GW-028

Annual DP Report (4 of 6)

2016

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

Page 23 of 23



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

RcptNo: 1 NAVAJO REFINING CO Work Order Number: 1601101 Client Name: Received by/date: 1/6/2016 9:56:00 AM Lindsay Mangin Logged By: 1/6/2016 9:58:40 AM Completed By: Lindsay Mangin Reviewed By: Chain of Custody No 🗌 Not Present 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 🗌 Yes V No 🗆 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)? No _ Yes V 7. 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? No VOA Vials Yes V No L 10. VOA vials have zero headspace? Yes No V 11. Were any sample containers received broken? # of preserved bottles checked No 🗌 Yes V for pH: 12. Does paperwork match bottle labels? less 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: No 🗌 Yes 🗸 15. Were all holding times able to be met? (If no notify customer for authorization.) Special Handling (if applicable) NA V No 🗌 Yes 16. Was client notified of all discrepancies with this order? Date Person Notified: 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 3.1 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** 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 :4.35.4: × 8010B: WQCC Metals 8270C: WQCC list SVOCs × Remarks 8260B:WQCC List VOCs × 199V Time <u>m</u> HEAL No. **2**□ 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 unpres unpres 1-250mlGlas unpres HN03 HN03 HNO3 NaOH ווחנוו-אוסמונמ וונווב 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 1-125mi P 1-500ml 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: 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 Date 1/5/15 Date:



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

Monthly Temporary RO Reject Sample Details



	Time Weight Co.			Parts / Sample In
Project Name Biannual RO Reject	Samplers Name Elizabeth Salsberry	Samplers Affiliation Navajo Refining Co. LLC	1/5/2016 9:55 a.m.	1/5/2016 10:20 a.m.
Project Name	Samplers Name	Samplers Affiliation	Start Date and Time 1/5/2016 9:55 a.m.	End Date and Time 1/5/2016 10:20 a.m.

Sample Type	Grab <	ne Weighted Composite	w Weighted Composite	Parts / Sample Intervals One	

|--|

Type of Sampler Directly to sample jars

☐ North Field R.O. Reject Discarge Outfall / Sample Location:

South Field R.O. Reject Discarge

								Droconstant	i ma				1
			* ∨ #	Noot				- Icaci val	20/12				
Container	Size	Material	Containers	(None)	ij	Š	HOSON	\\ \frac{1}{2}	HOSON HOSON HOSON				_
-	500ml	Plastic	2	×			>	E P	NBZOZU3	Namoo4	Z C	Analysis and/or Method Requested	_
2	40ml	VOA	1 m		×	<u> </u>						pH, Cl, F, S04, NO2/NO3, TDS	
က	500ml	Plastic	-		\int	,						8015 GRO	Γ-
4	125ml	Plastic	- -			< \ >						6020 total metals, 7470 Hg	1
2	500ml	Plastic	,			<		;				6020 Dissolved Metals	
9	1	Plastic	1 %			,		<				Cyanide	_
7	40m	VOA	,,		,	<u> </u>						Radium 226/228	
8	=	Glass	1-	 	₹ 	1	T					8260 see attached list	Γ-
o	7	Glass	. ,	< ×		1						8270 see attached list	г
10	40ml	VOA	,	< ×								8082 PCBs	_
+	40ml	AOV.	1 0	<u> </u>	>	\dagger						8015 DRO	_
			7		{	1	7	 				Radium 226/228	

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_	
1/5/2015 Tmp.33.8 °F. Humidity 100%. Wind Dir Calm Wind Speed Calm Conditions Conditions	לייני
Observations, Etc):	
Field Data (Weather, O	Date and Time:

19.8 Field Temp.

Field pH 7.79

Storage Method



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	it RO Units		Tempor	ary Unit	Daily Discharge Volume
	Metere	ed Data	CONCENTRACION OF SERVICE	l RO Reject Calculated)	(Calculate	ect Discharge d from Log ta)	
	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

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	G1	\$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	Amount:	\$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

andy

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						Analysi	t: 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	t: 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	t: 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	DLIDS					Analyst	t: 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	t: SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH						Analyst	t: MRA
рН	7.94	1.68	Н	pH units	1	2/8/2016 3:55:25 PM	R32011
EPA METHOD 200.7: DISSOLVED META	ALS					Analyst	t: ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Barium	0.059	0.0020		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Boron	0.094	0.040		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Molybdenum	0.0094	0.0080		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
Zinc	0.023	0.010		mg/L	1	2/24/2016 11:17:05 AM	1 B32368
EPA METHOD 245.1: MERCURY						Analyst	t: pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:05:40 PM	1 23640

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 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**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

 Lab ID:
 1602206-001
 Matrix: AQUEOUS
 Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL Qu	al Units	DF Date Analyzed I	Batch
EPA METHOD 8011/504.1: EDB				Analyst:	JME
1,2-Dibromoethane	ND	0.010	μg/L	1 2/8/2016 12:55:14 PM	23604
EPA METHOD 8082: PCB'S				Analyst: \$	SCC
Aroclor 1016	ND	1.0	μg/L	•	23676
Aroclor 1221	ND	1.0	μg/L		23676
Aroclor 1232	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM	23676
Aroclor 1242	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM	23676
Aroclor 1248	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM	23676
Aroclor 1254	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM	23676
Aroclor 1260	ND	1.0	μg/L	1 2/17/2016 7:18:10 AM	23676
Surr: Decachlorobiphenyl	96.0	26.1-140	%Rec	1 2/17/2016 7:18:10 AM	23676
Surr: Tetrachloro-m-xylene	60.8	15-123	%Rec	1 2/17/2016 7:18:10 AM	23676
EPA METHOD 8015M/D: DIESEL RANG	iΕ			Analyst: •	TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1 2/8/2016 1:52:07 PM	23596
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1 2/8/2016 1:52:07 PM	23596
Surr: DNOP	105	70-141	%Rec	1 2/8/2016 1:52:07 PM	23596
EPA METHOD 8015D: GASOLINE RAN	GE			Analyst: I	RAA
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1 2/5/2016 4:52:41 PM	R31967
Surr: BFB	86.7	49.5-130	%Rec	1 2/5/2016 4:52:41 PM	R31967
EPA METHOD 8310: PAHS				Analyst: \$	scc
Naphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM	23677
1-Methylnaphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM	23677
2-Methylnaphthalene	ND	2.0	μg/L	1 2/17/2016 9:51:15 AM	23677
Benzo(a)pyrene	ND	0.070	μg/L	1 2/17/2016 9:51:15 AM	23677
Surr: Benzo(e)pyrene	61.3	33.4-129	%Rec	1 2/17/2016 9:51:15 AM	23677
EPA METHOD 8260B: VOLATILES				Analyst: I	DJF
Benzene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
Toluene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
Ethylbenzene	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
Carbon Tetrachloride	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
Chloroform	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
1,1-Dichloroethane	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
1,1-Dichloroethene	ND	1.0	μg/L		B31998
Methylene Chloride	ND	3.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1 2/9/2016 5:47:24 AM	B31998
Tetrachloroethene (PCE)	ND	1.0	μg/L	1 2/9/2016 5:47:24 AM	B31998

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

Qua	lifi	ers

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

 Lab ID:
 1602206-001
 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.

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S $\,$ % Recovery outside of range 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
- 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	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	GE				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	μg/L	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	μg/L	1	2/9/2016 6:15:43 AM	B31998
Naphthalene	ND	2.0	μg/L	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	μg/L	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	μg/L	1	2/9/2016 6:15:43 AM	B31998
Carbon disulfide	ND	10	μg/L	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	μg/L	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	μg/L	1	2/9/2016 6:15:43 AM	B31998
2-Chlorotoluene	ND	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

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 Qu	al Units	DF	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 PBW Client ID: 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 0.040 Boron ND 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 Nickel ND 0.010 Silver ND 0.0050 0.010 Zinc ND

Sample ID LCS-B	Samp	Type: LC	s	Tes	tCode: E	PA Method	200.7: Dissol	ved Metal	ls	
Client ID: LCSW	Bato	h ID: B3	2368	F	RunNo: 3					
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	SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals									
Client ID: BatchQC	Batch	ID: B3	2368	R	tunNo: 3	2368				
Prep Date:	Analysis Da	ate: 2/ 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			

Qualifiers:

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- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- 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 Client ID: BatchQC	•	Type: LC			TestCode: EPA Method 200.7: Dissolved Metals RunNo: 32368						
Prep Date:	Analysis	Analysis Date: 2/24/2016			SeqNo: 989630			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:

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- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- 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: Project:		Navajo Refining C Monthly R.O. Reje									
Sample ID	LCS	Samp	Type: LC	S	Test	Code: El	PA 200.8: [Dissolved Me	tals		
Client ID:	LCSW	Bato	h ID: B3	1999	R	tunNo: 3	1999				
Prep Date:		Analysis	Date: 2 /	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	Samp	Type: LC	SLL	Test	Code: El	PA 200.8: [Dissolved Me	tals		
Client ID:	BatchQ	C Bato	h ID: B3	1999	R	tunNo: 3	1999				
Prep Date:		Analysis	Date: 2 /	8/2016	S	eqNo: 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	Samp	Туре: МЕ	BLK	Test	tCode: El	PA 200.8: [Dissolved Me	tals		
Sample ID Client ID:	MB PBW	•	Type: ME			Code: El		Dissolved Me	tals		
	PBW	Bato		1999	R		1999	Dissolved Me Units: mg/L	tals		
Client ID:	PBW	Bato	ch ID: B3	1999 8/2016	R	RunNo: 3	1999		tals %RPD	RPDLimit	Qual
Client ID: Prep Date:	PBW	Bato Analysis	ch ID: B3 Date: 2 /	1999 8/2016	R	RunNo: 3	1999 78442	Units: mg/L		RPDLimit	Qual
Client ID: Prep Date: Analyte	PBW	Bato Analysis Result	ch ID: B3 Date: 2 /	1999 8/2016	R	RunNo: 3	1999 78442	Units: mg/L		RPDLimit	Qual
Client ID: Prep Date: Analyte Lead	PBW	Batc Analysis Result ND ND	PQL 0.00050	1999 8/2016	R	RunNo: 3	1999 78442	Units: mg/L		RPDLimit	Qual
Client ID: 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	eunNo: 3 SeqNo: 9 %REC	1999 78442 LowLimit	Units: mg/L	%RPD	RPDLimit	Qual
Client ID: Prep Date: Analyte Lead Selenium Uranium	PBW	Batc Analysis Result ND ND ND ND	PQL 0.00050 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
Client ID: 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 Test	RunNo: 3 SeqNo: 9 %REC	1999 78442 LowLimit PA 200.8: [Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Client ID: Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID:	PBW LCS LCSW	Bato Analysis Result ND ND ND Samp	PQL 0.00050 0.00050 0.00050 Type: LC	1999 8/2016 SPK value S 2026 9/2016	SPK Ref Val Test	RunNo: 3: SeqNo: 9 %REC CCode: El	1999 78442 LowLimit PA 200.8: [Units: mg/L HighLimit Dissolved Me	%RPD	RPDLimit RPDLimit	Qual
Client ID: 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: A3:	1999 8/2016 SPK value S 2026 9/2016	SPK Ref Val Test	RunNo: 3 SeqNo: 9 %REC COde: EI	1999 78442 LowLimit PA 200.8: [2026 79375	Units: mg/L HighLimit Dissolved Me Units: mg/L	%RPD		
Client ID: 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 0.00050 Type: LC ch ID: A3: Date: 2/9	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500	Test SPK Ref Val O	RunNo: 3: GeqNo: 9 **REC **Code: El RunNo: 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		
Client ID: Prep Date: Analyte Lead Selenium Uranium Sample ID Client ID: Prep Date: Analyte Arsenic	LCS LCSW	Batc Analysis Result ND ND ND Samp Batc Analysis Result 0.025	PQL 0.00050 0.00050 Type: LC ch ID: A3: Date: 2/9	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500 SLL	Test SPK Ref Val O Test	RunNo: 3: GeqNo: 9 **REC **Code: El RunNo: 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		
Client ID: 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 PQL 0.00050 Type: LC PQL 0.0010 Type: LC Type: LC Date: 2/9	1999 8/2016 SPK value S 2026 9/2016 SPK value 0.02500 SLL 2026	SPK Ref Val Test SPK Ref Val 0 Test	cunNo: 3: seqNo: 9 %REC code: El cunNo: 3: seqNo: 9 %REC 101 code: El	1999 78442 LowLimit PA 200.8: [2026 79375 LowLimit 85 PA 200.8: [2026	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.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded

Result

0.0010

0.0010

- 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

HighLimit

150

%RPD

RPDLimit

Qual

E Value above quantitation range

%REC

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

Mercury ND 0.00020

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

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

D C 1 HALL 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.

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WO#: 1602206

24-Feb-16

Client:	Navajo Refining Con	mpany							
Project:	Monthly R.O. Reject	t							
Sample ID MB	SampTy	/pe: MBLK	Test	Code: EPA	Method	300.0: Anions	1		
Client ID: PBW	Batch	ID: R31977	R	unNo: 319	77				
Prep Date:	Analysis Da	ate: 2/5/2016	S	eqNo: 977 9	910	Units: mg/L			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC L	_owLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10							
Chloride	ND	0.50							
Nitrogen, Nitrate (As N) ND	0.10							
Sample ID LCS	SampTy	/pe: LCS	Test	Code: EPA	Method	300.0: Anions	i		
Client ID: LCS	v Batch	ID: R31977	R	unNo: 319	77				
Prep Date:	Analysis Da	ate: 2/5/2016	S	eqNo: 977 9	911	Units: mg/L			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC L	_owLimit	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	SampTy	/pe: MBLK	Test	Code: EPA	Method	300.0: Anions	1		
Client ID: PBW	Batch	ID: R32274	R	unNo: 322	74				
Prep Date:	Analysis Da	ate: 2/18/2016	S	eqNo: 986	553	Units: mg/L			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC L	_owLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50							
Sample ID LCS	SampTy	/pe: LCS	Test	Code: EPA	Method	300.0: Anions	1		
Client ID: LCS	V Batch	ID: R32274	R	unNo: 322	74				
Prep Date:	Analysis Da	ate: 2/18/2016	S	eqNo: 986	554	Units: mg/L			
Analyte	Result	PQL SPK value	SPK Ref Val	%REC L	_owLimit	HighLimit	%RPD	RPDLimit	Qual

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
- % 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
- 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#: **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

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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Client:

Hall Environmental Analysis Laboratory, Inc.

Navajo Refining Company

WO#: 1602206

24-Feb-16

Project: Monthly	R.O. Reject									
Sample ID MB-23596	SampTyp	ре: МВ	LK	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	9	
Client ID: PBW	Batch II	ID: 235	96	F	RunNo: 3	1978				
Prep Date: 2/5/2016	Analysis Dat	te: 2/8	3/2016	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	SampTyp	pe: LCS	S	Tes	tCode: El	PA Method	8015M/D: Die	esel Range	9	
Client ID: LCSW	Batch I	ID: 235	96	F	RunNo: 3	1978				
Prep Date: 2/5/2016	Analysis Dat	te: 2/8	3/2016	8	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			
Surr: DNOP Sample ID 1602206-001AMS		pe: MS		Tes			141 8015M/D: Die	esel Rang	e	
	SampTyp	pe: MS ID: 235				PA Method		esel Rang	e	
Sample ID 1602206-001AMS	SampTyp	ID: 235	596	F	tCode: El	PA Method		J	9	
Sample ID 1602206-001AMS Client ID: R.O. Reject	SampTyp Batch II Analysis Dat	ID: 235 te: 2/8	596 3/2016	F	tCode: Ef	PA Method	8015M/D: Die	J	e RPDLimit	Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016	SampTyp Batch II Analysis Dat	ID: 235 te: 2/8	596 3/2016	F	tCode: El RunNo: 3° SeqNo: 9°	PA Method 1978 78052	8015M/D: Die			Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016 Analyte	S SampTyp Batch II Analysis Dat Result	ID: 235 te: 2/8 PQL	596 3/2016 SPK value	F S SPK Ref Val	tCode: EF RunNo: 3 SeqNo: 9 %REC	PA Method 1978 78052 LowLimit	8015M/D: Die Units: mg/L HighLimit			Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016 Analyte Diesel Range Organics (DRO)	SampTyp Batch II Analysis Dat Result 5.4 0.52	PQL 1.0	596 3/2016 SPK value 5.000 0.5000	SPK Ref Val	RunNo: 36 SeqNo: 97 %REC 109 104	PA Method 1978 78052 LowLimit 41.3 70	8015M/D: Die Units: mg/L HighLimit 177	%RPD	RPDLimit	Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016 Analyte Diesel Range Organics (DRO) Surr: DNOP	S SampTyp Batch II Analysis Dat Result 5.4 0.52 SD SampTyp	PQL 1.0	596 3/2016 SPK value 5.000 0.5000	SPK Ref Val 0	RunNo: 36 SeqNo: 97 %REC 109 104	PA Method 1978 78052 LowLimit 41.3 70	8015M/D: Die Units: mg/L HighLimit 177 141	%RPD	RPDLimit	Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016 Analyte Diesel Range Organics (DRO) Surr: DNOP Sample ID 1602206-001AMS	S SampTyp Batch II Analysis Dat Result 5.4 0.52 SD SampTyp	PQL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	596 8/2016 SPK value 5.000 0.5000 D	SPK Ref Val 0	RunNo: 3: SeqNo: 9: %REC 109 104	PA Method 1978 78052 LowLimit 41.3 70 PA Method 1978	8015M/D: Die Units: mg/L HighLimit 177 141	%RPD	RPDLimit	Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016 Analyte Diesel Range Organics (DRO) Surr: DNOP Sample ID 1602206-001AMS Client ID: R.O. Reject	B SampTyp Batch II Analysis Dat Result 5.4 0.52 BD SampTyp Batch II Analysis Dat	PQL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	596 8/2016 SPK value 5.000 0.5000 D 596 8/2016	SPK Ref Val 0	RunNo: 3° REC 109 104 CCode: EF	PA Method 1978 78052 LowLimit 41.3 70 PA Method 1978	8015M/D: Die Units: mg/L HighLimit 177 141 8015M/D: Die	%RPD	RPDLimit	Qual
Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016 Analyte Diesel Range Organics (DRO) Surr: DNOP Sample ID 1602206-001AMS Client ID: R.O. Reject Prep Date: 2/8/2016	B SampTyp Batch II Analysis Dat Result 5.4 0.52 BD SampTyp Batch II Analysis Dat	PQL 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	596 8/2016 SPK value 5.000 0.5000 D 596 8/2016	SPK Ref Val 0 Tes	RunNo: 3: SeqNo: 9: %REC 109 104 tCode: EF RunNo: 3: SeqNo: 9:	PA Method 1978 78052 LowLimit 41.3 70 PA Method 1978 78077	8015M/D: Die Units: mg/L HighLimit 177 141 8015M/D: Die Units: mg/L	%RPD	RPDLimit	

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
- RLReporting 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 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 0

Gasoline Range Organics (GRO) 0.050 90.6 0.45 0.5000 80 120 Surr: BFB 20.00 97.9 49.5 20 130

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

Surr: BFB 17 20.00 83.7 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

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

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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-23676	SampT	ype: ME	BLK	Tes	Code: El	PA Method	8082: PCB's			
Client ID: PBW	Batch	ID: 23	676	F	tunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2 /	17/2016	S	eqNo: 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	Code: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 23	676	F	lunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	ate: 2 /	17/2016	S	eqNo: 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	SampT	ype: LC	SD	Tes	tCode: E	PA Method				
Client ID: LCSS02	Batch	n ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis D	Date: 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	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range 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

1602206 24-Feb-16

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

Sample ID rb2 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Batch ID: **B31998** Client ID: **PBW** 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 4.0 1-Methylnaphthalene 2-Methylnaphthalene ND 4.0 ND 10 Acetone Bromobenzene ND 1.0 Bromodichloromethane ND 1.0 Bromoform ND 1.0 Bromomethane ND 3.0 2-Butanone ND 10 Carbon disulfide ND 10 1.0 Carbon Tetrachloride ND Chlorobenzene ND 1.0 2.0 Chloroethane ND Chloroform ND 1.0 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 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 ND 1.0 Dibromomethane ND 1.0 1.2-Dichlorobenzene 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 1.0 1,2-Dichloropropane 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	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES									
Client ID: PBW	Batcl	Batch ID: B31998 RunNo: 31998								
Prep Date:	Analysis D	oate: 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 Ics2	Samn	vne: 10		Tes	tCode: E l	PA Mothod	8260B: VOI	ATII EQ		

Sample ID 100ng lcs2	SampT	ype: LC	S	TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: B31998			F	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				
Chlorobenzene	22	1.0	20.00	0	110	70	130				

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

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 100ng lcs2 Client ID: LCSW	SampType: LCS Batch ID: B31998			TestCode: EPA Method 8260B: VOLATILES RunNo: 31998						
Prep Date:	Analysis Date: 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			Tes	tCode: E	PA Method				
Client ID: PBW	Batch ID: 23677			F	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis D	Date: 2 /	17/2016	SeqNo: 984104			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	9.8		20.00		48.8	33.4	129			

Sample ID LCS-23677	SampT	SampType: LCS TestCode: EPA Method 8					8310: PAHs			
Client ID: LCSW	Batch	n ID: 23	677	F	RunNo: 3	2189				
Prep Date: 2/11/2016	Analysis Date: 2/17/2016			S	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	SampType: LCSD TestCode: EPA Method 8310: PAH:								
Client ID: LCSS02	Batcl	Batch ID: 23677 RunNo: 32189								
Prep Date: 2/11/2016	Analysis D	Date: 2 /	17/2016	8	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 HALL 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#: 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

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

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

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

ND 0.0100 Cyanide

Sample ID LCS-R32129 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Batch ID: R32129 Client ID: LCSW 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 97.0 110

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

Page 21 of 23

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 Client ID: PBW 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
- 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

Analyte detected in the associated Method Blank

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

Batch ID: 23638 Client ID: LCSW 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

1030 Total Dissolved Solids 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
- 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
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified

Page 23 of 23



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 🗌 2. Is Chain of Custody complete? Yes 🗸 Not Present 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 Yes 🔽 No 🗌 for pH: 12. Does paperwork match bottle labels? or {12 unless noted) (Note discrepancies on chain of custody) Adjusted? Yes 🗹 No \square 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY 4901 Hawkins NE - Albuquerque, NM 87109 Tel. 505-345-3975 Fax 505-345-4107 www.hallenvironmental.com □ Rush Monthly R.O. Reject Project #: P.O. # 167796 Turn-Around Time: Project Name: X Standard Chain-of-Custody Record Mailing Address: P.O. Box 159 Artesia, Client: Navajo Refinery NM 88211-0159

hone #	Phone #: 575-748-3311	48-3311									Anal	sis/	Analysis Request	est	:				
nail or	· Fax#: 5	email or Fax#: 575-746-5451	451	Project Manager.	jer.							(8	-						
AVQC F	QA/QC Package:											3-22							
X Standard	ard		☐ Level 4 (Full Validation)	Robert Combs	(A						<u> </u>	;Н÷							
□ Other	<u>_</u>			Sampler:	Elizabeth Salsberry	sberry					<u>ا ۲۰</u>	977				sbild			(N
J EDD	□ EDD (Type)			Ón Ice:	X Yes	□ No					<u></u>	/-૯/	e			PS			110
	•			Sample Temperature:	erature. ル							٦) ر :	pinc		- Đị				V)
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	8260B:WQC	8270C: WQ	stoT :4.388	7470: Merc	8082: PCB 8015: GRC	Radioactivit	Sulfate Chlo	Phenois	Fluoride Nitrate/Nitri	ossiQ IstoT	Hd	204.1:EDB	Air Bubbles
2/4/16	9:35	9:35 liquid	R.O. Reject	2 - 500ml P	1-unpres 1- H2SO4	100-							×	^	×	×	×		>
2/4/16		9:35 liquid	R.O. Reject	3-40ml VOA	HCL		×												1
2/4/16		9:35 liquid	R.O. Reject	1-500ml P	HN03					×									
2/4/16	9:35	9:35 liquid	R.O. Reject	1-125ml P	HN03			×	·	-									
2/4/16	9:35	9:35 liquid	R.O. Reject	1-500ml P	NaOH				×						-				1
2/4/16		9:35 liquid	R.O. Reject	2-1L P	HN03							×	_			_			
2/4/16	9:35	9:35 liquid	R.O. Reject	3-40ml VOA Na2	Na2S203								_	\dashv		_	-	×	
2/4/16		9:35 liquid	R.O. Reject	2 - 1L Glass unpres	unpres					_	<u> </u>			\dashv		_			-
2/4/16		9:35 liquid	R.O. Reject	1 - 1L Glass unpr	unpres		$\hat{\dashv}$	×		•				_	+	\dashv			1
2/4/16		9:35 liquid	R.O. Reject	3-40ml VOA HCI	I 모					^	×			\blacksquare		4	_		
2/4/16		9:35 liquid	R.O. Reject	1-250mlGlas; unpres	unpres			_		^	×					-	4		
2/4/16		liquid	R.O. Reject	1 - 1L Glass H2SO4	H2S04									×		_			
2/4/16		9:35 liquid	Trip Blank	∡	HCL	-603								\dashv	\dashv	\dashv	_		
	Time:	Relinquish	bestany	Received by:		Date Time	Remarks: Marie: Ar Al Bo B CA Cr Co Cu Ee Br Mr Ho Mo Ni Se An 11 Zo	(S:	2	<u>ئ</u> ئ	ر تا	d Ma	H ₂	Ž.	200	5			
All Le	12:00	1263a.	12:00 Eusabutt Soulders	SINCE	Touth The	02/05/16 1005	weetas: As, At, Dat, b, Cd, Cd, Ct, Cd, Te, Lb, Mil, 19, MO, M, Ce, Ag, Ct, Al, Ct, Ar, Cd, Cd, Cd, Cd, Cd, Cd, Cd, Cd, Cd, Cd	ر کر ہے۔ آ1-1-1-1	chloroett	ane; 1,1	,2,2-Tet	achloro	ethane,	1,1,2,2	2-Tetrac	chloroe	hylene:	1,1,2	
Date:	Time:	Relinquished by:		Received by:		Dáte Time	Indiano centaire, 1, 1, 2- Halloveulyere, 1, 1-Danio centaire, 1, 1-Danio centeire, Dibromoethane, 1, 2-Dichloroethane, Benzene, Carbon Tetrachloride, Chloroform;	ethane,	1,2-Dich	oroethal	ıyıcıre, 1e; Benz	ene; Ca	urbon Te	strachlo	oride; C.	hlorofo	-,- '⊒' !∐.		-
							Drchloromethane; Ethylbenzene; Toluene; Total Kylenes; Vinyl Chloride SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene	nethane benzo(a	s; Ethylbe a)pyrene	inzene; phenol,	loluene; 1-methy	lotal X (naphth	ylenes; alene, 2	Vinyl C -methy	hloride	nalene,	naphth	alene	_
																			1

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Monthly RO Reject Sample Details Attachment Navajo Refining Company, LLC 501 E. Main Artesia, NM 88210 (Tel) 575.748.3311 (Fax) 575.746.5451

HOLLYFRONTIER The HollyFrontier Companies

	Time	Flow		La
Jame Biannual RO Reject	ne Elizabeth Salsberry	Navajo Refining Co. LLC	ne 2/4/2016 @ 9:30 a.m.	ne 2/4/2016 @ 9:45 a.m.
Project Name	Samplers Name	Samplers Affiliation	Start Date and Time	End Date and Time

一門 ななない 選手	7			One
Sample Type	Grab	Composite	Composite	ble Intervals One
Sa		ne Weighter	w Weighter	Parts / Sam
			Ĭ	

Liquid V	☐ Sludge ☐	Type of Sample: Directly to sample jars

Physical Property

Solid

Gattion	
ilion □ North Field R.O. Reject Discarge ☑	
Outfall // Sample Location	

Analysis and on Memodiffequested pH, Cl. F, S04, NO2/NO3, TDS	8015 GRO	6020 total metals, 7470 Hg	6020 Dissolved Metals	Cyanide	Padium 226/228	tril bodoctto and 0000	8200 see allached list	8270 see attached list	8082 PCBs	8015 DRO	Radium 226/228	
IASANALVSS NACAL NAZSZOO NAHSOA					×							
HOL HINGS HZSOM	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	V	×	×		×	,					×
	2 ×	3	1	1	2	.3		2	1 X	2 X	2 X	2
Waterial	Plastic	VOA	Plastic	Plastic	Plastic	Plactic	Classic	VOA	Glass	Glass	VOA	VOA
Rainer Safe	1 500ml	40ml	500ml	4 125ml	500ml	1)	40ml	11	10	14	

	Refrigerated	Other 🗆	Shipping Media	[Se]	Oiher 🗆
Field Data (Weather, Observations, Etc.). 2/4/2016 Tmp.32.0 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear	Date and Time:	1/2 L file Moria Comment and C	Fied lemp. 19.7C		



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 Temporary R.O. Reject OrderNo.: 1602208

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

andy

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	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	
Molybdenum	ND	0.0080		mg/L	1	2/24/2016 11:26:24 AM	
Nickel	ND	0.010		mg/L	1	2/24/2016 11:26:24 AM	
Silver	ND	0.0050		mg/L	1	2/24/2016 11:26:24 AM	
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.	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 1 of 23
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 2/24/2016

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 Qu	al Units	DF Da	nte Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst	: 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 RAN	GE				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	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	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		9/2016 6:44:04 AM	B31998
Methylene Chloride	ND	3.0	μg/L		9/2016 6:44:04 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L		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
- 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

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 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 Η 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 RLReporting 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 Qu	ıal 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	μg/L	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	μg/L	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	μg/L	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	μg/L	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	μg/L	1	2/9/2016 7:12:24 AM	B31998
Acetone	ND	10	μg/L	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	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Bromoform	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Bromomethane	ND	3.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
2-Butanone	ND	10	μg/L	1	2/9/2016 7:12:24 AM	B31998
Carbon disulfide	ND	10	μg/L	1	2/9/2016 7:12:24 AM	B31998
Carbon Tetrachloride	ND	1.0	μg/L	1	2/9/2016 7:12:24 AM	B31998
Chlorobenzene	ND	1.0	μg/L	1	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	μg/L	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	μg/L	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	μg/L	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	Date 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 PBW Client ID: 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 0.040 Boron ND Cadmium ND 0.0020 Chromium ND 0.0060 0.0060 Cobalt ND Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 0.0080 Molybdenum ND Nickel ND 0.010 Silver ND 0.0050 0.010 Zinc ND

Sample ID LCS-B	Samp	Type: LC	s	Tes	tCode: El	PA Method	200.7: Dissol	ved Meta	ls	
Client ID: LCSW	Bato	ch ID: B3	2368	F	RunNo: 32368					
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	ype: LC :	SLL	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B32368 RunNo: 323					2368					
Prep Date:	Analysis Da	ate: 2/ 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				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the 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 Client ID: BatchQC	•	Type: LC			TestCode: EPA Method 200.7: Dissolved Metals 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#: **1602208**

24-Feb-16

Project:	3	hly Temporary R.O. Reject	
Sample ID	LCS	SampType: LCS	TestCode: EPA 200.8: Dissolved Metals
Client ID:	LCSW	Batch ID: B31999	RunNo: 31999
Prep Date:		Analysis Date: 2/8/2016	SeqNo: 978440 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: LCSLL	TestCode: EPA 200.8: Dissolved Metals
Client ID:	BatchQC	Batch ID: B31999	RunNo: 31999
Prep Date:		Analysis Date: 2/8/2016	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	МВ	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals
Client ID:	PBW	Batch ID: B31999	RunNo: 31999
Prep Date:		Analysis Date: 2/8/2016	SeqNo: 978442 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: C32026	RunNo: 32026
Prep Date:		Analysis Date: 2/9/2016	SeqNo: 979376 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: LCSLL	TestCode: EPA 200.8: Dissolved Metals
Client ID:	BatchQC	Batch ID: C32026	RunNo: 32026
Prep Date:		Analysis Date: 2/9/2016	SeqNo: 979378 Units: mg/L
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Qualifiers:

Arsenic

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

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

Mercury ND 0.00020

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

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

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.

3.6

0.20

3.500

WO#: **1602208**

24-Feb-16

Client:		Navajo Refining Co	mpany								
Project:		Monthly Temporary	R.O. I	Reject							
Sample ID	МВ	SampT	ype: MI	BLK	Test	Code: E	PA Method	300.0: Anions	}		
Client ID:	PBW	Batch	ID: R3	32200	R	lunNo: 3	32200				
Prep Date:		Analysis D	ate: 2	/16/2016	S	eqNo: 9	84262	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	Test	Code: E	PA Method	300.0: Anions	i		
Client ID:	LCSW	Batch	ID: R3	32200	R	RunNo: 3	32200				
Prep Date:		Analysis D	ate: 2	/16/2016	S	eqNo: 9	84263	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			
Sample ID	МВ	SampT	уре: МІ	BLK	Test	Code: E	PA Method	300.0: Anions	}		
Client ID:	PBW	Batch	ID: R3	32210	R	lunNo: 3	32210				
Prep Date:		Analysis D	ate: 2	/16/2016	S	eqNo: 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	Test	Code: E	PA Method	300.0: Anions	;		
Client ID:	LCSW	Batch	ID: R3	32210	R	tunNo: 3	32210				
Prep Date:		Analysis D	ate: 2	/16/2016	S	eqNo: 9	84552	Units: mg/L			
1				ODI/	CDK Det Vel	%REC	Laud imit	HighLimit	%RPD	RPDLimit	Qual
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	riigiiLiiiit	701 NI D	KEDLIIIII	Quai
Analyte Fluoride		Result 0.50	0.10	0.5000	O 0	99.4	90	110	701 C	KFDLIIIII	Quai

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

102

- 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-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

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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-23596	SampT	ype: ME	BLK	TestCode: EPA Method 8015M/D: Diesel Range							
Client ID: PBW	Batch	n ID: 23	596	F	RunNo: 3	1978					
Prep Date: 2/5/2016	Analysis D	oate: 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	1.0		1.000		100	70	141				
Sample ID LCS-23596	SampT	ype: LC	s	TestCode: EPA Method 8015M/D: Diesel Range							
Client ID: LCSW	Datak	n ID: 23	500	RunNo: 31978							

Sample ID LCS-23596	Sampl	ype: LC	S	les	Code: El	PA Method	8015M/D: Die	esel Range	9	
Client ID: LCSW	Batch	ID: 23	596	RunNo: 31978						
Prep Date: 2/5/2016	Analysis D	ate: 2 /	8/2016	S	eqNo: 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.
- 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
- 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) 0.050 0 90.6 0.45 0.5000 80 120 Surr: BFB 20.00 97.9 49.5 20 130

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

Surr: BFB 17 20.00 83.7 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
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В
- 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

Analyte detected in the associated Method Blank

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1602208

24-Feb-16

Sample ID	MD 22676	CompType: MPLV
Project:	Month	aly Temporary R.O. Reject
Client:	Navaj	o Refining Company

- North	y remperary	10.0.1	tejeet							
Sample ID MB-23676	SampType: MBLK TestCode: EPA Method 8082									
Client ID: PBW	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Da	ate: 2 /	17/2016	S	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: El	PA Method				
Client ID: LCSW	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Da	ate: 2 /	17/2016	S	SeqNo: 984091		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	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	ID: 23	676	F	RunNo: 3	2193				
Prep Date: 2/11/2016	Analysis Da	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	

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

Sample container temperature is out of limit as specified

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RLReporting Detection Limit Page 15 of 23

Hall Environmental Analysis Laboratory, Inc.

WO#: 1

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 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 4.0 1-Methylnaphthalene 2-Methylnaphthalene ND 4.0 ND 10 Acetone 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 2.0 Chloroethane ND Chloroform ND 1.0 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 1,2-Dibromo-3-chloropropane ND 2.0 Dibromochloromethane ND 1.0 ND 1.0 Dibromomethane ND 1.0 1.2-Dichlorobenzene 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 1.0 1,2-Dichloropropane 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	уре: МЕ	BLK	TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch	n ID: B3	1998	F	tunNo: 3	1998				
Prep Date:	Analysis D	ate: 2 /	9/2016	S	eqNo: 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	Code: EI	PA Method	8260B: VOL	ATILES		

Client ID: LCSW	Batch	ID: B3	1998	F	RunNo: 3	1998				
Prep Date:	Analysis D	ate: 2 /	8/2016	8	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			
Chlorobenzene	22	1.0	20.00	0	110	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

Е Value above quantitation range

J Analyte detected below quantitation limits

Page 17 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#: **1602208**

24-Feb-16

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

Sample ID 100ng Ics2 Client ID: LCSW		ype: LC			tCode: El		8260B: VOL	ATILES		
Prep Date:	Analysis D		8/2016		SeqNo: 9		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 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 9.8 20.00 48.8 33.4 129

Sample ID LCS-23677 SampType: LCS TestCode: EPA Method 8310: PAHs Client ID: **LCSW** Batch ID: 23677 RunNo: 32189 Prep Date: Analysis Date: 2/17/2016 SeqNo: 984239 2/11/2016 Units: µg/L Analyte **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 78 80.00 54.6 Naphthalene 2.0 n 97.6 110 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 0.51 0.070 0.5020 0 Benzo(a)pyrene 102 62 107 10 20.00 50.0 Surr: Benzo(e)pyrene 33.4 129

Sample ID LCSD-23677 SampType: LCSD TestCode: EPA Method 8310: PAHs Client ID: LCSS02 Batch ID: 23677 RunNo: 32189 Prep Date: 2/11/2016 Analysis Date: 2/17/2016 SeaNo: 984240 Units: µg/L Analyte Result **PQL** SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Naphthalene 81 2.0 80.00 Λ 101 54.6 110 3.55 20 1-Methylnaphthalene 82 2.0 80.20 0 102 49.1 116 3.43 20 82 2.0 80.00 0 102 52.5 20 2-Methylnaphthalene 111 3.47 0.53 0.070 0.5020 0 106 62 107 3.85 20 Benzo(a)pyrene 51.4 Surr: Benzo(e)pyrene 10 20.00 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

G 1 HN 4 P

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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-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

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

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

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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#: **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 Client ID: PBW Batch ID: R32295 RunNo: 32295 Analysis Date: 2/16/2016 SeqNo: 987217 Prep Date: 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

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

detected below quantitation limits

Page 23 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 4901 Hawkins NE Albuquerque, NM 87109

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

Sample Log-In Check List

Website: www.hallenvironmental.com

Client Name: NAVAJO REFINING CO Work Order N	umber: 1602208	-	RcptNo: 1	
Received by/date: 02.05	Hu			
Logged By: Ashley Gallegos 2/5/2016 10:05:	MA 00	A		
Completed By: Ashley Gallegos 2/5/2016 11 17:	10 AM	A		
Reviewed By: 02 05 10	•			
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			
<u>Log In</u>				
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	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 \square	
10.VOA vials have zero headspace?	Yes 🗹	No 🗆	No VOA Vials	
11. Were any sample containers received broken?	Yes \square	No 🗹	# of processed	
	_		# of preserved bottles checked	/
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes 🔽	No 🗀	for pH: (<2)or(>	-12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes 🗹	No 🗆	Adjusted?	No
14. Is it clear what analyses were requested?	Yes 🗹	No 🗆		·
15. Were all holding times able to be met?	Yes 🗸	No 🗌	Checked by:	10
(If no, notify customer for authorization.)				
Special Handling (if applicable)				
16. Was client notified of all discrepancies with this order?	Yes 🗌	No 🗆	NA 🗹	
Person Notified:	Date			
And the section of th	·	Phone 🗌 Fax	☐ In Person	
Regarding:				
Client Instructions:	11			
17. Additional remarks:				
18. Cooler Information				
Cooler No Temp °C Condition Seal Intact Seal I	No Seal Date	Signed By		
1 1.0 Good Not Present				

<u>ပ</u>	nain-	ot-cu	Chain-of-Custody Record		į						A	Ш		HALL ENVIRONMENTAL	Z	Σ	Z	AL	
Client	Navajo Refinery	Refinery		X Standard	□ Rush	sh				4	Z	<u> </u>	SIS	ANALYSIS LABORATORY	BO	Š	E	K	_
				Project Name:					: :: ::::	\$	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		94	301 H	4901 Hawkins NE	s NE	- AR	endne	Albuquerque, NM 87109	NM 8	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	18-3311										Anal	sis F	Analysis Request	st				
email or Fax#:		575-746-5451	451	Project Manager:	jer:								(8						
QA/QCF	QA/QC Package:												7Z-E						
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☐ EDD (Type)	(Type)_			On Ice:	X Yes	No 🗆							-вЯ)	әр			S pa		NO)
				Sample remperature	erature /	5)							ty (ino		əji	∋∧∣α		
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		O.	8250C: WC	e010B: MC	335.4: Tot	7470: Mero 8015: GRO	8082: PCB	Radioactivi	Sulfate Chl	Phenols Fluoride	Nitrate/Nitr	Total Disso	Hd	604.1: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				×				-		_				
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	HNO3								×						
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2/4/16		liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4										×				\dashv
2/4/16		9:20 liquid	Trip Blank	2-40ml VOA	HCL	7	72				-	_				_			\dashv
Date:	Time:		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	B, Cd,	S S	Cu, Fe,	Pb, Mn,	Hg, Mo,	Ni, Se,	Ag, U,	Zu		
5 11+17	00:20 011417		eizarett 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	loroeth	ane; 1,1	,2,2-Tet	achloro	ethane; oroetha	1,1,2,2 no: 1.1	Tetrach	loroeth)	/lene; 1	7,2
Date:	Time:	Relinquished by	ed by:	Received by:		Ďate	Time	Distributedratians, 1,1,2-11,0010000000000000000000000000000	thane; 1 thane; 1	,2-Dichle	oroethau	iyiciic, ie; Benz ofiiene	ene; Ca	rbon Ter	trachlori (invl Ch	ide; Chi	oroform	- , - Ī	
	_						<u> </u>	Drallotornetrialie, Eutylberizerie, Tolderie, Tolderes, Villy Ciliotoe SVOCs: benzo(a)byrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene	eulane, senzo(a	Eurynov. IDyfene.	ntene, phenol.	1-meth	dnaphth	رساتات)، alene, 2	-methyl	naphtha	lene, n	aphthal	e

If necessary samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this bossibility. 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 Temporary RO Reject Sample

+ HOLLYFRONTIER	
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M42	HOLLYFRO

Sample State Sample Type Sample Type Sample Type Solid Sol		Details	The HollyFrontier Companies
LC Flow Weighted Composite Parts Sample Intervals One North Field R.O. Reject Discarge	Rioject Name Biannual RO Reject Sampleis/Name Elizabeth Salsbery	Sample Type Grab	Physical Property Solid □
Parts Sample Infervals One North Field R.O. Reject Discarge South Field R.O. Reject Discarge	Sample Safeliation Navajo Refining Co. LLC Start Date and Time 2/4/2016 @ 9:15 a.m.	Flow.//veighted.Composite	
☐ North Field R.O. Reject Discarge	End Date and Trate 2/4/2016 @ 9:30 a.m.	Parts // Sarigle/intervals One	Type of Sampler Directly to sample jars
			irge

	e Analysis and of Memor Reminester	pH, Cl, 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 Wethods Storage Wethods Storage Wethods Storage Wethods Shipping Wedia Shipping Wedia
	S203: NaHS0): 0.ne												d Calm, Conditions Clear
Seyllewigg	OR HESOR FINESH WAR	×		×	×	×	×						PF, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear
	e) Hot Hive		×	`	(^	×				×	°F, Humidity 5
		2 X	3	-	1	2	3	2	1 X	2 X	2 X	2	4/2016 Tmp. 30.2
	lenenen	Plastic	VOA	Plastic	Plastic	Plastic	Plastic	VOA	Glass	Glass	VOA	VOA	eld Data (Wearther Observations Etc.) 2/4/2016 Tmp. 30.2 are and Tutue:
	diner Size	500ml	40ml	500ml	125ml	500ml	1	40ml		71	40ml	40ml	Weamer ©
	Contention			0.0		20	. 9		8.5	9	10	411.3	Jebi Date, Weath

Artesia Refinery **GW-028** Permit Modification February 4, 2016

ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION REVERSE OSMOSIS DISCHARGE PERMIT MODIFICATION Artesia Refinery (GW-028)

I. INTRODUCTION

The New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (OCD) issues this Modification of Discharge Permit GW-028 (GW-028) to HollyFrontier Navajo Refining LLC (Permittee) pursuant to the New Mexico Water Quality Act (WQA), NMSA 1978 §§74-6-1 through 74-6-17, and the New Mexico Water Quality Control Commission (WQCC) Regulations, 20.6.2 NMAC.

GW-028 governs, among other things, the discharge of reverse osmosis (RO) reject fluids into "farm fields" (FFs) at the Artesia Refinery (Refinery). The Refinery is located at 501 East Main, Artesia, NM, 88210 in the SE/4 of Section 1, E/2 of Section 8, W/2 of Section 9, N/2 of Section 12, Township 17 South, Range 26 East, NMPM, Eddy County.

Due to the increased processing capacity of the Refinery and the corresponding increased demand for water at the Refinery, use of the portable RO unit has increased over time. GW-028 currently allows a total of 10,000 barrels per day of combined RO reject water to be discharged via pipeline into the two FFs. The authorization for the disposal of RO reject water into the FFs will cease on or before October 21, 2016.

Groundwater potentially affected by the discharge occurs at a depth of approximately 25 feet below ground surface with a total dissolved solids (TDS) concentration of approximately 2,500 mg/L. Based on analysis of the RO reject fluids to date, Boron, Chloride, Fluoride, Manganese, Sulfate, Nitrate, Selenium, TDS, and Uranium are potential contaminants of concern. Under GW-028, the Permittee is required to investigate the ground water beneath the FFs to determine what impact to ground water quality has occurred as a result of the discharge of RO fluid.

On May 22, 2015, the Permittee submitted a modification application to increase the maximum RO reject fluids discharge in the FFs from 10,000 barrels per day to 20,000 barrels per day; 2) to operate a third RO unit at the Refinery; and 3) to update the refinery crude oil processing capacity to 105,000 barrels/day. On July 1, 2015, OCD determined the application to be administratively complete. Pursuant to 20.6.2.3108 NMAC, the Permittee provided public notice of the application. After a technical review of the application, OCD prepared a proposed decision and provided public notice. OCD proposed to approve an increase to the discharge to the FFs from 10,000 barrels per day to 15,000 barrels per day and proposed other conditions for GW-028. The only comments submitted to OCD on the proposed decision were from the Permittee.

Based on OCD's review of the application, the comments received, and the technical information submitted pursuant to GW-028, OCD enters the following findings and approves the following modifications to GW-028.

Artesia Refinery, **GW-028** Permit Modification February 4, 2016

II. FINDINGS.

OCD has reviewed the application along with additional technical information in the permit file. In issuing this Modification, OCD finds:

- 1. The Permittee has requested to increase the maximum discharge of RO reject fluids to the FFs allowed under GW-028. GW-028 currently allows a discharge of RO reject fluids to the FFs but requires the Permittee to cease the discharge on or before October 21, 2016. GW-028 also requires the Permittee to conduct a site investigation to determine the impact to soils and ground water quality within and beneath the FFs.
- 2. The Permittee has increased and may increase further the capacity of the Refinery. As a result, the total wastewater volume generated at the Refinery has and may continue to increase. The Permittee has added a third RO unit at the Refinery and is reviewing options to more efficiently manage, treat, store, and/or dispose the Refinery wastewater and to replace the current discharge into the FFs with other disposition options.
- 3. An increase in the maximum RO reject fluid discharge volume allowed under GW-028 will be approved due to the increased production of wastewater at the Refinery and due to the controls on the discharges under GW-028. The discharge will be into the FFs where the current permitted discharge is located and where the Permittee is undertaking an investigation into the potential impacts of the discharges on soil and groundwater. Based on historic discharge amounts, the new discharge limit will be a maximum of 15,000 barrels per day.
- 4. Based on the increase in the discharge limit, and on enforcement actions for the failure to report exceedances of the discharge limit, GW-028 will be modified to increase the frequency of water quality sampling for the discharges and increase the frequency of reporting both the sampling results and the daily discharge flow measurements.
- 5. Pursuant to the requirements of GW-028, the Permittee has completed (a) the RO Reject Fields Hydrogeologic and Water Quality Evaluation Memo, (b) the Reverse Osmosis Reject Water Discharge Fields Investigation Final Report, and (c) the Background Groundwater Investigation Report (collectively, "site investigation reports"). Based upon OCD's preliminary review of the site investigation reports, OCD has determined that soils and groundwater within and below the FFs have potentially been affected by the historic discharge of RO reject fluids. The Permittee is required to complete the delineation of any potential vadose zone and groundwater contamination associated with the FFs.
- Proper public notice of the Modification has been given, the permit modification fee
 has been paid and all other requirements necessary for the issuance of the Modification
 have been met.

III. PERMIT MODIFICATION

The following changes to Permit Conditions 1.A, 1.B, 4.A, 4.B and 6.C of GW-028 and new Permit Condition 4.C are approved:

Artesia Refinery **GW-028** Permit Modification February 4, 2016

1.A PERMITTEE AND PERMITTED FACILITY: The Director of the Oil Conservation Division (OCD) of the Energy, Minerals and Natural Resources Department issues Discharge Permit GW-028 (Discharge Permit) to HollyFrontier Navajo Refining LLC (Permittee) located at 501 E. Main, Artesia, New Mexico 88210, to operate the Artesia Refinery (Facility) located in the SE/4 of Section 1, E/2 of Section 8, W/2 of Section 9, N/2 of Section 12, Township 17 South, Range 26 East, NMPM, Eddy County. The refinery is located northeast of the intersection of Highway 285 and Highway 82, in Artesia, New Mexico.

The Permittee refines crude oil and processes natural gas at its Facility. The Facility refines and processes up to 115,000 barrels per day of crude oil and other feed stocks. The Permittee's Facility discharges a maximum of 15,000 barrels per day of reverse osmosis reject fluids to the surface at the Facility's two farms. The Permittee is abating ground water and vadose zone contamination at the Facility. Ground water that may be affected by a spill, leak, or accidental discharge occurs at a depth of approximately 25 feet below ground surface with a total dissolved solids concentration of approximately 2,500 mg/L.

1.B SCOPE OF PERMIT: OCD has been granted authority to administer the Water Quality Act (Chapter 74, Article 6 NMSA 1978) as it applies to refineries by statute and by delegation from the Water Quality Control Commission pursuant to Section 74-6-4(E) NMSA 1978.

The Water Quality Act and the rules issued under that Act protect ground water and surface water of the State of New Mexico by providing that, unless otherwise allowed by rule, no person shall cause or allow effluent or leachate to discharge so that it may move directly or indirectly into ground water unless such discharge is pursuant to an approved discharge permit (See WQCC Regulations: 20.6.2.3104 NMAC and 20.6.2.3106 NMAC).

This Discharge Permit authorizes the Permittee to discharge a maximum of 15.000 barrels per day of reverse osmosis reject fluids at the Permittee's two farms. This Discharge Permit does not authorize any treatment of, or on-site disposal of, any materials, product, by-product, or oil field waste including, but not limited to, the on-site disposal of lube oil, glycol, antifreeze, filters, elemental sulfur, washdown water, contaminated soil, and cooling tower blowdown water.

This Discharge Permit does not convey any property rights of any sort nor any exclusive privilege, and does not authorize any injury to persons or property, any invasion of other private rights, or any infringement of state, federal, or local laws, rules or regulations.

The Permittee shall operate in accordance with the Discharge Permit conditions to comply with the Water Quality Act and the rules issued pursuant to that Act, so that neither a hazard to public health nor undue risk to property will result (See 20.6.2.3109C NMAC); so that no discharge will cause or may cause any stream standard to be violated (See 20.6.2.3109H(2) NMAC); so that no discharge of any water contaminant will result in a hazard to public health (See 20.6.2.3109H(3) NMAC); and, so that the numerical standards specified in of 20.6.2.3103 NMAC are not exceeded.

4.A Discharge Volume: The Permittee is authorized to discharge a maximum of 15,000 barrels per day of reverse osmosis reject fluids to the surface at the Permittee's two farms. Discharge to Eagle Draw is prohibited. This authorization will expire no later than October 21, 2016, or when the proposed new Class I injection well is operationally capable of

Artesia Refinery, **GW-028** Permit Modification February 4, 2016

accepting this waste stream, whichever occurs first.

- **4.B** Sampling and Analysis: The Permittee shall collect and analyze samples of the discharge as follows:
- 1. The Permittee shall sample and analyze for all constituents listed in 20.6.2.3103A, B, and C NMAC at least quarterly by collecting grab samples at the points of discharge for both the permanent reverse osmosis units, the portable reverse osmosis unit, and any other installed RO units with discharges into the farm fields.
- 2. The Permittee shall sample and analyze using the methods specified in the Permittee's FWGWMP.
 - 3. The Permittee shall retain all sampling and analytical QA/QC for four years.
- 4. On a daily basis, the Permittee shall monitor and record the discharge locations and flow rate and volumes from each reverse osmosis unit that produces a reject fluid that is discharged into the farm fields.
- 5. The Permittee shall report the analytical results for all discharge samples collected in a monitoring period.
- 6. The Permittee shall ensure the sampling and flow measurements are representative of the volume and nature of each discharge.
- 7. The Permittee shall submit all sample data, analytical results, and flow measurements in its annual report. In addition, the Permittee shall submit a monthly report, due on the fifteenth day of the following month, which includes the daily discharge flow measurements in that month and any sample results received that month.
- 4.C Reporting of Discharge Limit Violation: The Permittee shall report to OCD by electronic mail, on the first business day of each week, any exceedance of the daily discharge limit provided in Permit Condition 4.A, that occurred during the prior calendar week.
- 6.C REQUIREMENT TO CEASE ALL DISCHARGE OF REVERSE OSMOSIS REJECT FLUIDS TO THE SURFACE AT THE TWO FARMS. The Permittee shall cease all discharges of reverse osmosis reject fluids (a maximum of 15,000 barrels per day) and/or any other waste discharges to the surface on or before October 21, 2016, or when the proposed new Class I injection well is operationally capable of accepting this waste stream, whichever occurs first.

EFFECTIVE DATE:

David R. Catanach Division Director.

New Mexico Oil Conservation Division



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.P.7.

collected on March 3, 2016.

the RO reject fluid is monitored from the two on a daily basis. Daily discharge rates and volumes in mporary RO unit operated through March 2016, and with the permanent unit, as authorized by OCD on

f Condition 4.B.1 of the Permit, samples were manent units and temporary unit on March 3, 2016. listed in sections 20.6.2.3103A, B, and C of the New g the methods specified in Navajo's Facility Wide. The corresponding analytical results are provided

Navajo Refining LLC n • Artesia, NM 88210 p://www.hollyfrontier.com Analytical results of a discharge sample

Flow rates, volumes, and discharge locations fo permanent RO units and the temporary RO unit are provided in Attachment 1. (Note that the te will be replaced in the second quarter of 2016 w April 1, 2016.)

To satisfy the quarterly sampling requirement of collected for the RO reject streams from the per The samples were analyzed for the constituents Mexico Administrative Code (NMAC) and using Groundwater Monitoring Program (FWGWMP) in Attachment 2.

HollyFrontier 501 East Mai (575) 748-3311 • htt 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 state of the s	d RO Reject (Calculated)	The state of the s	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