ID LCS-18974 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 18974 RunNo: 25898

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767692 Units: μg/L

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

1,2-Dibromoethane 0.11 0.010 0.1000 0 114 70 130

#### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18947 SampType: MBLK TestCode: EPA Method 8015D: Diesel Range Client ID: PBW Batch ID: 18947 RunNo: 25835 Prep Date: 4/29/2015 Analysis Date: 4/29/2015 SeqNo: 766304 Units: mg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) ND 1.0 Motor Oil Range Organics (MRO) ND 5.0 Surr: DNOP 1.000 76.5 1.1 109 150

Sample ID LCS-18947 SampType: LCS TestCode: EPA Method 8015D: Diesel Range Client ID: LCSW Batch ID: 18947 RunNo: 25835 Analysis Date: 4/29/2015 Prep Date: 4/29/2015 SeqNo: 766305 Units: mg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 1.0 0 104 60.1 5.2 5.000 156 Surr: DNOP 0.57 0.5000 115 76.5 150

#### 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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R25939 RunNo: 25939

Prep Date: Analysis Date: 5/4/2015 SeqNo: 768862 Units: mg/L

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

Gasoline Range Organics (GRO) ND 0.050

Surr: BFB 18 20.00 88.4 80 120

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R25939 RunNo: 25939

Prep Date: Analysis Date: 5/4/2015 SeqNo: 768863 Units: mg/L

Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Gasoline Range Organics (GRO) 0.46 0.050 0.5000 92.2 80 120 91.1 80 Surr: BFB 18 20.00 120

#### 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-18997	SampTyp	pe: <b>MB</b>	LK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch I	D: <b>189</b>	997	F	RunNo: 2	5944				
Prep Date: 5/1/2015	Analysis Da	te: <b>5/</b> 5	5/2015	5	SeqNo: 7	69049	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.2		2.500		87.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.4		2.500		97.6	31.8	95.7			S
Sample ID LCS-18997	SampTyp	pe: <b>LC</b> :	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: 1 COM	Datah I	D. 400	NO-7	-		F044				

Sample ID LCS-18997	LCS-18997 SampType: LCS Te						8082: PCB's			
Client ID: LCSW	at ID: LCSW Batch ID: 18997									
Prep Date: 5/1/2015	Date: 5/1/2015 Analysis Date: 5/5/2015					69942	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.9	1.0	5.000	0	98.7	22.6	127			
Aroclor 1260	5.1	1.0	5.000	0	102	20.4	122			
Surr: Decachlorobiphenyl	2.9		2.500		114	44.5	110			S
Surr: Tetrachloro-m-xylene	4.2		2.500		169	31.8	95.7			S

Sample ID LCSD-18997	SampT	ype: <b>LC</b>	SD	Tes	tCode: E	PA Method				
Client ID: LCSS02	Batch	ID: <b>18</b>	997	F	RunNo: 2	5944				
Prep Date: 5/1/2015	Analysis D	ate: 5/	5/2015	8	SeqNo: <b>7</b>	69944	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.6	1.0	5.000	0	93.0	22.6	127	6.03	26.9	
Aroclor 1260	5.3	1.0	5.000	0	107	20.4	122	4.45	29.1	
Surr: Decachlorobiphenyl	3.0		2.500		118	44.5	110	0	0	S
Surr: Tetrachloro-m-xylene	3.8		2.500		150	31.8	95.7	0	0	S

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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## Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID 5mL rb

Sample ID 100ng Ics	SampT	ype: <b>LC</b>	s	Tes	TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW	Batch	n ID: <b>R2</b>	5860	F	RunNo: <b>25860</b>					
Prep Date:	Analysis Date: 4/29/2015			8	SeqNo: 7	66354	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.6	70	130			
Toluene	20	1.0	20.00	0	98.9	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	108	75.6	144			
Trichloroethene (TCE)	20	1.0	20.00	0	98.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch ID: <b>R25860</b>				RunNo: 2	5860				
Prep Date:	Analysis D	ate: 4/	29/2015	8	SeqNo: <b>7</b>	66361	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.9		10.00		99.2	70	130			

#### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-18998 SampType: MBLK TestCode: EPA Method 8310: PAHs **PBW** Client ID: Batch ID: 18998 RunNo: 25938 5/1/2015 Prep Date: Analysis Date: 5/5/2015 SeqNo: 769391 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene ND 2.0 1-Methylnaphthalene ND 2.0 2-Methylnaphthalene ND 2.0 Acenaphthylene ND 2.5 Acenaphthene ND 2.0 Fluorene ND 0.80 Phenanthrene ND 0.60 Anthracene ND 0.60 Fluoranthene ND 0.30 ND 0.30 Pyrene Benz(a)anthracene ND 0.070 ND 0.20 Chrysene Benzo(b)fluoranthene ND 0.10 Benzo(k)fluoranthene ND 0.070 Benzo(a)pyrene ND 0.070 Dibenz(a,h)anthracene ND 0.12 Benzo(g,h,i)perylene ND 0.12 Indeno(1,2,3-cd)pyrene ND 0.25 71.8 Surr: Benzo(e)pyrene 14 20.00 30.8 125

Sample ID LCS-18998	SampT	ype: <b>LC</b>	S	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 189	998	R	RunNo: 2	5938				
Prep Date: 5/1/2015	Analysis D	oate: <b>5/</b>	5/2015	S	SeqNo: 70	69392	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	55	2.0	80.00	0	69.3	41	76.8			
1-Methylnaphthalene	57	2.0	80.20	0	71.0	24.7	81			
2-Methylnaphthalene	56	2.0	80.00	0	70.4	17.4	81.9			
Acenaphthylene	60	2.5	80.20	0	75.4	50.3	77.5			
Acenaphthene	57	2.0	80.00	0	71.8	27.7	81.1			
Fluorene	5.8	0.80	8.020	0	72.8	34.2	75.1			
Phenanthrene	2.9	0.60	4.020	0	72.4	44.6	88.3			
Anthracene	2.9	0.60	4.020	0	72.1	41.9	85.3			
Fluoranthene	6.1	0.30	8.020	0	76.2	40.6	88			
Pyrene	6.6	0.30	8.020	0	82.8	41	86.6			
Benz(a)anthracene	0.62	0.070	0.8020	0	77.3	43.8	86.7			
Chrysene	3.1	0.20	4.020	0	76.9	44.5	80.7			
Benzo(b)fluoranthene	0.81	0.10	1.002	0	80.8	44.3	87.1			
Benzo(k)fluoranthene	0.39	0.070	0.5000	0	78.0	39.9	94.3			

### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID LCS-18998	SampT	ype: <b>LC</b>	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: 18	998	F	RunNo: 2	5938				
Prep Date: 5/1/2015	Analysis D	oate: 5/	5/2015	S	SeqNo: 7	69392	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.39	0.070	0.5020	0	77.7	44	86.5			
Dibenz(a,h)anthracene	0.78	0.12	1.002	0	77.8	48.8	83.6			
Benzo(g,h,i)perylene	0.83	0.12	1.000	0	83.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	77.3	49.2	91.1			
Surr: Benzo(e)pyrene	21		20.00		106	30.8	125			

Sample ID LCSD-18998	SampT	ype: <b>LC</b>	SD	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSS02	Batcl	n ID: 189	998	R	RunNo: 2	5938				
Prep Date: 5/1/2015	Analysis D	oate: <b>5/</b> 9	5/2015	S	SeqNo: 7	69393	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	58	2.0	80.00	0	72.7	41	76.8	4.75	20	·
1-Methylnaphthalene	60	2.0	80.20	0	74.4	24.7	81	4.68	20	
2-Methylnaphthalene	59	2.0	80.00	0	73.8	17.4	81.9	4.70	20	
Acenaphthylene	63	2.5	80.20	0	78.7	50.3	77.5	4.29	20	S
Acenaphthene	60	2.0	80.00	0	74.9	27.7	81.1	4.26	20	
Fluorene	6.1	0.80	8.020	0	75.7	34.2	75.1	3.86	20	S
Phenanthrene	3.1	0.60	4.020	0	76.1	44.6	88.3	5.03	24	
Anthracene	3.0	0.60	4.020	0	75.9	41.9	85.3	5.04	20	
Fluoranthene	6.4	0.30	8.020	0	79.9	40.6	88	4.79	20.9	
Pyrene	7.0	0.30	8.020	0	86.8	41	86.6	4.71	20.8	S
Benz(a)anthracene	0.65	0.070	0.8020	0	81.0	43.8	86.7	4.72	20	
Chrysene	3.3	0.20	4.020	0	80.8	44.5	80.7	5.05	20	S
Benzo(b)fluoranthene	0.84	0.10	1.002	0	83.8	44.3	87.1	3.64	20.6	
Benzo(k)fluoranthene	0.41	0.070	0.5000	0	82.0	39.9	94.3	5.00	20.8	
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	44	86.5	5.00	20	
Dibenz(a,h)anthracene	0.83	0.12	1.002	0	82.8	48.8	83.6	6.21	20	
Benzo(g,h,i)perylene	0.87	0.12	1.000	0	87.0	43.6	84.5	4.71	20	S
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	49.2	91.1	5.03	20	
Surr: Benzo(e)pyrene	22		20.00		112	30.8	125	0		

### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

Page 17 of 20

# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18972 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: **PBW** Batch ID: **18972** RunNo: **25901** 

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767792 Units: μg/L

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

Phenolics, Total Recoverable ND 2.5

Sample ID LCS-18972 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 18972 RunNo: 25901

Prep Date: 4/30/2015 Analysis Date: 4/30/2015 SeqNo: 767793 Units: µg/L

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

Phenolics, Total Recoverable 22 2.5 20.00 0 109 75.7 126

### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: **1504C24** 

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-R26153 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R26153 RunNo: 26153

Prep Date: Analysis Date: 5/5/2015 SeqNo: 775896 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R26153 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R26153 RunNo: 26153

Prep Date: Analysis Date: 5/5/2015 SeqNo: 775897 Units: mg/L

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

Cyanide 0.500 0.5000 0 100 90 110

### Qualifiers:

- Value exceeds Maximum Contaminant Level.
- 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

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# Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

Client: Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID MB-18979 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 18979 RunNo: 25912

Prep Date: 4/30/2015 Analysis Date: 5/1/2015 SeqNo: 768004 Units: mg/L

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

Total Dissolved Solids ND 20.0

Sample ID LCS-18979 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 18979 RunNo: 25912

Prep Date: 4/30/2015 Analysis Date: 5/1/2015 SeqNo: 768005 Units: mg/L

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

Total Dissolved Solids 999 20.0 1000 0 99.9 80 120

### Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

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Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: NAVAJO REFINING CO	Work Order Number:	1504C24		RoptNo: 1
Received by/date:	04/29/15			
Logged By: Lindsay Mangin	4/29/2015 9:15:00 AM		July Allego	
Completed By: Lindsay Mangin	4/29/2015 10:14:50 AM		July Allego	
Reviewed By:	04/29/15		000	
Chain of Custody	0/10/11			
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 sample	s?	Yes 🗸	No 🗌	NA 🗆
5. Were all samples received at a temperatu	re of >0° C to 6.0°C	Yes 🗹	No 🗆	NA 🗆
6. Sample(s) in proper container(s)?		Yes 🗸	No 🗌	
7. Sufficient sample volume for indicated test	t(s)?	Yes 🗸	No 🗆	
8. Are samples (except VOA and ONG) prop	erly preserved?	Yes 🗸	No 🗌	
9. Was preservative added to bottles?		Yes 🗌	No 🗸	NĄ 🗆
10.VOA vials have zero headspace?		Yaq 🗸	No 🖳	(5 04/29/15 Sampl NO VOA Vials (2 of 2) ha
11. Were any sample containers received bro	ken?	Yes 🗆	No 🗸	(2 of 2) no
, , , , , , , , , , , , , , , , , , , ,		100	215.000	# of preserved bottles checked
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes 🗸	No 🗆	for pH: (<2 or 12 upless noted
13. Are matrices correctly identified on Chain	of Custody?	Yes 🗸	No 🗆	Adjusted? VLO
14. Is it clear what analyses were requested?		Yes 🗸	No 🗆	20
15. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes 🔽	No 🗆	Checked by:
Special Handling (if applicable)				
<ol><li>Was client notified of all discrepancies with</li></ol>	h 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				
	Seal Intact   Seal No   S	eal Date	Signed By	

Ö	hain-	of-Cus	Chain-of-Custody Record	Turn-Around Time:		HALL FNVIRONMENTAL
Client: N	avajo Re	Client: Navajo Refining Co.		X Standard	□ Rush	ANALYSIS LABORATORY
				Project Name:		www.hallenvironmental.com
Mailing Address P.O.	ddress		Box 159 Artesia,	Monthly RO Reject		4901 Hawkins NE - Albuquerque, NM 87109
NM 88211-0159	1-0159			Project #: P.O. # 167796	967796	Tel. 505-345-3975 Fax 505-345-4107
Phone #: 575-748-3311	575-748	3-3311				Analysis Request
email or	Fax#: 57	email or Fax#: 575-746-5451	51	Project Manager		
QA/QC Package:	ackage:					
□ Standard	ard		☐ Level 4 (Full Validation)	Scott Denton / Robert Combs	ert Combs	
Accreditation:	ation:			Sampler: Elizabeth	alsberry	
□ NELAP	۵.	□ Other		On loe: X Yes		
☐ EDD (Type)	Type)			Sample Temperature.	Ire. 1.00 C	
Date	Time	Matrix	Sample Request ID	Container Pres Type and # T	Preservative HEAL,No.	
4/28/15 8:45AM	8:45AM	As	R.o.	2 - 500ml P H2SO4	4 TT-COI	
4/28/15	4/28/15 8:45AM			3-40ml VOA HCL	100-	See Attachment
4/28/15	4/28/15 8:45AM			1-500ml P HNO3	3 -(10)	
4/28/15	4/28/15 8:45AM			1-125ml P HNO3	)  -  -  -	
4/28/15	4/28/15 8:45AM			1-500ml P NaOH	18/	
4/28/15	4/28/15 8:45AM			2-1L P HNO3	3 -0/	
4/28/15	4/28/15 8:45AM			3-40ml VOA HCL	100	
4/28/15	4/28/15 8:45AM			2 - 1L Glass unpres	es ~ (D)	
4/28/15	4/28/15 8-45AM			1 - 1L Glass unpres	100/sa	
4/28/15	4/28/15 8:45AM		$\rightarrow$	2-40ml VOA unpres	, CO ,	
4/28/15	4/28/15 8:45AM	_	Trip Blank	2-40ml VOA HCL	-85	
			1/15			
Date: 4/28/15	Time: ID:45 Arm		Relinquished by Elitabeth Salsberry gungabath dallobru	Received by:	Dete Time 004/29/15 09/5	Remarks: Send results to Scott Denton, Mike Holder, Micki Schultz, Robert Combs and Andrew Contreras.
Date:	Time:	_	ed by:	Received by:	Date Time	
	f necessary	samples subr	mitted to Hall Environmental may be sub	contracted to other accredite	diaboratories. This serves as notice of this	If necessary, samples submitted to Hall Environmental may be subcontracted to other accordinate laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Total PAHs an defend in NASC 20-5-2-310J as eaphit density as insist.
Your PAHs consempared.

Report

Model: a the bound of the factoring backers

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| 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 1.2(5):102 (MMCD 51% Sometric (20.6.2.3)(8.5); 1.0(8):202 (MMED 51% Human Hoshith (20.6.2.3)(5.4); 1.0(6):500 (MMED 50% Human Hoshith (20.6.2.3)(5.4); 1.0(6):500 (MMED 60% Dometric (20.6.2.3)(6.8); 2.0(6.01) (EPA MCD. 1.02E+03 | MMFD GW Comestic (20.6.2.3103.8) 14.1 0.5 282 25 14.1 0.1 1.3 0.1 15.0 0.5 1920 0.5 0. 303 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0. 305 0.5 0.5 202 25 0.5 5.1 0.5 121 5.5 p. 1.5 1.5 p. 7,790

Date 13/43 RO Discharge RO Dry naight (with

TREE COME

THE CHAIN

CGMSL Source

# Table 7 - Summary of Groundwater Sampling Analytical Results Fourth Quarks 2013 Fanal Report - RO Seyest December Service Manage English Party American Service December 2015 Facility American Service Services (Service Services S

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June 15, 2015

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

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

**RE:** WQA-OCD-CO-2015-002

Monthly Report – May 2015 Reporting Period

Dear Sirs:

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

Specifically, this report covers the May 2015 reporting period and includes the following data and information as required by Exhibit A, Paragraph 2, Paragraph 3, and Paragraph 5.a - c:

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

A discussion of each topic is provided below and the associated data is provided in Attachments 1 and 2.

### Daily RO Reject Fluid Discharge Flow Measurements

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

### **Monthly Discharge Sample Results**

In accordance with Exhibit A, Paragraph 3 of the Order, Navajo collected a sample of the RO reject fluid discharge from the temporary RO unit on April 28, 2015, within 5 business days of the date of the Order (April 27, 2015). Navajo also collected a sample from the permanent RO units (combined discharge) on that same day. The analytical lab report for these samples was provided previously to OCD on May 15, 2015. It should be noted that, beginning with the July 2015 monthly report for the period of June 2015, and as required by Exhibit A Paragraph 3, Navajo's reports will reflect that a sample is collected on or around the first business day of the month, beginning with June 1, 2015.

### **Stipulated Penalties**

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted the GW-028 discharge permit modification request to OCD on May 22, 2015, within 30 days of the date of the Order. Paragraph III.2.b.i.1 of the Order governs the calculation of stipulated penalties for exceedances of GW-028's daily RO reject fluid discharge volume limit prior to submittal of the discharge permit modification application. Paragraph III.2.b.i.2 of the Order governs the calculation of stipulated penalties for exceedances of this limit after Navajo submits the discharge permit modification application (and prior to OCD's approval or denial of the application). Therefore, for the May 1 through 21 timeframe, Paragraph III.2.b.i.1 is applicable, and from May 22 onward, Paragraph III.2.b.i.2 of the Order is applicable. Stipulated penalties were calculated for each day prior to and following Navajo's submittal of the permit modification request, and prior to OCD action on that request, as follows:

- \$1,000 per day for each daily RO reject fluid discharge volume exceeding 10,000 barrels from May 1 to May 21.
- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from May 22 to May 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from May 22 to May 31.

Navajo has calculated a penalty of \$22,000 for May 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 31 days in May. Calculations conducted in accordance with Paragraph III.2.b.i.1 and 2 of the Agreed Compliance Order are provided in Attachment 2.

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

### Updates Regarding Treatment and Disposal of RO Reject Fluid

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

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

Navajo is also seeking OCD authorization of a new non-hazardous waste injection well for use in disposal of Refinery fluids, including RO reject water. OCD notified Navajo that the application for a Discharge Permit for the new injection well (WDW-4) is administratively complete by letter dated April 23, 2015. Accordingly, Navajo has completed its part of the public notice process as required by 20.6.2.3108B New Mexico Administrative Code (NMAC) and has provided the necessary documentation of the public notice completion to the OCD by submittal dated June 4, 2015.

Navajo has completed the application for the OCD Class II Order also required for the new WDW-4 injection well. Public notices of submittal of the application for the Class II Order were mailed by Navajo to persons within ½ mile of the proposed location pursuant to OCD regulations. Submittal of an amended application for authorization to inject, including the C-108 form with a revised affirmation, the affidavit of publication of the public notice, and proof of mailing of the notice and application to persons within ½ mile of the proposed location were submitted to OCD on May 21, 2015.

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

Sincerely,

Scott M. Denton

**Environmental Manager** 

**Enclosures:** 

Attachment 1: Daily Discharge Flow Rates Attachment 2: Stipulated Penalty Calculation cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

# Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

		Permanen	t RO Units		Tempo	rary Unit	Daily Discharge Volume
	Metere	ed Data		d RO Reject (Calculated)		ject Discharge rom Log Data)	
F	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
5/1/2015	117	105	222	7611	146	5001	12612
5/2/2015	121	106	227	7783	149	5104	12887
5/3/2015	117	104	221	7577	151	5171	12748
5/4/2015	122	107	229	7851	151	5182	13033
5/5/2015	121	100	221	7577	154	5270	12847
5/6/2015	120	97	217	7440	152	5212	12652
5/7/2015	121	100	221	7577	154	5267	12844
5/8/2015	132	109	241	8263	155	5322	13585
5/9/2015	133	103	236	8091	154	5280	13371
5/10/2015	131	104	235	8057	155	5314	13371
5/11/2015	131	106	237	8126	157	5417	13543
5/12/2015	132	107	239	8194	156	5349	13543
5/13/2015	131	103	234	8023	156	5361	13384
5/14/2015	133	111	244	8366	142	4854	13220
5/15/2015	139	111	250	8571	136	4669	13240
5/16/2015	134	105	239	8194	62	2117	10311
5/17/2015	136	111	247	8469	62	2115	10584
5/18/2015	135	111	246	8434	62	2130	10564
5/19/2015	134	112	246	8434	64	2187	10621
5/20/2015	136	105	241	8263	64	2194	10457
5/21/2015	136	110	246	8434	66	2270	10704
5/22/2015	135	112	247	8469	68	2331	10800
5/23/2015	138	114	252	8640	71	2448	11088
5/24/2015	133	106	239	8194	80	2739	10933
5/25/2015	135	102	237	8126	81	2765	10891
5/26/2015	131	111	242	8297	73	2501	10798
5/27/2015	138	108	246	8434	60	2054	10488
5/28/2015	131	100	231	7920	68	2330	10250
5/29/2015	130	99	229	7851	63	2160	10011
5/30/2015	132	110	242	8297	63	2160	10457
5/31/2015	140	107	247	8469	61	2084	10553

Attachment 2
Stipulated Penalty Calculation

# Calculation of Stipulated Penalties - May 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	· <b></b>		
	- <b>Prior</b> to Navajo submitting a discharge permit modification application	\$1,000	21	\$21,000
	- If the daily volume is between 10,000 and 15,000 barrels <b>after</b> Navajo submits discharge permit modification application	\$100	10	\$1,000
	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total /	Amount:	\$22,000

### Chavez, Carl J, EMNRD

From: Holder, Mike <Michael.Holder@hollyfrontier.com>

**Sent:** Tuesday, May 12, 2015 7:11 AM

**To:** Brancard, Bill, EMNRD; Marks, Allison, EMNRD; Griswold, Jim, EMNRD; Chavez, Carl J,

**EMNRD** 

**Cc:** McWatters, Denise; Denton, Scott; Holder, Mike

**Subject:** ACO Penalty Payment

Attachments: 150511 Subm' RO Reject ACO - Civil Penalty Payment.pdf

Bill/Allison/Jim/Carl – the attached penalty payment was sent out via certified mail yesterday. We appreciate your working with us on this issue and please don't hesitate to let us know if any questions.

Thanks, Mike

Mike Holder
Corporate Environmental Specialist – Water & Waste
HollyFrontier
2828 North Harwood, Suite 1300
Dallas, TX 75201
(214) 954-6536 (office)
(575) 308-1115 (cell)

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May 11, 2015

Director, Oil Conservation Division NM Energy, Minerals & Natural Resources Dept. 1220 S. St. Francis Drive Santa Fe, NM 87505

Certified Mail/Return Receipt 7014 3490 0000 6858 9075

Re:

WQA-OCD-CO-2015-002

NRC Agreed Compliance Order - RO Reject April 2015 ACO - Civil Penalty Payment Navajo Refining Company, L.L.C. **Artesia Refinery** 

Dear Director:

Enclosed please find a check in the amount of \$381,000 in payment of civil penalties pursuant to Section III.2.a. of the above Agreed Compliance Order (ACO). If you have any questions, please do not hesitate to contact me at (575) 746-5487.

Sincerely,

Scott M. Denton

**Environmental Manager** 

Enclosure

Electronic cc: OCD: Bill Brancard, Allison Marks, Jim Griswold, Carl Chavez

**HFC** 

Bob O'Brien, Mike Holder, Denise McWatters

Environmental File: OCD.RO Reject Flow Data.Order

150511 RO Reject ACO - Civil Penalty Payment

NAVAJO REFINING COMPANY, L.L.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

STATE OF NEW MEXICO GENERAL FUND DIRECTOR OIL CONSERVATION DIVISION NM ENERGY MINERALS & NATURAL RESOUR 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

05/06/2015 Check Date 381,000.00 Check Amount Vendor No 5126527 Payment Document 2000057196 1020 Company Code

Invoice Date	Invoice Number	Description		Invoice Amount	Discount Amount	Net Amount
05/05/2015	050515	PENALTY FOR	RO DISCHARGE	EXCEEDANCE 381,00	0.00	381,000.00
Payment 0		Check number	Date 05/06/2015	Currenc	<b>y</b>	Payment amount *******381,000.00*

I PLEASE FOLD ON PERFORATION AND DETACH HERE I

VERIFY THE AUTHENTICITY OF THIS MULTITIONE SECURITY DOCUMENT. CHECK BACKGROUND AREA CHANGES COLOR GRADUALLY FROM TOP TO BOTTO

NAVAJO REFINING COMPANY, L.L.C. 2828 N. Harwood St., Suite 1300 Dallas TX 75201-1507

64-1278/611

05/06/2015

PAY EXACTLY *******381,000.00*USD VOID AFTER 180 DAYS

*** THREE HUNDRED EIGHTY-ONE THOUSAND and 00 /100 USD***

TO THE

ORDER OF STATE OF NEW MEXICO GENERAL FU DIRECTOR OIL CONSERVATION DIVI NM ENERGY MINERALS & NATURAL R 1220 S ST FRANCIS DR SANTA FE NM 87505-4225

Bank of America N.A.

AUTHORIZED SIGNATURE

### Chavez, Carl J, EMNRD

From:

VonGonten, Glenn, EMNRD

Sent:

Tuesday, April 06, 2010 4:13 PM

To:

Fesmire, Mark, EMNRD; Sanchez, Daniel J., EMNRD; Chavez, Carl J, EMNRD

Cc:

Altomare, Mikal, EMNRD; Macquesten, Gail, EMNRD

Subject:

FW: Environment Department Reaches \$346,452 Settlement with Navajo Refining Co. over

Hazardous Waste Violations

From: von Gonten, Susan, NMENV Sent: Tuesday, April 06, 2010 2:20 PM

To: VonGonten, Glenn, EMNRD

Subject: FW: Environment Department Reaches \$346,452 Settlement with Navajo Refining Co. over Hazardous Waste

**Violations** 

fyi

Susan von Gonten Geologist/Remedial Action Program NMED/Petroleum Storage Tank Bureau 1301 Siler Road, Building B Santa Fe, NM 87507 Voice: (505) 476-4389 Facsimile: (505) 476-4374

http://www.nmenv.state.nm.us/ust/ustbtop.html

From: Bardino, Marissa, NMENV

Sent: Tuesday, April 06, 2010 1:58 PM

Subject: Environment Department Reaches \$346,452 Settlement with Navajo Refining Co. over Hazardous Waste

Violations



BILL RICHARDSON Governor DIANE DENISH Lieutenant Governor

# NEW MEXICO ENVIRONMENT DEPARTMENT

Office of the Secretary

Harold Runnels Building 1190 Saint Francis Drive (87505) PO Box 5469, Santa Fe, NM 87502-5469 Phone (505) 827-2855 Fax (505) 827-2836 www.nmenv.state.nm.us



RON CURRY Secretary SARAH COTTRELL Deputy Secretary

For Immediate Release April 5, 2009

Contact: Marissa Stone Bardino, NMED Communications Director

Phone: (505) 827-0314

Environment Department Reaches \$346,452 Settlement with Navajo Refining Co. over **Hazardous Waste Violations** 

(Santa Fe, NM) – The New Mexico Environment Department reached a settlement with Navajo Refining Co., LLC. with a penalty of \$346,452 over hazardous waste violations at the petroleum refinery in Artesia.

The company in years past violated state regulations by failing to store hazardous waste in a structurally sound container and improperly managing waste in other containers.

"We fought to include a provision in the settlement that allows citizens to hold the company accountable to the terms of this agreement," said New Mexico Environment Department Secretary Ron Curry. "Navajo's willingness to come to a resolution is commendable."

Navajo's other violations include failing to post warning signs on a fence around the North Colony Landfarm, neglecting to train employees in the proper management of hazardous waste, building a tank on the landfarm causing a disturbance to the area, failure to install a final cover on the landfarm and other violations. The landfarm, which is an approximately 4.25-acre land treatment unit, received hazardous wastes between 1980 and 1990.

The settlement requires the company to install a vegetative cover over the landfarm to absorb water and prevent it from seeping into the former landfill. The agreement also prevents the company from storing hazardous waste in certain tanks.

The Navajo facility, which has a capacity of approximately 100,000 barrels of crude oil a day, refines sour crude oil into gasoline, diesel fuel, and jet fuel. The refinery's storage tanks have a capacity of about 2 million barrels. Navajo's operations generate a variety of hazardous wastes, including ignitable wastes, various toxic metal-bearing wastes, slop oil emulsion solids, heat exchanger bundle cleaning sludge, spent hydrotreating catalyst, universal waste lamps and other waste. Navajo is not permitted to treat, store (for more than 90 days), or dispose of any hazardous wastes at the site. However, the company stores hazardous waste at several locations at its property for less than 90 days.

For more information, call Marissa Stone Bardino at (505) 827-0314.

## Hobbs News Sun, Thursday, April 08, 2010

**NEWS-SUN STAFF REPORT** 

The New Mexico Environment Department reached a settlement with Navajo Refining Co. LLC with a penalty of \$346,452 over hazardous waste violations at the petroleum refinery in Artesia. The company in years past violated state regulations by failing to store hazardous waste in a structurally sound container and improperly managing waste in other containers, according to the N.M. Environment Department. "We fought to include a provision in the settlement that allows citizens to hold the company accountable to the terms of this agreement," Department Secretary Ron Curry said in a release. "Navajo's willingness to come to a resolution is commendable." Navajo's other violations include failing to post warning signs on a fence around the North Colony Landfarm, neglecting to train employees in the proper management of hazardous waste, building a tank on the landfarm causing a disturbance to the area, failure to install a final cover on the landfarm and other violations. The landfarm, which is an approximately 4.25-acre land treatment unit, received hazardous wastes between 1980 and 1990.

The Navajo facility, which has a capacity of about 100,000 barrels of crude oil a day, refines sour crude oil into gasoline, diesel fuel and jet fuel. Navajo is not permitted to treat, store (for more than 90 days) or dispose of any hazardous wastes at the site. Navajo environmental manager Johnny Lackey said the company did not have a comment at this time.



### Company Hopes To Eventually Employ 3,000 in N.M.

Thursday, April 08, 2010

By Rosalie Rayburn

Copyright © 2010 Albuquerque Journal

Journal Staff Writer

Rio Rancho has landed a massive renewable energy manufacturing plant slated to bring 1,500 high-paying jobs by 2014, with more plants possible elsewhere in the state down the line.

Mayor Thomas Swisstack announced Wednesday that the startup company Green2V Green Energy Solutions plans to build its first plant and headquarters in Rio Rancho.

Officials told a festive crowd of more than 200 people that the company intends to invest \$1 billion in the state over the next several years, beginning with the 1-million-square-foot solar component manufacturing and research complex in northern Rio Rancho.

Recent setbacks by other solar energy companies with big plans for New Mexico, including the cancellation of Signet Solar's plant in Belen just last week, did nothing to dampen the enthusiasm of the state, local and business leaders who crowded into the City Council chambers to hear the announcement.

"The message going out to America is that New Mexico is the clean energy state and we are going to be the Solar Valley, like Silicon Valley, for solar energy," Gov. Bill Richardson told the crowd.

Sen. Jeff Bingaman, who recently returned from a trip to China, which has numerous solar manufacturing plants, said this venture will help keep the U.S. competitive.

"There's no reason why we in New Mexico who can most benefit from photovoltaic energy and solar energy need to be buying the technology to do that from other parts of the world," Bingaman said.

Green2V was founded about two years ago by eight former business executives. Its CEO, Bill Sheppard, is a former Intel technology and manufacturing vice president who spent time at the Rio Rancho plant in the 1990s.

"We've studied the green energy economy and have recognized a great opportunity," Sheppard said.

He compared the opportunities in solar energy to the development of microprocessors in the early 1990s. Based on experience in silicon manufacturing processes, he said his company will manage every aspect of solar generating installation, from producing the wafers for solar cells to the financing of generating projects.

"We're sand-to-kilowatts," Sheppard said. "We're different because we manage the entire supply chain."

He said that by the end of 2014, the Rio Rancho facility will have 1,500 employees with an annual payroll of \$64 million. Once its first site is established, Green2V has plans to expand to additional areas in New Mexico, creating up to 3,000 jobs statewide.

"This is another historic day in this city's young history," Swisstack said.

Richardson said Green2V will be eligible for state incentives such as the high wage tax and manufacturing investment tax credits and job training funds.

Locally, Rio Rancho city councilors will consider a resolution next week for \$500 million in industrial revenue bonds that will enable construction of the plant to begin this summer.

The complex will be built on a 124-acre site on the north side of Paseo del Volcan, immediately west of V. Sue Cleveland High School. The city will buy the land from the State Land Office for about \$6.9 million and lease it back to the client.

If the bonds move ahead, construction is scheduled to start this summer, Swisstack said.

Green2V has an agreement with Los Angeles-based private investor GP3 Ltd. to buy the industrial revenue bonds issued by Rio Rancho

Noreen Scott, president of Rio Rancho Economic Development Corp., which helped recruit Green2V to Rio Rancho, said GP3 is a private philanthropic trust focused on alternative energy.

She said GP3 is working through BBVA Compass bank locally to provide the financing.

Sheppard said the company has private equity investors but did not give details.

There have been several announcements in recent years of solar companies, many of them receiving state and local incentives, that promised to bring large numbers of jobs to New Mexico. The results have been mixed.

- Solar panel manufacturer Advent Solar received \$17 million in state investment money and was expected to employ 1,000 by this year. Instead, it has cut its work force to a few dozen.
- Signet Solar received \$38 million in tax incentives toward a plant it was supposed to build in Belen, creating 600 jobs. Signet canceled the plan after a federal Energy Department loan guarantee fell through.



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### Bill Richardson AGOVERNOTE TO THE TELESCOPE TO THE TELESCOPE TO BE SOUTH TO BE SOUTH TO THE SOUTH TO THE SOUTH T

Cabinet Secretary Reese Fullerton Deputy Cabinet Secretary

Joanna Prukop Mark Fesmire Division Director, 245412 Division Director Oil Conservation Division

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July 16, 2008

Mr. James Resinger Vice President, Refining Navajo Refining Company, LLC P.O. Box 159 Artesia, NM 88211-0159

CONTRACTOR AND INCOME

Re:

Renewal of Discharge Permit GW-014 for the Lovington Refinery Renewal of Discharge Permit GW-028 for the Artesia Refinery 3000 3000 3000 Letter from Mr. James Resinger to Mr. Wayne Price dated May 20, 2008

BSOLVAN

Dear Mr. Resinger,

Mr. Wayne Price of the Oil Conservation Division's Environmental Bureau asked me to respond to the questions raised by Navajo Refining Company LLC (Navajo) regarding the extent of the Oil Conservation Division's authority. I understand that these questions arose during Navaio's meetings and correspondence with the Oil Conservation Division (OCD) concerning the renewal of Navajo's discharge permits GW-014 for the Lovington Refinery and GW-028 for the Artesia Refinery.

In particular, Mr. Price has provided me with a copy of your letter of May 20, 2008, which questioned the OCD's authority to require the installation of liners under tanks and throughout bermed areas at Navajo's Lovington and Artesia Refineries, and to complete the retrofit of tanks as part of the renewal of the discharge permits for those refineries. In your letter, you cite Phelps Dodge Tyrone, Inc. v. New Mexico Water Quality Control Commission, 2006-NMCA-115, 140 N.M. 464, 470, 143 P.3d 502, 509 for the proposition that any conditions attached to a discharge permit must be reasonable. The OCD believes that its proposed conditions are reasonable due to the proximity of the refineries to population centers, the depth to ground water, and the type and volumes of chemicals of concern. The Water Quality Act gives the OCD broad power to prevent and abate water pollution. See NMSA 1978, Section 74-6-4, 20.6.2 NMAC (Ground and Surface Water Protection) and 21.6.4 NMAC (Standards for Interstate and Intrastate Surface Waters). The fact that there is ground water contamination at both the Lovington and Artesia Refineries illustrates the need to exercise that power to prevent further pollution and abate existing pollution.

I understand that Navajo also contests the OCD's position, as set out in Condition 17iii of the Artesia Refinery Discharge permit, that fires are "Major Releases" that must be reported to the OCD under 19:15.3.116 NMAC. The OCD's statutory powers extend to refineries. See, for example, NMSA 1978, Section 70-2-12(A), (B)(8) and (B)(22). The OCD is specifically charged



July 16, 2008
Page 2

with preventing fires. See NMSA 1978, Section 70-2-12(B)(5). OCD's notice rule requires notification of any unauthorized release occurring during the servicing or processing of crude oil. See 1945.3.116.A(1) NMAC. "Major Releases" require both immediate verbal notice and timely written notice. 19.15.3.116.B(1) NMAC. And the rule defines "Major Release" to include an unauthorized release of any volume which results in a fire. 19.15.3.116.B(1)((b)(i) NMAC.

The OCD would like to thank Navajo for communicating with the OCD about its authority. We look forward to working together in good faith to protect public health, fresh water and the environment. Please contact me if you have additional questions.

Sincerely,

July 16, 2000.

Gail MacQuesten
OCD Attorney

W. James Resings: Vice Prasident, Palinica Service Rohning Company, LLC (12) Year 150

-000-17948 MM 5000

Cc:

Wayne Price, OCD Environmental Bureau 3 4 5 to 10 to 1

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