

GW-028

**ANNUAL DP
REPORT (2)**

2014

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

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

Sample ID	1411288-001ADUP	SampType:	DUP	TestCode:	Specific Gravity					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	R22669	RunNo:	22669					
Prep Date:		Analysis Date:	11/20/2014	SeqNo:	668670	Units:				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	1.001	0						0.0500	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411288

09-Dec-14

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

Sample ID	MB-16340	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	16340	RunNo:	22490					
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663255	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-16340	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	16340	RunNo:	22490					
Prep Date:	11/11/2014	Analysis Date:	11/12/2014	SeqNo:	663256	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

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

Sample Log-In Check List

Client Name: NAVAJO REFINING COM

Work Order Number: 1411288

RcptNo: 1

Received by/date: [Signature] 11/07/14

Logged By: Ashley Gallegos 11/7/2014 9:20:00 AM [Signature]

Completed By: Ashley Gallegos 11/7/2014 11:25:06 AM [Signature]

Reviewed By: CS 11/07/14

Chain of Custody

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

Log In

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

of preserved bottles checked for pH: 3 2
(2 or 12 unless noted)
Adjusted? No
Checked by: mg

Special Handling (if applicable)

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

Person Notified: [Signature] Date: [Signature]

By Whom: [Signature] Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: [Signature]

Client Instructions: [Signature]

17. Additional remarks: All VOA's including trip blank have bubbles. mg 11/07/14

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: Navajo Refining Co.					
Mailing Address: P.O. Box 159 Artesia,					
NM 88211-0159					
Phone #: 575-748-3311					
e-mail or Fax#: 575-746-5451					
QA/QC Package:					
☐ Standard	☒ Level 4 (Full Validation)				
☐ Other _____					
☐ EDD (Type) _____					

☐ Standar ☐ Rush

Project Name:

 Quarterly WDW-1, 2, & 3 Inj Well
 Project # : P.O. # 167796

Project Manager:

 Dan Crawford
 Sampler:
On Ice Xylitol No
Sample Temperature / °F

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAT No. <i>14112889</i>
11/10/14	10:20am 9:00-	Liquid	WDW-1, 2, & 3 Effluent	3	Neat/H ₂ SO ₄	-001
11/10/14	10:20am 9:00-	Liquid	WDW-1, 2, & 3 Effluent	1	HNO ₃	I
11/10/14	10:30am 9:00-	Liquid	WDW-1, 2, & 3 Effluent	3	HCL	
11/10/14	10:30am 9:00-	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	
11/10/14	10:30am 9:00-	Liquid	WDW-1, 2, & 3 Effluent	2	Neat	
11/10/14	10:30am 9:00-	Liquid	Trip Blank	2	Neat	-002
11/10/14	10:30am 9:00-	Liquid	Temperature Blank	1	Neat	

Date: 11/10/14	Time: 10:20am	Relinquished by: <i>Elizabeth Sabberry</i>	Received by: <i>[Signature]</i>	Date 11/07/14	Time 0920
Date:	Time:	Relinquished by:	Received by:	Date	Time

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



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

Injection Well Quarterly Sample Details Attachment



The HollyFrontier Companies

Product Name	WDW-1,2, & 3 Qrtly Inj Well
Sample Name	Aaron Strange
Sample's Location	Navajo Refining Co. LLC
Collection Date	11/6/2014 @ 10:30
End Date and Time	11/6/2014 @ 10:30

Sample Type	Grain ☒
Final Weight	Composite ☐
Initial Weight	Composite ☐

Physical Property	Solid ☐
	Liquid ☒
	Sludge ☐

Pails / Sample Bags	One
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Notes	Directly to sample jars
-------	-------------------------

Waste water effluent pumps to injection wells.

☐ P-849 sample point (first from east)	☒ P-856 sample point (third from east)
☐ P-854 sample point (second from east)	☐ P-857 sample point (fourth from east)

Container	Size	Material	Concentration	Preservatives										Analysis/Method Required
				Bar	Wor	HNO ₃	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ SO ₄	Na ₂ SO ₄	Other		
1			3	X				X					Specific Gravity, HCO ₃ , CO ₃ , Cl, SO ₄ , TDS, pH, cond., F, Cation/anion bal., Br, Eh/40 CFR 136.3	
2			1				X						VOCs/SW-846 Method 8260C (see attached list 'VOCs')	
3			3			X							SVOCS/SW-846 Method 8270D (see attached list 'SVOCS')	
4			2	X									R.C.I/40 CFR part 261	
5			2	X									Metals/SW-846 Mthd 6010, 7470 (see attached list 'Metals')	
6			2	X									Ca, K, Mg, Na/40 CFR 136.3	
7			1	X									TCLP Metals, only /40 CFR Part 261/SW-846 Method 1311	
8														
9														
10														

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 1/2014						
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1						
INJECTION				PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER										
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894		D	151,695	1,160	W													
		D	162,143	1,166	W													
		D	112,425	1,120	W													
78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575		D																

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

Printed Name & Title

Micki Schultz
Environmental Specialist

2/10/14

Date

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 2/2014																									
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1																									
INJECTION				PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER																													
7				8				11		12		13		14		15		16		17		18		19		20		21		22		23					
POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.				C O D E		9 Volume		10 Pressure		C O D E		Barrels of Oil/conden- sate produced		Barrels of water produced		MCF Gas Produced		Days Prod- uced		C O D E		Point of Disposition		Gas BTU or Oil API Gravity		Oil on hand at beginning of month		Volume (Bbls/mcf)		Transporter Ogrid		C O D E		Oil on hand at end of month			
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894 78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575				1		D		141,482		1,200		W																									
				D		145,969		1,202		W																											
				D		122,680		1,199		W																											
				D																																	

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 3/2014																					
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1																					
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1		9 Volume		10 Pressure		11 C O D E 2		12 Barrels of Oil/condensate produced		13 Barrels of water produced		14 MCF Gas Produced		15 Days Produced		16 C O D E 3		17 Point of Disposition		18 Gas BTU or Oil API Gravity		19 Oil on hand at beginning of month		20 Volume (Bbls/mcf)		21 Transporter Ogrid		22 C O D E 4		23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN																																	
023592 WDW		D		151,394		1,206		W																									
30-015-27592		D		153,497		1,205		W																									
30-015-20894																																	
78890 ILLINOIS CAMP-MORROW NORTH																																	
023592 WDW #003		D		130,039		1,183		W																									
30-015-26575																																	

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

Printed Name & Title

Micki Schultz
Environmental Specialist

Date

2/10/14

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 4/2014																						
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1																						
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.			8 C O D E 1		9 Volume		10 Pressure		11 C O D E 2		12 Barrels of Oil/condensate produced		13 Barrels of water produced		14 MCF Gas Produced		15 Days Produced		16 C O D E 3		17 Point of Disposition		18 Gas BTU or Oil API Gravity		19 Oil on hand at beginning of month		20 Volume (Bbls/mcf)		21 Transporter Ogrid		22 C O D E 4		23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN																																		
023592 WDW			D		140,350		1,198		W																									
30-015-27592			D		216,877		1,192		W																									
30-015-20894																																		
78890 ILLINOIS CAMP-MORROW NORTH																																		
023592 WDW #003			D		122,620		1,176		W																									
30-015-26575																																		

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

4/6/14

Printed Name & Title

Micki Schultz
Environmental Specialist

Date

4/6/14

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 5/2014						
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1						
INJECTION										PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER				
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1	9 Volume		10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894 78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575		D	141,827	1,173	W													
		D	103,840	1,162	W													
		D	105,412	1,138	W													

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

Printed Name & Title

Micki Schultz
Environmental Specialist

Date

5/4/2014

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 6/2014				
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1				
7		INJECTION			PRODUCTION			DISPOSITION OF OIL, GAS, AND WATER								
POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	C	Volume	Pressure	C	Barrels of Oil/condensate produced	Barrels of water produced	MCF Gas Produced	Days Produced	C	Point of Disposition	Gas BTU or Oil API Gravity	Oil on hand at beginning of month	Volume (Bbls/mcf)	Transporter Ogrid	C	Oil on hand at end of month
	O			O				Prod-uced	O						O	
	D			D					D						D	
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894	E			E					E						E	
	1			2					3						4	
78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575																

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

Printed Name & Title

Micki Schultz
Environmental Specialist

7/9/2014

Date

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 8/2014					
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1					
INJECTION				PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER									
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month		
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894																	
				D 146,645	1,235	W											
				D 34,872	1,235	W											
78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575																	
				D 130,920	1,239	W											

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

8/4/2014

8/4/2014

Printed Name & Title

Phone Number

575-748-3311

Micki Schultz
Environmental Specialist

Date

575-748-3311

OIL CONSERVATION DIVISION

Instruction on Reverse Side

P. O. Drawer DD, Artesia, NM 88211-0719

P. O. Box 6429

District III

Santa Fe. NM 87505

Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

1000 Rio Brazos, Aztec, NM 84710

[illegible]

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

7/9/2014

Signature

Printed Name & Title

Micki Schultz
Environmental Specialist

Date _____

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 9/2014						
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210										6 Page 1								
INJECTION										PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER				
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1	9 Volume		10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894 78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575		D	114,037	1,305	W													
		D	71,900	1,303	W													
		D	141,609	1,301	W													

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

9/14/2014

Printed Name & Title

9/14/2014

Micki Schultz
Environmental Specialist

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 10/2014																									
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210										6 Page 1																											
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1		9 Volume		10 Pressure		11 C O D E 2		12 Barrels of Oil/condensate produced				13 Barrels of water produced		14 MCF Gas Produced		15 Days Produced		16 C O D E 3		17 Point of Disposition				18 Gas BTU or Oil API Gravity		19 Oil on hand at beginning of month		20 Volume (Bbls/mcf)		21 Transporter Ogrid		22 C O D E 4		23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN		D		99,503		1,342		W																													
023592 WDW		D		127,125		1,341		W																													
78890 ILLINOIS CAMP-MORROW NORTH		D		129,877		1,314		W																													
023592 WDW #003		D																																			
30-015-26575																																					

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

Printed Name & Title

Micki Schultz
Environmental Specialist

Date

10/3/2014

Phone Number

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 11/2014																						
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210												6 Page 1																						
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.			8 C O D E 1		9 Volume		10 Pressure		11 C O D E 2		12 Barrels of Oil/condensate produced		13 Barrels of water produced		14 MCF Gas Produced		15 Days Produced		16 C O D E 3		17 Point of Disposition		18 Gas BTU or Oil API Gravity		19 Oil on hand at beginning of month		20 Volume (Bbls/mcf)		21 Transporter Ogrid		22 C O D E 4		23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN																																		
023592 WDW			D		125,348		1,355		W																									
30-015-27592			D		118,739		1,353		W																									
30-015-20894																																		
78890 ILLINOIS CAMP-MORROW NORTH																																		
023592 WDW #003			D		127,146		1,342		W																									
30-015-26575																																		

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

12/3/2014

Printed Name & Title

Phone Number

Micki Schultz

Environmental Specialist

575-748-3311

2 Operator NAVAJO REFINING CO										3 OGRID: 15694		4 Month/Year 12/2014						
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210										6 Page 1								
INJECTION										PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER				
7 POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1	9 Volume		10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN 023592 WDW 30-015-27592 30-015-20894		D	125,975	1,345	W													
		D	114,106	1,347	W													
78890 ILLINOIS CAMP-MORROW NORTH 023592 WDW #003 30-015-26575		D	120,224	1,340	W													

I hereby certify that the information contained in this report is true and complete to the best of my knowledge.

24

Signature

1/15/2015

Printed Name & Title

11/15/2015

Micki Schultz
Environmental Specialist

Phone Number

575-748-3311

Date

**B.2 Treated Wastewater to Artesia
POTW**



July 7, 2014

Honorable Phil Burch
Mayor, City of Artesia
PO Box 1310
Artesia, NM 88211-1310

Certified Mail/Return Receipt
7007 3020 0000 3028 8208

**RE: Spring 2014 Report – Artesia –
Navajo Refining Co. LLC
Effluent Pre-Treatment Standards (40-CFR-419.27)**

Dear Mayor Burch:

Enclosed are the results from our Spring 2014 sampling of the effluent stream from Navajo's Wastewater Plant to the City of Artesia's Publicly Owned Treatment Works (POTW). The sampling is required by the federal pre-treatment regulations (40-CFR-419.27).

The following table shows the results of oil and grease, ammonia (as N) and total chromium. We are well under the limits. The attached analyses were done by ALS Laboratory Group of Houston, Texas.

	<u>Detected (mg/L)</u>	<u>Standard (mg/L)</u>
Oil & Grease	ND	100
Ammonia (as N)	3.90	100
Chromium, Total	0.0075	1

If you have any questions, please contact me by e-mail at dan.crawford@hollyfrontier.com or by phone at 575-746-5487.

Regards,

Dan Crawford, P.G.
Environmental Manager

Attachment: ALS Analysis

Cc: Lee Bohme USEPA

Env. File: Effluent Pre-Treatment Standards.Artesia.2014.2014-07-07 Spring 2014 Report

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

May 08, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: POTW SEMI ANNUAL

Enclosed are the results of analyses for samples received by the laboratory on 04/29/14 8:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Caley D. Keene
Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: POTW SEMI ANNUAL
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
08-May-14 14:07

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW SEMI ANNUAL	H401270-01	Wastewater	28-Apr-14 07:35	29-Apr-14 08:15

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: POTW SEMI ANNUAL
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
08-May-14 14:07**POTW SEMI ANNUAL
H401270-01 (Wastewater)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories**Inorganic Compounds**

Ammonia	3.90		0.125	mg/L	2.5	4020601	AP	08-May-14	350.1	
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Green Analytical Laboratories**General Chemistry**

Oil & Grease (HEM)	ND		5.00	mg/L	1	B405041	ACH	06-May-14	EPA1664-A	Q2
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Total Recoverable Metals by ICPMS (E200.8)

Chromium*	0.0075		0.0010	mg/L	1	B405036	JGS	06-May-14	EPA200.8	
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Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 HOLLYFRONTIER NAVAJO REFINING
 501 EAST MAIN STREET
 ARTESIA NM, 88210

 Project: POTW SEMI ANNUAL
 Project Number: NONE GIVEN
 Project Manager: MIKE HOLDER
 Fax To: NONE

 Reported:
 08-May-14 14:07

Inorganic Compounds - Quality Control
Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD Limit	Notes
Batch 4020601 - General Prep - Wet Chem								
Blank (4020601-BLK1)				Prepared & Analyzed: 06-Feb-14				
Ammonia	ND	0.0500	mg/L					
LCS (4020601-BS1)				Prepared & Analyzed: 06-Feb-14				
Ammonia	1.80	0.0500	mg/L	2.00		90.0 80-120		
Duplicate (4020601-DUP1)				Source: H303050-01 Prepared & Analyzed: 06-Feb-14				
Ammonia	1.10	0.0500	mg/L	1.12			1.80 20	

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210

Project: POTW SEMI ANNUAL
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONE

Reported:
08-May-14 14:07

General Chemistry - Quality Control
Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B405041 - General Prep - Wet Chem										
Blank (B405041-BLK1)										
Oil & Grease (HEM)	ND	5.00	mg/L							Prepared: 05-May-14 Analyzed: 06-May-14
LCS (B405041-BS1)										
Oil & Grease (HEM)	9.40	5.00	mg/L	10.0		94.0	85-115			Prepared: 05-May-14 Analyzed: 06-May-14
LCS Dup (B405041-BSD1)										
Oil & Grease (HEM)	9.40	5.00	mg/L	10.0		94.0	85-115	0.00	20	Prepared: 05-May-14 Analyzed: 06-May-14

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 HOLLYFRONTIER NAVAJO REFINING
 501 EAST MAIN STREET
 ARTESIA NM, 88210

 Project: POTW SEMI ANNUAL
 Project Number: NONE GIVEN
 Project Manager: MIKE HOLDER
 Fax To: NONE

 Reported:
 08-May-14 14:07

Total Recoverable Metals by ICPMS (E200.8) - Quality Control
Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B405036 - EPA 200.2M										
Blank (B405036-BLK1)										
Chromium	ND	0.0010	mg/L							Prepared: 05-May-14 Analyzed: 06-May-14
LCS (B405036-BS1)										
Chromium	0.0476	0.0010	mg/L	0.0500		95.2	85-115			Prepared: 05-May-14 Analyzed: 06-May-14
LCS Dup (B405036-BSD1)										
Chromium	0.0475	0.0010	mg/L	0.0500		95.0	85-115	0.220	20	Prepared: 05-May-14 Analyzed: 06-May-14

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

Q2	Sample not recieved in container specified by the method.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



December 4, 2014

Honorable Phil Burch
Mayor, City of Artesia
PO Box 1310
Artesia, NM 88211-1310

Certified Mail/Return Receipt
7014 1200 0000 1832 3136

**RE: Fall 2014 Report – Artesia –
Navajo Refining Co. LLC
Effluent Pre-Treatment Standards (40-CFR-419.27)**

Dear Mayor Burch:

Enclosed are the results from our Fall 2014 sampling of the effluent stream from Navajo's Wastewater Plant to the City of Artesia's Publicly Owned Treatment Works (POTW). The sampling is required by the federal pre-treatment regulations (40-CFR-419.27).

The following table shows the results of oil and grease, ammonia (as N) and total chromium. We are well under the limits. The attached analyses were done by Cardinal Laboratories of Hobbs, New Mexico.

	<u>Detected (mg/L)</u>	<u>Standard (mg/L)</u>
Oil & Grease	ND	100
Ammonia (as N)	0.100	100
Chromium, Total	0.0032	1

If you have any questions, please contact me by e-mail at Brian.Stone@hollyfrontier.com or by phone at 575-746-5294.

Regards,

Brian Stone, P.E.
Environmental Specialist

Attachment: Cardinal Laboratories Analysis

Cc: Paul Kaspar USEPA

Env. File: Effluent Pre-Treatment Standards.Artesia.2014.2014-12-04 Fall 2014 Report



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

September 18, 2014

MIKE HOLDER

HOLLYFRONTIER NAVAJO REFINING

501 EAST MAIN STREET

ARTESIA, NM 88210

RE: POTW SEMI ANNUAL

Enclosed are the results of analyses for samples received by the laboratory on 09/11/14-12:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/ga/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

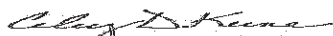
Analytical Results For:HOLLYFRONTIER NAVAJO REFINING
501 EAST MAIN STREET
ARTESIA NM, 88210Project: POTW SEMI ANNUAL
Project Number: NONE GIVEN
Project Manager: MIKE HOLDER
Fax To: NONEReported:
18-Sep-14 15:23

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
POTW SEMI ANNUAL	H402835-01	Wastewater	11-Sep-14 10:55	11-Sep-14 12:15

Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 HOLLYFRONTIER NAVAJO REFINING
 501 EAST MAIN STREET
 ARTESIA NM, 88210

 Project: POTW SEMI ANNUAL
 Project Number: NONE GIVEN
 Project Manager: MIKE HOLDER
 Fax To: NONE

 Reported:
 18-Sep-14 15:23

**POTW SEMI ANNUAL
 H402835-01 (Wastewater)**

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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Cardinal Laboratories
Inorganic Compounds

Ammonia	0.100		0.0500	mg/L	1	4091209	AP	12-Sep-14	350.1	
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Organic Compounds

Oil and Grease	ND		5.00	mg/L	1	4070807	CK	16-Sep-14	413.1	
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Green Analytical Laboratories
Total Recoverable Metals by ICPMS (E200.8)

Chromium*	0.0032		0.0010	mg/L	1	B409142	JGS	17-Sep-14	EPA200.8	
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Cardinal Laboratories

* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 HOLLYFRONTIER NAVAJO REFINING
 501 EAST MAIN STREET
 ARTESIA NM, 88210

 Project: POTW SEMI ANNUAL
 Project Number: NONE GIVEN
 Project Manager: MIKE HOLDER
 Fax To: NONE

 Reported:
 18-Sep-14 15:23

Inorganic Compounds - Quality Control
Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limit	RPD	RPD Limit	Notes
Batch 4091209 - General Prep - Wet Chem										
Blank (4091209-BLK1)				Prepared & Analyzed: 12-Sep-14						
Ammonia	ND	0.0500	mg/L							
LCS (4091209-BS1)				Prepared & Analyzed: 12-Sep-14						
Ammonia	1.75	0.0500	mg/L	2.00		87.5	80-120			
Duplicate (4091209-DUP1)				Prepared & Analyzed: 12-Sep-14						
Source: H402835-01										
Ammonia	0.150	0.0500	mg/L		0.100			40.0	20	QR-03

Cardinal Laboratories

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Caley D. Keene, Lab Director/Quality Manager

Analytical Results For:

 HOLLYFRONTIER NAVAJO REFINING
 501 EAST MAIN STREET
 ARTESIA NM, 88210

 Project: POTW SEMI ANNUAL
 Project Number: NONE GIVEN
 Project Manager: MIKE HOLDER
 Fax To: NONE

 Reported:
 18-Sep-14 15:23

Organic Compounds - Quality Control
Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4070807 - Solvent Extraction
Blank (4070807-BLK1)

Prepared: 01-Jul-14 Analyzed: 02-Jul-14

Oil and Grease ND 5.00 mg/L

LCS (4070807-BS1)

Prepared: 01-Jul-14 Analyzed: 02-Jul-14

Oil and Grease 81.0 5.00 mg/L 100 81.0 70-130

Duplicate (4070807-DUP1)

Source: H401934-01

Prepared: 01-Jul-14 Analyzed: 02-Jul-14

Oil and Grease 143 5.00 mg/L 160 11.2 20

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 HOLLYFRONTIER NAVAJO REFINING
 501 EAST MAIN STREET
 ARTESIA NM, 88210

 Project: POTW SEMI ANNUAL
 Project Number: NONE GIVEN
 Project Manager: MIKE HOLDER
 Fax To: NONE

 Reported:
 18-Sep-14 15:23

Total Recoverable Metals by ICPMS (E200.8) - Quality Control
Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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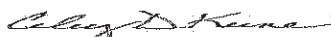
Batch-B409142 - EPA 200.2M

Blank (B409142-BLK1)				Prepared: 12-Sep-14 Analyzed: 17-Sep-14						
Chromium	ND	0.0010	mg/L							
LCS (B409142-BS1)				Prepared: 12-Sep-14 Analyzed: 17-Sep-14						
Chromium	0.0533	0.0010	mg/L	0.0500		107	85-115			
LCS Dup (B409142-BSD1)				Prepared: 12-Sep-14 Analyzed: 17-Sep-14						
Chromium	0.0508	0.0010	mg/L	0.0500		102	85-115	4.71	20	

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

FORN-005
Revision 1.0

Discharge Volume to POTW

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	Total Daily Blowdown Flow Gallons	WWT to POTW GPM	Total Daily Discharge Gallons			
							Total Annual CT blowdown	44,936,053 gallons	1,069,906 barrels
							Total Annual WWTP effluent	915,507 gallons	21,798 barrels
1/1/14	44	43	86	124532	2.7	3888			
1/2/14	43	42	85	121889	2.6	3744			
1/3/14	42	42	84	120887	3.5	5040			
1/4/14	42	42	83	120218	3.3	4752			
1/5/14	40	41	81	116428	4.1	5904			
1/6/14	39	34	73	105195	2.0	2880			
1/7/14	38	23	62	88871	0.8	1152			
1/8/14	38	42	80	114763	0.2	288			
1/9/14	37	41	78	112691	0.2	288			
1/10/14	37	41	78	112845	0.2	288			
1/11/14	36	41	76	109588	0.5	720			
1/12/14	40	43	83	118808	0.5	720			
1/13/14	44	44	88	126492	0.0	0			
1/14/14	43	44	87	125882	0.5	720			
1/15/14	43	44	87	125480	1.2	1728			
1/16/14	49	47	97	139057	1.6	2304			
1/17/14	55	47	101	145648	1.0	1440			
1/18/14	54	45	99	142233	1.2	1728			
1/19/14	56	44	100	144599	1.5	2160			
1/20/14	55	45	100	143494	1.4	2016			
1/21/14	54	45	99	142711	1.3	1872			
1/22/14	55	45	100	144443	1.6	2304			
1/23/14	55	45	100	144290	1.2	1728			
1/24/14	51	41	92	132039	1.7	2448			
1/25/14	53	44	97	139387	1.4	2016			
1/26/14	56	44	99	142974	0.9	1296			
1/27/14	55	43	98	141293	1.1	1584			
1/28/14	56	28	83	120141	0.6	864			
1/29/14	52	49	101	145881	0.0	0			
1/30/14	46	41	87	125127	0.0	0			
1/31/14	53	41	93	134183	1.7	2448			
2/1/14	56	41	97	139842	2.6	3744			
2/2/14	56	41	96	138941	0.0	0			
2/3/14	57	41	98	141038	0.0	0			
2/4/14	50	42	92	132782	0.0	0			
2/5/14	63	42	104	150396	2.1	3024			
2/6/14	45	42	87	125497	0.0	0			
2/7/14	47	43	89	128796	2.6	3744			
2/8/14	53	43	96	138393	0.0	0			
2/9/14	52	41	94	134687	0.0	0			
2/10/14	57	44	101	146033	0.0	0			
2/11/14	47	45	92	132390	0.0	0			
2/12/14	50	44	94	135405	0.0	0			
2/13/14	51	44	95	136121	0.0	0			
2/14/14	47	44	91	130755	0.0	0			
2/15/14	55	43	98	141820	2.7	3888			
2/16/14	55	43	98	140835	3.8	5472			
2/17/14	56	39	96	137887	3.8	5472			
2/18/14	66	35	101	145955	3.7	5328			
2/19/14	63	35	98	140518	4.0	5760			
2/20/14	64	34	98	141280	1.5	2160			
2/21/14	74	33	107	153563	1.4	2016			
2/22/14	70	34	104	150344	0.0	0			
2/23/14	67	37	104	149368	2.2	3168			
2/24/14	75	43	118	169716	2.8	4032			
2/25/14	95	46	141	202391	3.2	4608			
2/26/14	95	45	140	202226	1.4	2016			
2/27/14	71	46	117	168433	4.3	6192			
2/28/14	67	46	113	162007	3.7	5328			
3/1/14	61	45	106	153247	5.6	8064			
3/2/14	95	45	140	201852	5.0	7200			
3/3/14	95	43	138	199423	5.6	8064			
3/4/14	71	42	113	163391	5.9	8496			
3/5/14	95	42	137	197092	2.8	4032			
3/6/14	71	42	112	161766	0.7	1008			
3/7/14	66	42	108	155554	4.4	6336			
3/8/14	95	45	140	201008	0.6	864			
3/9/14	93	45	138	198502	4.9	7056			
3/10/14	66	45	110	159001	4.5	6480			
3/11/14	64	45	109	156566	6	8640			
3/12/14	95	44	139	200745	4.1	5904			
3/13/14	60	44	104	150459	1.2	1728			
3/14/14	54	45	99	142092	3	4320			
3/15/14	66	39	106	152420	0	0			
3/16/14	85	37	122	175355	3.7	5328			
3/17/14	46	44	90	129921	0	0			
3/18/14	52	43	95	137070	2.6	3744			
3/19/14	83	44	127	182289	0	0			
3/20/14	46	44	90	129722	3.3	4752			
3/21/14	43	43	86	124306	5.4	7776			
3/22/14	58	43	101	145145	1.5	2160			
3/23/14	92	43	135	194294	0	0			
3/24/14	48	44	92	132274	0	0			
3/25/14	64	43	107	154159	0	0			

3/26/14	35	42	77	111073	5.4	7776
3/27/14	13	42	54	78469	7.2	10368
3/28/14	37	42	79	113449	6.6	9504
3/29/14	46	43	89	127503	9.5	13680
3/30/14	33	42	75	108702	7.5	10800
3/31/14	33	39	71	102698	4.5	6480
4/1/14	38	38	75	108589	0.6	864
4/2/14	28	37	64	92859	0	0
4/3/14	25	36	62	88770	7.3	10512
4/4/14	53	36	89	128845	9.3	13392
4/5/14	37	14	51	74039	8.2	11808
4/6/14	46	12	58	83205	3.6	5184
4/7/14	56	38	94	135167	0	0
4/8/14	42	38	80	115200	0	0
4/9/14	35	37	72	103680	0	0
4/10/14	16	33	49	70560	0	0
4/11/14	33	32	64	92828	0	0
4/12/14	24	31	55	79427	0	0
4/13/14	5	32	37	53593	0	0
4/14/14	95	31	126	181440	0	0
4/15/14	42	31	73	105120	0	0
4/16/14	32	31	63	90720	0	0
4/17/14	44	30	74	106560	0	0
4/18/14	28	30	58	83520	0	0
4/19/14	17	30	47	67680	0	0
4/20/14	24	30	54	77760	3.8	5472
4/21/14	17	28	45	64800	8.7	12528
4/22/14	0	28	28	40320	9.6	13824
4/23/14	0	24	24	35181	7.8	11232
4/24/14	0	24	24	34438	0	0
4/25/14	2	23	25	35556	0	0
4/26/14	0	13	13	18494	0	0
4/27/14	16	31	46	66251	2	2880
4/28/14	50	46	95	137214	4.6	6624
4/29/14	80	47	128	183719	1.2	1728
4/30/14	79	47	127	182594	3.9	5616
5/1/14	59	48	106	153059	0	0
5/2/14	45	48	92	133140	6.6	9504
5/3/14	28	48	76	109345	2.8	4032
5/4/14	18	48	66	95301	0	0
5/5/14	0	23	24	33990	3.3	4752
5/6/14	4	33	37	53280	0	0
5/7/14	7	32	39	56160	3.8	5472
5/8/14	48	43	91	131040	5.1	7344
5/9/14	45	46	91	131040	0	0
5/10/14	40	46	86	123840	0	0
5/11/14	13	46	59	84960	0	0
5/12/14	53	49	102	146880	0	0
5/13/14	85	47	132	190080	8.8	12672
5/14/14	55	47	102	146880	4.5	6480
5/15/14	37	47	84	120960	4.7	6768
5/16/14	25	48	73	105120	0	0
5/17/14	26	48	74	106560	0	0
5/18/14	14	48	62	89280	5.4	7776
5/19/14	11	48	59	84960	0.6	864
5/20/14	16	48	64	92160	0	0
5/21/14	19	48	67	96480	0	0
5/22/14	33	48	81	116640	3.4	4896
5/23/14	58	47	106	152168	13.4	19296
5/24/14	66	48	114	163928	9.7	13968
5/25/14	47	48	95	136721	6.1	8784
5/26/14	51	45	97	138970	0	0
5/27/14	38	43	81	116640	0	0
5/28/14	23	44	67	96480	0	0
5/29/14	26	43	69	99360	0	0
5/30/14	20	43	63	90720	2.2	3168
5/31/14	29	44	73	105120	3.1	4464
6/1/14	14	43	57	82080	6.6	9504
6/2/14	28	45	73	105120	0	0
6/3/14	20	47	67	96480	7.9	11376
6/4/14	28	47	75	108000	8.9	12816
6/5/14	30	47	77	110880	9.9	14256
6/6/14	34	47	81	116640	5.5	7920
6/7/14	48	47	95	136800	0	0
6/8/14	80	48	128	184320	0	0
6/9/14	87	48	135	194400	0	0
6/10/14	60	47	107	154080	0	0
6/11/14	45	48	93	133920	7.1	10224
6/12/14	49	47	96	138240	7.7	11088
6/13/14	37	48	85	121986	6.8	9792
6/14/14	17	48	64	92699	10.1	14544
6/15/14	24	46	70	100764	10.6	15264
6/16/14	38	44	82	118080	11.5	16560
6/17/14	49	44	93	133920	11.4	16416
6/18/14	58	49	107	154080	2	2880
6/19/14	69	55	124	178560	0	0
6/20/14	48	46	95	136129	10.7	15408
6/21/14	52	46	98	141001	10.4	14976
6/22/14	40	46	86	123429	4.1	5904
6/23/14	67	46	113	162720	5.5	7920

6/24/14	72	50	122	175680	0	0
6/25/14	60	46	106	152024	0	0
6/26/14	41	46	87	125112	0	0
6/27/14	22	45	67	96861	0	0
6/28/14	28	43	71	101832	0	0
6/29/14	30	41	71	101813	0	0
6/30/14	52	42	95	136360	0	0
7/1/14	95	46	141	203091	0	0
7/2/14	95	44	139	200380	0	0
7/3/14	87	42	129	186344	0	0
7/4/14	70	41	111	159599	0	0
7/5/14	59	39	98	141482	0	0
7/6/14	92	40	132	190788	0	0
7/7/14	62	39	101	145440	0	0
7/8/14	43	36	79	113760	0	0
7/9/14	0	31	31	44923	0	0
7/10/14	0	31	31	45141	0	0
7/11/14	0	31	31	44965	0	0
7/12/14	0	31	31	44110	0	0
7/13/14	1	29	29	42478	0	0
7/14/14	14	28	42	60480	0	0
7/15/14	34	28	62	89280	0	0
7/16/14	25	26	51	73440	0	0
7/17/14	9	24	33	47520	0	0
7/18/14	17	26	43	61920	0	0
7/19/14	4	27	31	44640	0	0
7/20/14	29	23	52	74880	0	0
7/21/14	48	26	74	106560	0	0
7/22/14	95	29	124	178560	0	0
7/23/14	95	30	125	180000	0	0
7/24/14	94	30	124	178560	0	0
7/25/14	87	29	116	167273	0	0
7/26/14	82	27	110	157858	0	0
7/27/14	95	20	115	165925	0	0
7/28/14	89	22	111	159840	0	0
7/29/14	91	24	115	165600	0	0
7/30/14	91	23	114	164160	0	0
7/31/14	95	23	118	169920	0	0
8/1/14	95	23	118	169920	0	0
8/2/14	92	20	112	161280	0	0
8/3/14	71	18	89	128160	0	0
8/4/14	48	18	66	95040	0	0
8/5/14	49	18	67	96480	0	0
8/6/14	46	19	65	93600	0	0
8/7/14	64	22	86	123840	0	0
8/8/14	79	23	102	146344	0	0
8/9/14	79	22	101	145430	0	0
8/10/14	72	22	94	135964	0	0
8/11/14	80	20	100	144000	0	0
8/12/14	63	19	82	118080	0	0
8/13/14	42	18	60	86400	0	0
8/14/14	52	18	70	100800	0	0
8/15/14	59	17	76	109440	0	0
8/16/14	62	17	79	113760	0	0
8/17/14	55	15	70	100800	0	0
8/18/14	45	9	54	77760	0	0
8/19/14	36	8	44	63360	0	0
8/20/14	39	9	48	69120	0	0
8/21/14	62	24	86	123840	0	0
8/22/14	88	41	129	185760	0	0
8/23/14	53	45	98	141120	0	0
8/24/14	42	49	91	131040	0	0
8/25/14	66	49	115	165600	0	0
8/26/14	74	49	123	177120	0	0
8/27/14	78	49	127	182880	0	0
8/28/14	55	49	104	149760	0	0
8/29/14	62	49	111	159840	0	0
8/30/14	43	49	92	132480	0	0
8/31/14	37	49	86	123840	0	0
9/1/14	27	49	76	109440	0	0
9/2/14	33	49	82	118080	0	0
9/3/14	22	49	71	102240	0	0
9/4/14	33	49	82	118080	0	0
9/5/14	76	49	125	180000	0	0
9/6/14	95	49	144	207360	0	0
9/7/14	88	49	137	197280	0	0
9/8/14	40	49	89	128160	0	0
9/9/14	24	49	73	105120	0	0
9/10/14	27	49	76	109440	0	0
9/11/14	47	49	96	138240	0	0
9/12/14	88	48	136	195840	0	0
9/13/14	94	48	142	204480	0	0
9/14/14	79	48	127	182880	0	0
9/15/14	43	49	92	132480	0	0
9/16/14	34	49	83	119520	0	0
9/17/14	34	49	83	119520	0	0
9/18/14	35	49	84	120960	0	0
9/19/14	55	49	104	149558	0	0
9/20/14	38	49	86	124417	0	0
9/21/14	56	49	104	149950	0	0

9/22/14	64	48	112	161913	0	0
9/23/14	33	48	82	117718	0	0
9/24/14	37	48	85	122905	0	0
9/25/14	41	48	89	128880	0	0
9/26/14	33	48	81	117354	0	0
9/27/14	26	48	74	107098	0	0
9/28/14	18	48	66	94830	0	0
9/29/14	13	48	62	89108	0	0
9/30/14	19	48	67	96719	0	0
10/1/14	36	48	84	120666	0	0
10/2/14	36	48	85	121770	0	0
10/3/14	52	48	100	144086	0	0
10/4/14	37	48	85	122656	0	0
10/5/14	41	48	89	127658	0	0
10/6/14	43	47	90	129600	0	0
10/7/14	37	47	84	120960	0	0
10/8/14	37	47	84	120960	1.3	1872
10/9/14	9	47	56	80640	1.3	1872
10/10/14	77	51	128	184320	2.5	3600
10/11/14	54	48	102	146880	3	4320
10/12/14	13	48	61	87840	2.8	4032
10/13/14	39	49	88	126720	3	4320
10/14/14	42	49	91	131040	2.6	3744
10/15/14	41	49	90	129600	2.7	3888
10/16/14	36	49	85	122400	2.8	4032
10/17/14	31	49	80	115200	2.8	4032
10/18/14	44	46	90	129600	1.6	2304
10/19/14	35	49	84	120960	0	0
10/20/14	29	49	78	112320	0	0
10/21/14	22	49	71	102240	1.6	2304
10/22/14	0	49	49	70560	0.1	144
10/23/14	11	49	60	86400	0	0
10/24/14	26	49	75	108000	0	0
10/25/14	18	49	67	96480	0	0
10/26/14	18	49	67	96480	2.8	4032
10/27/14	6	49	55	79200	2.7	3888
10/28/14	68	49	117	168480	0	0
10/29/14	47	49	96	138240	0	0
10/30/14	49	49	98	141120	0.8	1152
10/31/14	51	49	100	144000	2.8	4032
11/1/14	41	48	89	128160	1.7	2448
11/2/14	23	49	72	103680	1.7	2448
11/3/14	34	47	81	116640	2.8	4032
11/4/14	93	45	138	198720	3	4320
11/5/14	87	45	132	190080	1	1440
11/6/14	70	42	112	161280	0.2	288
11/7/14	49	40	89	128160	2.8	4032
11/8/14	47	44	91	131040	1	1440
11/9/14	34	42	76	109440	0.8	1152
11/10/14	11	42	53	76320	2.3	3312
11/11/14	88	45	133	191520	0	0
11/12/14	95	48	143	205920	2.9	4176
11/13/14	94	39	133	191520	2.6	3744
11/14/14	69	44	113	162720	2.9	4176
11/15/14	45	42	87	125280	3	4320
11/16/14	87	49	136	195840	2.6	3744
11/17/14	77	52	129	185760	2.9	4176
11/18/14	71	45	116	167040	2.8	4032
11/19/14	64	41	105	151200	2.8	4032
11/20/14	46	52	98	141120	3	4320
11/21/14	31	44	75	108000	2.8	4032
11/22/14	29	43	72	103680	2.8	4032
11/23/14	27	45	72	103680	3	4320
11/24/14	27	47	74	106560	0.5	720
11/25/14	33	45	78	112320	2	2880
11/26/14	26	43	69	99360	0.8	1105.65
11/27/14	22	47	69	99360	1.1	1621.35
11/28/14	23	49	72	103680	0.3	460.65
11/29/14	18	43	61	87840	0.9	1240.35
11/30/14	18	44	62	89280	2.8	4023
12/1/14	0	45	45	64800	2.8	4032
12/2/14	11	46	57	82080	0.4	576
12/3/14	24	45	69	99360	0.0	0
12/4/14	95	43	138	198720	0.0	0
12/5/14	86	47	133	191520	0.0	0
12/6/14	33	40	73	105120	0.0	0
12/7/14	0	45	45	64800	2.0	2880
12/8/14	0	47	47	67680	2.8	4032
12/9/14	0	44	44	63360	2.7	3888
12/10/14	0	44	44	63360	1.9	2736
12/11/14	0	43	43	61920	0.8	1152
12/12/14	0	40	40	57600	1.7	2448
12/13/14	0	43	43	61920	3.0	4320
12/14/14	0	39	39	56160	1.2	1728
12/15/14	0	44	44	63360	2.3	3312
12/16/14	0	44	44	63360	2.7	3888
12/17/14	0	40	40	57600	0.9	1296
12/18/14	0	44	44	63360	1.9	2736
12/19/14	0	44	44	63360	0.0	0
12/20/14	0	39	39	56160	0.0	0

12/21/14	0	40	40	57600	2.2	3168
12/22/14	0	49	49	70560	1.9	2736
12/23/14	0	43	43	61920	2.0	2880
12/24/14	0	37	37	53280	3.7	5328
12/25/14	0	45	45	64800	2.6	3744
12/26/14	0	50	50	72000	1.6	2304
12/27/14	0	42	42	60480	2.0	2880
12/28/14	0	37	37	53280	1.0	1440
12/29/14	0	43	43	61920	0.8	1152
12/30/14	0	44	44	63360	2.7	3888
12/31/14	0	80	80	115200	2.6	3744

B.3 RO Reject Discharge Volumes

2014 RO Reject Discharge Volume

128,930,387.8 Gallons (total)

3,069,771.1 Barrels (total)

Timestamp	36FI101.PV	36FI104.PV	Total RO Reject	Total RO Reject	Reject
	GPM	GPM	Discharge	Discharge/Day	Discharge/Day
	SOUTH SKID REJECT FLOW	NORTH SKID REJECT FLOW	GPM	GAL	BBLs
	36FI101.PV - Average	36FI104.PV - Average			
1/1/2014	126.7	126.8	253.5	365098.6	8692.8
1/2/2014	127.6	125.5	253.1	364431.6	8676.9
1/3/2014	127.4	129.8	257.2	370373.7	8818.4
1/4/2014	127.3	125.4	252.7	363936.7	8665.2
1/5/2014	126.3	127.8	254.1	365942.9	8712.9
1/6/2014	126.1	121.1	247.2	355994.9	8476.1
1/7/2014	126.8	119.9	246.7	355187.5	8456.8
1/8/2014	127.1	121.4	248.5	357780.3	8518.6
1/9/2014	127.5	121.8	249.3	358990.0	8547.4
1/10/2014	128.9	127.2	256.1	368848.8	8782.1
1/11/2014	125.9	122.4	248.3	357493.3	8511.7
1/12/2014	126.9	121.7	248.5	357860.8	8520.5
1/13/2014	127.1	121.8	248.8	358289.0	8530.7
1/14/2014	126.1	116.6	242.7	349492.3	8321.2
1/15/2014	124.6	117.4	242.0	348414.4	8295.6
1/16/2014	125.3	116.1	241.4	347631.8	8276.9
1/17/2014	124.3	117.5	241.9	348296.5	8292.8
1/18/2014	125.4	117.7	243.0	349966.7	8332.5
1/19/2014	124.5	120.0	244.5	352028.2	8381.6
1/20/2014	124.6	111.4	236.0	339793.6	8090.3
1/21/2014	124.5	114.6	239.1	344261.6	8196.7
1/22/2014	125.2	112.7	237.9	342613.2	8157.5
1/23/2014	124.8	113.4	238.2	343031.2	8167.4
1/24/2014	125.2	122.8	248.0	357141.7	8503.4
1/25/2014	123.4	116.9	240.3	346066.7	8239.7
1/26/2014	127.9	127.3	255.2	367497.0	8749.9
1/27/2014	128.0	129.5	257.5	370792.9	8828.4
1/28/2014	125.3	116.9	242.2	348734.5	8303.2
1/29/2014	125.4	117.7	243.1	350031.2	8334.1
1/30/2014	123.6	118.8	242.4	349030.0	8310.2
1/31/2014	122.1	125.9	248.0	357130.4	8503.1
2/1/2014	122.0	119.1	241.1	347157.6	8265.7
2/2/2014	121.0	119.6	240.5	346385.5	8247.3
2/3/2014	121.6	119.3	240.9	346882.8	8259.1
2/4/2014	121.9	120.6	242.5	349170.5	8313.6
2/5/2014	123.8	121.6	245.4	353362.8	8413.4
2/6/2014	121.3	117.6	238.8	343912.9	8188.4
2/7/2014	121.7	118.4	240.1	345687.6	8230.7
2/8/2014	121.8	120.9	242.7	349511.4	8321.7
2/9/2014	122.0	118.9	240.9	346863.3	8258.6
2/10/2014	122.9	117.5	240.5	346287.3	8244.9
2/11/2014	125.0	119.3	244.3	351780.8	8375.7
2/12/2014	125.3	119.0	244.3	351751.8	8375.0
2/13/2014	125.3	116.8	242.2	348713.9	8302.7
2/14/2014	124.2	117.0	241.2	347395.4	8271.3
2/15/2014	122.3	104.0	226.3	325859.5	7758.6
2/16/2014	122.1	105.4	227.5	327582.8	7799.6
2/17/2014	124.7	104.2	228.9	329654.0	7848.9
2/18/2014	122.5	103.9	226.4	326075.8	7763.7
2/19/2014	123.4	103.5	226.9	326670.2	7777.9
2/20/2014	122.0	100.9	222.9	321023.6	7643.4
2/21/2014	99.1	99.3	198.4	285722.7	6802.9
2/22/2014	95.4	99.7	195.2	281032.5	6691.3
2/23/2014	95.9	100.2	196.0	282309.5	6721.7
2/24/2014	94.6	100.2	194.9	280615.8	6681.3
2/25/2014	96.9	99.3	196.2	282498.4	6726.2
2/26/2014	95.6	99.7	195.3	281238.1	6696.1
2/27/2014	98.5	99.7	198.1	285312.8	6793.2
2/28/2014	99.1	99.8	198.8	286295.7	6816.6
3/1/2014	97.2	99.3	196.5	282981.3	6737.6
3/2/2014	96.1	99.1	195.2	281080.0	6692.4

2014 RO Reject Discharge Volume

128,930,387.8 Gallons (total)

3,069,771.1 Barrels (total)

Timestamp	36FI101.PV	36FI104.PV	Total RO Reject	Total RO Reject	Reject
	GPM	GPM	Discharge	Discharge/Day	Discharge/Day
	SOUTH SKID REJECT FLOW	NORTH SKID REJECT FLOW	GPM	GAL	BBLs
	36FI101.PV - Average	36FI104.PV - Average			
3/3/2014	96.0	96.8	192.8	277573.9	6608.9
3/4/2014	92.9	77.1	170.1	244926.3	5831.6
3/5/2014	105.0	98.1	203.1	292511.1	6964.5
3/6/2014	145.2	97.4	242.6	349402.1	8319.1
3/7/2014	145.6	98.2	243.8	351104.4	8359.6
3/8/2014	145.2	97.4	242.6	349296.7	8316.6
3/9/2014	145.4	93.9	239.3	344556.3	8203.7
3/10/2014	145.9	87.5	233.4	336100.6	8002.4
3/11/2014	147.5	81.7	229.2	330073.0	7858.9
3/12/2014	147.4	88.0	235.4	338958.0	8070.4
3/13/2014	148.7	93.3	242.0	348413.3	8295.6
3/14/2014	149.1	94.7	243.8	351036.8	8358.0
3/15/2014	149.4	95.9	245.2	353126.4	8407.8
3/16/2014	147.7	87.7	235.4	339019.0	8071.9
3/17/2014	148.5	69.9	218.4	314529.7	7488.8
3/18/2014	147.3	85.5	232.8	335270.7	7982.6
3/19/2014	107.3	64.7	172.1	247788.6	5899.7
3/20/2014	107.9	46.0	153.9	221582.5	5275.8
3/21/2014	78.8	87.9	166.7	239979.4	5713.8
3/22/2014	152.0	81.5	233.5	336180.7	8004.3
3/23/2014	153.0	84.4	237.4	341808.1	8138.3
3/24/2014	155.6	75.0	230.6	332027.4	7905.4
3/25/2014	155.2	71.9	227.1	327014.7	7786.1
3/26/2014	155.2	96.9	252.2	363129.3	8645.9
3/27/2014	152.9	95.0	248.0	357051.5	8501.2
3/28/2014	154.5	102.6	257.1	370270.6	8816.0
3/29/2014	154.2	98.1	252.2	363200.6	8647.6
3/30/2014	154.7	83.1	237.8	342398.9	8152.4
3/31/2014	154.1	81.9	236.0	339895.8	8092.8
4/1/2014	153.9	71.6	225.5	324743.9	7732.0
4/2/2014	154.9	76.2	231.1	332780.4	7923.3
4/3/2014	155.4	76.6	232.0	334072.9	7954.1
4/4/2014	151.3	68.3	219.7	316301.2	7531.0
4/5/2014	155.3	80.8	236.1	339972.9	8094.6
4/6/2014	156.9	79.7	236.6	340671.5	8111.2
4/7/2014	156.1	79.9	236.0	339867.0	8092.1
4/8/2014	156.2	80.2	236.3	340328.0	8103.0
4/9/2014	155.7	79.7	235.4	338979.9	8071.0
4/10/2014	156.1	79.2	235.3	338858.2	8068.1
4/11/2014	153.4	77.6	231.0	332616.2	7919.4
4/12/2014	155.0	78.5	233.5	336175.3	8004.2
4/13/2014	155.5	77.8	233.3	335996.5	7999.9
4/14/2014	156.1	77.6	233.6	336433.6	8010.3
4/15/2014	152.6	77.6	230.2	331548.2	7894.0
4/16/2014	158.0	76.6	234.6	337797.0	8042.8
4/17/2014	157.0	75.8	232.8	335229.5	7981.7
4/18/2014	155.1	76.1	231.2	332879.5	7925.7
4/19/2014	154.4	75.9	230.2	331528.8	7893.5
4/20/2014	154.3	76.3	230.5	331944.0	7903.4
4/21/2014	155.1	76.7	231.7	333658.0	7944.2
4/22/2014	156.7	74.5	231.3	333015.2	7928.9
4/23/2014	156.5	76.3	232.8	335168.8	7980.2
4/24/2014	156.3	78.3	234.6	337881.2	8044.8
4/25/2014	153.9	78.7	232.6	334921.8	7974.3
4/26/2014	154.1	79.4	233.5	336174.0	8004.1
4/27/2014	154.6	78.6	233.2	335775.7	7994.7
4/28/2014	154.7	79.5	234.2	337252.3	8029.8
4/29/2014	155.1	74.7	229.7	330840.0	7877.1
4/30/2014	135.3	73.2	208.5	300243.5	7148.7
5/1/2014	161.7	83.6	245.3	353297.6	8411.8
5/2/2014	168.9	97.5	266.3	383511.9	9131.2

2014 RO Reject Discharge Volume

128,930,387.8 Gallons (total)

3,069,771.1 Barrels (total)

Timestamp	36FI101.PV	36FI104.PV	Total RO Reject	Total RO Reject	Reject
	GPM	GPM	Discharge	Discharge/Day	Discharge/Day
	SOUTH SKID REJECT FLOW	NORTH SKID REJECT FLOW	GPM	GAL	BBLs
	36FI101.PV - Average	36FI104.PV - Average			
5/3/2014	167.6	99.3	266.9	384284.0	9149.6
5/4/2014	168.1	99.4	267.5	385130.0	9169.8
5/5/2014	166.9	98.7	265.6	382410.1	9105.0
5/6/2014	167.8	95.7	263.4	379367.9	9032.6
5/7/2014	165.9	98.9	264.9	381394.5	9080.8
5/8/2014	167.9	99.1	267.0	384543.3	9155.8
5/9/2014	166.3	99.1	265.4	382140.6	9098.6
5/10/2014	167.6	98.8	266.4	383588.1	9133.0
5/11/2014	166.5	99.1	265.7	382563.0	9108.6
5/12/2014	166.9	98.7	265.6	382497.1	9107.1
5/13/2014	165.7	99.5	265.2	381893.8	9092.7
5/14/2014	166.6	99.6	266.2	383263.1	9125.3
5/15/2014	167.5	101.3	268.8	387094.7	9216.5
5/16/2014	168.3	100.7	269.0	387398.8	9223.8
5/17/2014	166.4	100.2	266.6	383891.2	9140.3
5/18/2014	168.1	99.8	267.9	385764.3	9184.9
5/19/2014	167.8	100.9	268.6	386848.2	9210.7
5/20/2014	168.4	99.0	267.4	385034.4	9167.5
5/21/2014	166.7	99.1	265.8	382769.9	9113.6
5/22/2014	167.6	100.1	267.8	385588.5	9180.7
5/23/2014	168.0	101.1	269.0	387408.2	9224.0
5/24/2014	168.6	99.5	268.1	386058.7	9191.9
5/25/2014	167.1	99.6	266.7	384093.3	9145.1
5/26/2014	167.9	99.2	267.2	384711.8	9159.8
5/27/2014	166.5	99.8	266.3	383406.2	9128.7
5/28/2014	164.2	101.3	265.6	382398.3	9104.7
5/29/2014	159.5	103.6	263.1	378834.0	9019.9
5/30/2014	159.8	104.1	263.9	380033.2	9048.4
5/31/2014	158.3	102.5	260.8	375564.2	8942.0
6/1/2014	159.9	105.4	265.3	382072.6	9097.0
6/2/2014	158.7	105.9	264.6	380967.6	9070.7
6/3/2014	135.2	99.6	234.8	338045.6	8048.7
6/4/2014	108.6	93.2	201.8	290550.9	6917.9
6/5/2014	108.7	93.0	201.8	290531.5	6917.4
6/6/2014	108.9	92.6	201.4	290078.3	6906.6
6/7/2014	108.4	91.1	199.4	287196.0	6838.0
6/8/2014	108.5	90.8	199.3	286959.7	6832.4
6/9/2014	107.5	89.9	197.3	284170.1	6766.0
6/10/2014	106.3	89.2	195.5	281517.1	6702.8
6/11/2014	109.0	89.9	198.9	286370.4	6818.3
6/12/2014	109.2	90.5	199.6	287487.0	6844.9
6/13/2014	110.8	91.4	202.2	291106.9	6931.1
6/14/2014	110.5	92.0	202.5	291591.4	6942.7
6/15/2014	109.9	91.5	201.4	289953.5	6903.7
6/16/2014	109.4	91.5	200.8	289223.4	6886.3
6/17/2014	109.6	91.3	200.9	289234.5	6886.5
6/18/2014	110.4	92.3	202.7	291840.9	6948.6
6/19/2014	110.6	91.2	201.7	290490.3	6916.4
6/20/2014	111.0	91.9	203.0	292292.6	6959.3
6/21/2014	110.6	91.0	201.6	290342.9	6912.9
6/22/2014	110.2	91.5	201.6	290351.9	6913.1
6/23/2014	109.8	90.6	200.4	288639.0	6872.4
6/24/2014	110.7	92.5	203.2	292605.6	6966.8
6/25/2014	111.3	91.8	203.1	292419.1	6962.4
6/26/2014	110.8	92.3	203.1	292405.5	6962.0
6/27/2014	110.3	91.4	201.7	290441.8	6915.3
6/28/2014	109.8	91.3	201.0	289506.7	6893.0
6/29/2014	110.6	90.8	201.3	289912.4	6902.7
6/30/2014	110.1	90.5	200.6	288851.4	6877.4
7/1/2014	109.3	89.8	199.1	286689.2	6825.9
7/2/2014	110.5	90.3	200.8	289102.0	6883.4

2014 RO Reject Discharge Volume

128,930,387.8 Gallons (total)

3,069,771.1 Barrels (total)

Timestamp	36FI101.PV	36FI104.PV	Total RO Reject	Total RO Reject	Reject
	GPM	GPM	Discharge	Discharge/Day	Discharge/Day
	SOUTH SKID REJECT FLOW	NORTH SKID REJECT FLOW	GPM	GAL	BBLs
	36FI101.PV - Average	36FI104.PV - Average			
7/3/2014	173.0	146.1	319.1	459477.8	10939.9
7/4/2014	122.6	183.6	306.2	440948.3	10498.8
7/5/2014	122.0	181.8	303.8	437408.5	10414.5
7/6/2014	121.0	179.3	300.3	432451.4	10296.5
7/7/2014	119.6	179.8	299.3	431056.7	10263.3
7/8/2014	120.7	178.4	299.1	430659.8	10253.8
7/9/2014	128.0	166.6	294.6	424203.8	10100.1
7/10/2014	131.5	163.0	294.5	424096.4	10097.5
7/11/2014	132.2	162.5	294.8	424473.5	10106.5
7/12/2014	131.3	159.7	291.1	419119.0	9979.0
7/13/2014	130.0	156.0	286.0	411851.0	9806.0
7/14/2014	129.0	155.2	284.1	409136.0	9741.3
7/15/2014	129.7	154.5	284.2	409237.7	9743.8
7/16/2014	130.6	154.9	285.5	411062.9	9787.2
7/17/2014	129.2	153.1	282.4	406610.3	9681.2
7/18/2014	127.1	150.7	277.8	400027.3	9524.5
7/19/2014	128.0	150.0	278.0	400280.9	9530.5
7/20/2014	127.5	148.6	276.1	397600.5	9466.7
7/21/2014	126.6	146.9	273.5	393880.5	9378.1
7/22/2014	126.7	147.0	273.7	394069.7	9382.6
7/23/2014	127.9	148.6	276.5	398136.7	9479.4
7/24/2014	127.3	147.8	275.2	396248.3	9434.5
7/25/2014	132.9	148.0	280.9	404496.1	9630.9
7/26/2014	131.9	146.9	278.8	401536.1	9560.4
7/27/2014	125.9	145.7	271.6	391054.3	9310.8
7/28/2014	126.2	145.3	271.6	391081.9	9311.5
7/29/2014	126.0	145.2	271.2	390471.2	9296.9
7/30/2014	127.1	78.9	206.0	296647.9	7063.0
7/31/2014	125.7	111.8	237.5	341937.8	8141.4
8/1/2014	125.3	110.4	235.7	339354.4	8079.9
8/2/2014	126.1	111.6	237.7	342247.4	8148.7
8/3/2014	125.4	110.7	236.0	339885.5	8092.5
8/4/2014	125.2	109.9	235.2	338619.0	8062.4
8/5/2014	125.6	110.9	236.5	340527.2	8107.8
8/6/2014	126.6	112.7	239.3	344581.6	8204.3
8/7/2014	126.5	112.2	238.7	343742.1	8184.3
8/8/2014	130.5	112.6	243.1	350044.6	8334.4
8/9/2014	130.9	112.0	242.9	349712.0	8326.5
8/10/2014	131.3	112.3	243.6	350794.1	8352.2
8/11/2014	132.0	113.8	245.9	354026.4	8429.2
8/12/2014	132.7	114.3	247.0	355715.7	8469.4
8/13/2014	121.2	111.5	232.8	335196.4	7980.9
8/14/2014	126.6	111.0	237.6	342187.0	8147.3
8/15/2014	129.1	114.3	243.4	350554.1	8346.5
8/16/2014	127.2	110.7	237.9	342583.1	8156.7
8/17/2014	127.2	107.9	235.1	338514.5	8059.9
8/18/2014	128.1	109.5	237.6	342169.2	8146.9
8/19/2014	130.9	113.5	244.4	351866.4	8377.8
8/20/2014	131.6	113.5	245.1	352947.7	8403.5
8/21/2014	134.1	105.6	239.7	345186.7	8218.7
8/22/2014	135.2	95.4	230.6	332067.5	7906.4
8/23/2014	134.1	94.3	228.4	328900.8	7831.0
8/24/2014	135.6	95.6	231.2	332859.7	7925.2
8/25/2014	135.3	96.2	231.5	333295.1	7935.6
8/26/2014	134.4	93.2	227.6	327734.3	7803.2
8/27/2014	134.7	95.3	230.0	331195.4	7885.6
8/28/2014	134.7	93.6	228.3	328775.2	7828.0
8/29/2014	132.0	93.1	225.1	324192.3	7718.9
8/30/2014	131.9	92.5	224.4	323073.5	7692.2
8/31/2014	132.2	93.1	225.3	324470.0	7725.5
9/1/2014	133.3	92.7	226.0	325396.3	7747.5

2014 RO Reject Discharge Volume

128,930,387.8 Gallons (total)

3,069,771.1 Barrels (total)

Timestamp	36FI101.PV	36FI104.PV	Total RO Reject	Total RO Reject	Reject
	GPM	GPM	Discharge	Discharge/Day	Discharge/Day
	SOUTH SKID REJECT FLOW	NORTH SKID REJECT FLOW	GPM	GAL	BBLs
	36FI101.PV - Average	36FI104.PV - Average			
9/2/2014	133.5	93.5	227.0	326810.8	7781.2
9/3/2014	129.5	85.5	215.0	309603.0	7371.5
9/4/2014	116.2	130.2	246.5	354888.1	8449.7
9/5/2014	119.5	132.5	251.9	362795.8	8638.0
9/6/2014	117.9	131.7	249.6	359466.0	8558.7
9/7/2014	118.4	132.8	251.2	361701.3	8611.9
9/8/2014	120.4	130.9	251.4	361965.8	8618.2
9/9/2014	121.0	131.4	252.4	363445.6	8653.5
9/10/2014	120.1	129.4	249.5	359243.5	8553.4
9/11/2014	118.6	126.6	245.2	353114.5	8407.5
9/12/2014	119.3	128.1	247.4	356232.5	8481.7
9/13/2014	117.1	127.9	245.0	352809.5	8400.2
9/14/2014	116.3	128.7	245.0	352790.6	8399.8
9/15/2014	117.4	129.5	246.9	355476.1	8463.7
9/16/2014	119.8	131.6	251.5	362101.8	8621.5
9/17/2014	121.8	133.3	255.0	367256.3	8744.2
9/18/2014	121.8	132.8	254.6	366613.3	8728.9
9/19/2014	121.6	132.8	254.5	366422.6	8724.3
9/20/2014	121.2	132.6	253.8	365541.5	8703.4
9/21/2014	121.7	131.0	252.7	363894.1	8664.1
9/22/2014	123.1	132.9	256.1	368725.6	8779.2
9/23/2014	125.0	136.8	261.8	376927.1	8974.5
9/24/2014	126.6	140.2	266.8	384158.4	9146.6
9/25/2014	126.8	141.2	268.0	385928.8	9188.8
9/26/2014	127.5	141.7	269.2	387606.5	9228.7
9/27/2014	123.0	144.4	267.4	385007.7	9166.8
9/28/2014	117.7	147.1	264.8	381319.4	9079.0
9/29/2014	118.2	147.3	265.6	382449.9	9105.9
9/30/2014	117.7	147.0	264.8	381264.6	9077.7
10/1/2014	117.7	147.9	265.6	382463.3	9106.3
10/2/2014	120.1	147.3	267.4	385042.8	9167.7
10/3/2014	128.2	143.0	271.3	390604.3	9300.1
10/4/2014	127.9	143.1	271.0	390206.3	9290.6
10/5/2014	126.2	142.0	268.2	386198.9	9195.2
10/6/2014	124.7	140.9	265.6	382418.3	9105.2
10/7/2014	126.8	142.1	268.9	387227.0	9219.7
10/8/2014	126.7	121.8	248.5	357847.8	8520.2
10/9/2014	125.5	117.6	243.1	350047.9	8334.5
10/10/2014	127.8	121.0	248.8	358229.7	8529.3
10/11/2014	127.4	120.7	248.0	357185.9	8504.4
10/12/2014	125.6	117.8	243.4	350466.9	8344.4
10/13/2014	129.1	122.2	251.3	361844.8	8615.4
10/14/2014	127.6	121.4	249.0	358607.0	8538.3
10/15/2014	127.4	121.1	248.4	357765.0	8518.2
10/16/2014	126.6	120.2	246.8	355410.5	8462.2
10/17/2014	127.1	119.9	247.0	355744.0	8470.1
10/18/2014	126.7	119.4	246.1	354449.0	8439.3
10/19/2014	126.4	120.3	246.7	355184.8	8456.8
10/20/2014	127.4	120.8	248.2	357372.1	8508.9
10/21/2014	128.0	121.2	249.2	358854.4	8544.2
10/22/2014	127.6	120.4	248.0	357168.9	8504.0
10/23/2014	126.4	119.0	245.5	353448.9	8415.4
10/24/2014	125.8	118.7	244.5	352031.4	8381.7
10/25/2014	127.6	120.8	248.4	357645.7	8515.4
10/26/2014	128.0	121.1	249.0	358615.9	8538.5
10/27/2014	128.0	121.3	249.3	359007.3	8547.8
10/28/2014	128.2	120.3	248.4	357762.0	8518.1
10/29/2014	128.0	119.9	247.9	356997.8	8499.9
10/30/2014	127.5	120.1	247.6	356564.3	8489.6
10/31/2014	128.9	121.2	250.1	360144.1	8574.9
11/1/2014	128.5	121.1	249.5	359350.2	8556.0

2014 RO Reject Discharge Volume

128,930,387.8 Gallons (total)

3,069,771.1 Barrels (total)

Timestamp	36FI101.PV	36FI104.PV	Total RO Reject	Total RO Reject	Reject
	GPM	GPM	Discharge	Discharge/Day	Discharge/Day
	SOUTH SKID REJECT FLOW	NORTH SKID REJECT FLOW	GPM	GAL	BBLs
	36FI101.PV - Average	36FI104.PV - Average			
11/2/2014	128.1	120.7	248.8	358299.9	8531.0
11/3/2014	127.9	120.5	248.4	357724.5	8517.2
11/4/2014	129.7	122.3	252.0	362848.5	8639.3
11/5/2014	129.4	122.6	252.0	362849.3	8639.3
11/6/2014	132.5	123.1	255.7	368156.4	8765.6
11/7/2014	136.3	123.3	259.6	373807.4	8900.2
11/8/2014	137.3	122.5	259.8	374134.4	8908.0
11/9/2014	137.8	121.8	259.6	373881.2	8901.9
11/10/2014	140.2	122.9	263.1	378904.7	9021.5
11/11/2014	139.1	122.3	261.3	376338.4	8960.4
11/12/2014	139.5	122.6	262.0	377323.8	8983.9
11/13/2014	140.7	123.4	264.0	380210.7	9052.6
11/14/2014	139.4	123.4	262.8	378455.9	9010.9
11/15/2014	138.1	122.6	260.7	375388.0	8937.8
11/16/2014	139.2	122.9	262.1	377378.8	8985.2
11/17/2014	138.5	123.1	261.6	376744.1	8970.1
11/18/2014	139.1	123.4	262.5	378014.5	9000.3
11/19/2014	139.5	123.3	262.8	378401.4	9009.6
11/20/2014	139.8	123.4	263.1	378918.4	9021.9
11/21/2014	144.8	122.7	267.5	385228.7	9172.1
11/22/2014	163.0	124.1	287.1	413473.4	9844.6
11/23/2014	162.9	123.5	286.4	412393.6	9818.9
11/24/2014	166.1	125.1	291.2	419363.0	9984.8
11/25/2014	166.3	124.8	291.1	419200.6	9981.0
11/26/2014	168.2	125.5	293.7	422893.0	10068.9
11/27/2014	166.5	124.4	290.9	418894.1	9973.7
11/28/2014	168.3	125.6	293.9	423192.4	10076.0
11/29/2014	168.2	125.3	293.5	422586.2	10061.6
11/30/2014	168.6	125.9	294.5	424054.4	10096.5
12/1/2014	167.6	124.3	292.0	420435.5	10010.4
12/2/2014	167.9	126.1	293.9	423275.0	10078.0
12/3/2014	127.5	124.5	252.0	362842.2	8639.1
12/4/2014	97.6	122.6	220.2	317081.2	7549.6
12/5/2014	97.6	122.7	220.3	317303.0	7554.8
12/6/2014	98.4	122.7	221.1	318329.5	7579.3
12/7/2014	98.5	122.7	221.2	318579.4	7585.2
12/8/2014	99.8	123.2	223.1	321201.4	7647.7
12/9/2014	98.9	122.4	221.3	318644.1	7586.8
12/10/2014	101.1	123.4	224.4	323176.1	7694.7
12/11/2014	100.4	122.7	223.2	321365.0	7651.5
12/12/2014	100.4	122.6	223.0	321168.9	7646.9
12/13/2014	102.2	123.4	225.5	324782.1	7732.9
12/14/2014	107.9	123.3	231.2	332877.1	7925.6
12/15/2014	106.0	122.4	228.4	328884.4	7830.6
12/16/2014	107.0	122.6	229.6	330674.4	7873.2
12/17/2014	108.0	123.6	231.7	333616.7	7943.3
12/18/2014	106.7	122.6	229.3	330195.3	7861.8
12/19/2014	107.2	124.2	231.5	333293.3	7935.6
12/20/2014	108.7	125.9	234.6	337814.2	8043.2
12/21/2014	106.0	124.7	230.7	332255.6	7910.8
12/22/2014	105.6	123.3	228.9	329632.5	7848.4
12/23/2014	106.3	123.6	229.9	330991.6	7880.8
12/24/2014	109.0	125.9	234.9	338294.4	8054.6
12/25/2014	106.3	141.3	247.6	356513.2	8488.4
12/26/2014	107.3	169.9	277.2	399172.7	9504.1
12/27/2014	113.1	165.6	278.7	401362.4	9556.2
12/28/2014	132.1	170.6	302.7	435874.9	10378.0
12/29/2014	131.2	169.9	301.1	433638.1	10324.7
12/30/2014	132.7	170.9	303.6	437205.1	10409.6
12/31/2014	134.3	171.4	305.7	440267.6	10482.6
1/1/2015	130.4	173.0	303.4	436825.7	10400.6



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

July 23, 2014

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

RE: RO Reject Biannual

OrderNo.: 1406952

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/19/2014 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406952

Date Reported: 7/23/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: RO Reject Biannual

Collection Date: 6/19/2014 8:45:00 AM

Lab ID: 1406952-001

Matrix: AQUEOUS

Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Aroclor 1221	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Aroclor 1232	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Aroclor 1242	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Aroclor 1248	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Aroclor 1254	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Aroclor 1260	ND	1.0		µg/L	1	6/23/2014 2:56:46 PM	13828
Surr: Decachlorobiphenyl	62.4	33.2-131		%REC	1	6/23/2014 2:56:46 PM	13828
Surr: Tetrachloro-m-xylene	53.2	34.7-138		%REC	1	6/23/2014 2:56:46 PM	13828
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/24/2014 3:40:24 PM	13837
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/24/2014 3:40:24 PM	13837
Surr: DNOP	104	62.7-145		%REC	1	6/24/2014 3:40:24 PM	13837
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/23/2014 3:05:21 PM	R19452
Surr: BFB	104	70.9-130		%REC	1	6/23/2014 3:05:21 PM	R19452
EPA METHOD 300.0: ANIONS							Analyst: JRR
Fluoride	2.3	2.0		mg/L	20	6/21/2014 12:55:06 AM	R19465
Chloride	36	10		mg/L	20	6/21/2014 12:55:06 AM	R19465
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	6/21/2014 12:42:42 AM	R19465
Nitrogen, Nitrate (As N)	1.2	0.10		mg/L	1	6/21/2014 12:42:42 AM	R19465
Sulfate	1200	25	*	mg/L	50	7/2/2014 5:17:56 AM	R19637
EPA METHOD 7470: MERCURY							Analyst: MMD
Mercury	ND	0.00020		mg/L	1	6/26/2014 9:16:58 AM	13883
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19960
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19960
Benzene	ND	0.50		µg/L	1	6/26/2014	R19960
Toluene	ND	0.50		µg/L	1	6/26/2014	R19960
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	1	6/26/2014	R19960
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19960
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19960
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19960
Acetone	ND	2.5		µg/L	1	6/26/2014	R19960

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406952

Date Reported: 7/23/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: RO Reject Biannual

Collection Date: 6/19/2014 8:45:00 AM

Lab ID: 1406952-001

Matrix: AQUEOUS

Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19960
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19960
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19960
2-Butanone	ND	5.0		µg/L	1	6/26/2014	R19960
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19960
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19960
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19960
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19960
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19960
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19960
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19960
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19960
2-Hexanone	ND	2.5		µg/L	1	6/26/2014	R19960
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Methylene Chloride	ND	0.50		µg/L	1	6/26/2014	R19960
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Styrene	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19960
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19960
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19960
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19960
mp-Xylenes	ND	0.50		µg/L	1	6/26/2014	R19960
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19960
Surr: 1,2-Dichloroethane-d4	105	70-130		%REC	1	6/26/2014	R19960
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19960
Surr: Toluene-d8	99.6	70-130		%REC	1	6/26/2014	R19960
EPA 8270D: SEMIVOLATILES							Analyst: SUB
1,1-Biphenyl	ND	0.50		µg/L	1	7/1/2014	R19987

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 20
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406952

Date Reported: 7/23/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: RO Reject Biannual

Collection Date: 6/19/2014 8:45:00 AM

Lab ID: 1406952-001

Matrix: AQUEOUS

Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES							Analyst: SUB
1-Methylnaphthalene	ND	0.50		µg/L	1	7/1/2014	R19987
2-Methylnaphthalene	ND	0.50		µg/L	1	7/1/2014	R19987
Benzo(a)pyrene	ND	0.50		µg/L	1	7/1/2014	R19987
Naphthalene	ND	0.50		µg/L	1	7/1/2014	R19987
Phenol	ND	0.50		µg/L	1	7/1/2014	R19987
Surr: 2,4,6-Tribromophenol	83.4	53-122		%REC	1	7/1/2014	R19987
Surr: 2-Fluorobiphenyl	89.2	12-116		%REC	1	7/1/2014	R19987
Surr: 2-Fluorophenol	81.4	10-139		%REC	1	7/1/2014	R19987
Surr: Nitrobenzene-d5	96.8	68-118		%REC	1	7/1/2014	R19987
Surr: Phenol-d5	91.2	28-154		%REC	1	7/1/2014	R19987
Surr: Terphenyl-d14	86.5	52-144		%REC	1	7/1/2014	R19987
EPA 9014: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	7/2/2014	R19963
EPA 6020: DISSOLVED METALS							Analyst: SUB
Uranium	0.0034	0.0010		mg/L	1	7/10/2014	R19962
Aluminum	ND	0.10		mg/L	1	7/10/2014	R19962
Arsenic	0.0012	0.0010		mg/L	1	7/10/2014	R19962
Barium	0.045	0.0010		mg/L	1	7/10/2014	R19962
Boron	ND	0.10		mg/L	1	7/10/2014	R19962
Cadmium	ND	0.0010		mg/L	1	7/10/2014	R19962
Calcium	460	1.0		mg/L	1	7/10/2014	R19962
Chromium	0.0016	0.0010		mg/L	1	7/10/2014	R19962
Cobalt	ND	0.0010		mg/L	1	7/10/2014	R19962
Iron	ND	0.10		mg/L	1	7/10/2014	R19962
Lead	ND	0.0010		mg/L	1	7/10/2014	R19962
Manganese	0.0013	0.0010		mg/L	1	7/10/2014	R19962
Molybdenum	0.0084	0.0010		mg/L	1	7/10/2014	R19962
Nickel	0.0013	0.0010		mg/L	1	7/10/2014	R19962
Potassium	1.4	1.0		mg/L	1	7/10/2014	R19962
Selenium	0.0076	0.0010		mg/L	1	7/10/2014	R19962
Silver	ND	0.0010		mg/L	1	7/10/2014	R19962
Sodium	39	0.10		mg/L	1	7/10/2014	R19962
Vanadium	0.0077	0.0010		mg/L	1	7/10/2014	R19962
Zinc	0.21	0.010		mg/L	1	7/10/2014	R19962
EPA 6020: TOTAL METALS							Analyst: SUB
Arsenic	0.0036	0.0010		mg/L	1	7/2/2014	R19961
Barium	0.054	0.010		mg/L	1	7/2/2014	R19961
Cadmium	ND	0.0010		mg/L	1	7/2/2014	R19961

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 3 of 20
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1406952**

Date Reported: 7/23/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: RO Reject Biannual

Collection Date: 6/19/2014 8:45:00 AM

Lab ID: 1406952-001

Matrix: AQUEOUS

Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 6020: TOTAL METALS							Analyst: SUB
Calcium	470	10		mg/L	1	7/2/2014	R19961
Chromium	ND	0.0010		mg/L	1	7/2/2014	R19961
Iron	ND	0.010		mg/L	1	7/2/2014	R19961
Lead	ND	0.0010		mg/L	1	7/2/2014	R19961
Manganese	ND	0.0010		mg/L	1	7/2/2014	R19961
Nickel	0.0016	0.0010		mg/L	1	7/2/2014	R19961
Potassium	1.2	1.0		mg/L	1	7/2/2014	R19961
Selenium	ND	0.010		mg/L	1	7/2/2014	R19961
Sodium	39	1.0		mg/L	1	7/2/2014	R19961
Vanadium	0.0075	0.0010		mg/L	1	7/2/2014	R19961
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.667	0.910		pCi/L	1	7/8/2014	R20034
Radium-226 ±	0.599	0.910		pCi/L	1	7/8/2014	R20034
Radium-228	-0.136	0.850		pCi/L	1	7/8/2014	R20034
Radium-228 ±	0.352	0.850		pCi/L	1	7/8/2014	R20034
SM4500-H+B: PH							Analyst: JRR
pH	7.92	1.68	H	pH units	1	6/23/2014 3:50:31 PM	R19484
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2460	20.0	*	mg/L	1	6/23/2014 12:40:00 PM	13819

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 20
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1406952

Date Reported: 7/23/2014

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: RO Reject Biannual

Collection Date:

Lab ID: 1406952-002

Matrix: TRIP BLANK

Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Methyl isobutyl ketone	ND	2.5		µg/L	1	6/26/2014	R19960
p-isopropyltoluene	ND	0.50		µg/L	1	6/26/2014	R19960
Benzene	ND	0.50		µg/L	1	6/26/2014	R19960
Toluene	ND	0.50		µg/L	1	6/26/2014	R19960
Ethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	1	6/26/2014	R19960
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	6/26/2014	R19960
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	6/26/2014	R19960
Naphthalene	ND	0.50		µg/L	1	6/26/2014	R19960
Acetone	ND	2.5		µg/L	1	6/26/2014	R19960
Bromodichloromethane	ND	0.50		µg/L	1	6/26/2014	R19960
Bromoform	ND	0.50		µg/L	1	6/26/2014	R19960
Bromomethane	ND	0.50		µg/L	1	6/26/2014	R19960
2-Butanone	ND	5.0		µg/L	1	6/26/2014	R19960
Carbon disulfide	ND	0.50		µg/L	1	6/26/2014	R19960
Carbon Tetrachloride	ND	0.50		µg/L	1	6/26/2014	R19960
Chlorobenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Chloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
Chloroform	ND	0.50		µg/L	1	6/26/2014	R19960
Chloromethane	ND	0.50		µg/L	1	6/26/2014	R19960
cis-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19960
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19960
Dibromochloromethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1-Dichloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1-Dichloroethene	ND	0.50		µg/L	1	6/26/2014	R19960
1,2-Dichloropropane	ND	0.50		µg/L	1	6/26/2014	R19960
2-Hexanone	ND	2.5		µg/L	1	6/26/2014	R19960
Isopropylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Methylene Chloride	ND	0.50		µg/L	1	6/26/2014	R19960
n-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
n-Propylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
sec-Butylbenzene	ND	0.50		µg/L	1	6/26/2014	R19960
Styrene	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,1,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	6/26/2014	R19960
trans-1,2-DCE	ND	0.50		µg/L	1	6/26/2014	R19960

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 5 of 20
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1406952**

Date Reported: 7/23/2014

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: RO Reject Biannual

Collection Date:

Lab ID: 1406952-002

Matrix: TRIP BLANK

Received Date: 6/19/2014 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,1-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
1,1,2-Trichloroethane	ND	0.50		µg/L	1	6/26/2014	R19960
Trichloroethene (TCE)	ND	0.50		µg/L	1	6/26/2014	R19960
Vinyl chloride	ND	0.50		µg/L	1	6/26/2014	R19960
mp-Xylenes	ND	0.50		µg/L	1	6/26/2014	R19960
o-Xylene	ND	0.50		µg/L	1	6/26/2014	R19960
Surr: 1,2-Dichloroethane-d4	106	70-130		%REC	1	6/26/2014	R19960
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/26/2014	R19960
Surr: Toluene-d8	98.8	70-130		%REC	1	6/26/2014	R19960

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 20
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R19637	RunNo:	19637					
Prep Date:		Analysis Date:	7/1/2014	SeqNo:	569566	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R19637	RunNo:	19637					
Prep Date:		Analysis Date:	7/1/2014	SeqNo:	569567	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.4	0.50	10.00	0	93.7	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	LCS-13837		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 13837		RunNo: 19466					
Prep Date:	6/23/2014		Analysis Date: 6/24/2014		SeqNo: 563499		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	117	78.6	146			
Surr: DNOP	0.55		0.5000		109	62.7	145			

Sample ID	LCSD-13837		SampType: LCSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSS02		Batch ID: 13837		RunNo: 19466					
Prep Date:	6/23/2014		Analysis Date: 6/24/2014		SeqNo: 563501		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	109	78.6	146	7.80	26.5	
Surr: DNOP	0.50		0.5000		101	62.7	145	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: R19452		RunNo: 19452					
Prep Date:			Analysis Date: 6/23/2014		SeqNo: 562717		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		102	70.9	130			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R19452		RunNo: 19452					
Prep Date:			Analysis Date: 6/23/2014		SeqNo: 562718		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	107	80	120			
Surr: BFB	22		20.00		108	70.9	130			

Sample ID	1406952-001BMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	RO Reject		Batch ID: R19452		RunNo: 19452					
Prep Date:			Analysis Date: 6/23/2014		SeqNo: 562727		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.55	0.050	0.5000	0	111	79	121			
Surr: BFB	22		20.00		109	70.9	130			

Sample ID	1406952-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	RO Reject		Batch ID: R19452		RunNo: 19452					
Prep Date:			Analysis Date: 6/23/2014		SeqNo: 562728		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	105	79	121	5.68	20	
Surr: BFB	22		20.00		110	70.9	130	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-13828		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 13828		RunNo: 19446					
Prep Date:	6/23/2014		Analysis Date: 6/23/2014		SeqNo: 562489		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.1		2.500		84.0	33.2	131			
Surr: Tetrachloro-m-xylene	1.8		2.500		73.6	34.7	138			

Sample ID	LCS-13828		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 13828		RunNo: 19446					
Prep Date:	6/23/2014		Analysis Date: 6/23/2014		SeqNo: 562491		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	61.8	15	134			
Aroclor 1260	3.8	1.0	5.000	0	76.0	32.1	148			
Surr: Decachlorobiphenyl	2.0		2.500		79.2	33.2	131			
Surr: Tetrachloro-m-xylene	1.8		2.500		74.0	34.7	138			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-R19960		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW		Batch ID: R19960		RunNo: 19960					
Prep Date:			Analysis Date: 6/26/2014		SeqNo: 580732		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl isobutyl ketone	ND	2.5								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
2-Butanone	ND	2.5								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	0.50								
Styrene	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	LCS-R19960			SampType: LCS		TestCode: EPA Method 8260B: VOLATILES				
Client ID:	LCSW			Batch ID: R19960		RunNo: 19960				
Prep Date:	Analysis Date: 6/26/2014			SeqNo: 580733		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.6	0.50	10.00	0	95.5	80	120			
Toluene	9.8	0.50	10.00	0	98.2	80	120			
Ethylbenzene	10	0.50	10.00	0	99.9	80	120			
Chlorobenzene	9.8	0.50	10.00	0	97.5	80	120			
1,1-Dichloroethene	9.5	0.50	10.00	0	94.9	80	120			
Tetrachloroethene (PCE)	9.9	0.50	10.00	0	98.9	80	120			
Trichloroethene (TCE)	9.9	0.50	10.00	0	98.8	80	120			
o-Xylene	10	0.50	10.00	0	102	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-R19987		SampType: MBLK		TestCode: EPA 8270D: Semivolatiles					
Client ID:	PBW		Batch ID: R19987		RunNo: 19987					
Prep Date:			Analysis Date: 7/1/2014		SeqNo: 580823		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2-Methylnaphthalene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Naphthalene	ND	0.50								
Phenol	ND	0.50								

Sample ID	LCS-R19987		SampType: LCS		TestCode: EPA 8270D: Semivolatiles					
Client ID:	LCSW		Batch ID: R19987		RunNo: 19987					
Prep Date:			Analysis Date: 7/1/2014		SeqNo: 580824		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylnaphthalene	5.2	0.50	5.000	0	104	56	128			
Phenol	6.3	0.50	5.000	0	126	45	134			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-R19963		SampType:	MBLK		TestCode:	EPA 9014: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R19963		RunNo:	19963				
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	579949		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R19963		SampType: LCS		TestCode: EPA 9014: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R19963		RunNo: 19963					
Prep Date:			Analysis Date: 7/2/2014		SeqNo: 579950		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-13883		SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW		Batch ID:	13883		RunNo:	19515				
Prep Date:	6/25/2014		Analysis Date:	6/26/2014		SeqNo:	564933		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-13883		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 13883		RunNo: 19515					
Prep Date:	6/25/2014		Analysis Date: 6/26/2014		SeqNo: 564934		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.4	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-R19962		SampType:	MBLK		TestCode:	EPA 6020: Dissolved Metals			
Client ID:	PBW		Batch ID:	R19962		RunNo:	19962			
Prep Date:			Analysis Date:	7/10/2014		SeqNo:	580889		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.10								
Arsenic	ND	0.0010								
Barium	ND	0.0010								
Boron	ND	0.10								
Cadmium	ND	0.0010								
Calcium	ND	1.0								
Chromium	ND	0.0010								
Cobalt	ND	0.0010								
Iron	ND	0.10								
Lead	ND	0.0010								
Manganese	ND	0.0010								
Molybdenum	ND	0.0010								
Nickel	ND	0.0010								
Potassium	ND	1.0								
Selenium	ND	0.0010								
Silver	ND	0.0010								
Sodium	ND	0.10								
Uranium	ND	0.0010								
Vanadium	ND	0.0010								
Zinc	ND	0.010								

Sample ID	LCS-R19962		SampType:	LCS		TestCode:	EPA 6020: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R19962		RunNo:	19962			
Prep Date:			Analysis Date:	7/10/2014		SeqNo:	580890		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.20	0.10	0.2000	0	98.5	80	120			
Arsenic	0.050	0.0010	0.05000	0	101	80	120			
Barium	0.050	0.0010	0.05000	0	99.0	80	120			
Boron	0.050	0.050	0.05000	0	100	80	120			
Cadmium	0.050	0.0010	0.05000	0	101	80	120			
Calcium	10	1.0	10.00	0	104	80	120			
Chromium	0.046	0.0010	0.05000	0	92.6	80	120			
Cobalt	0.048	0.0010	0.05000	0	96.0	80	120			
Iron	0.19	0.10	0.2000	0	95.5	80	120			
Lead	0.051	0.0010	0.05000	0	101	80	120			
Manganese	0.045	0.0010	0.05000	0	90.6	80	120			
Molybdenum	0.048	0.0010	0.05000	0	97.0	80	120			
Nickel	0.047	0.0010	0.05000	0	93.8	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	LCS-R19962		SampType: LCS			TestCode: EPA 6020: Dissolved Metals				
Client ID:	LCSW		Batch ID: R19962			RunNo: 19962				
Prep Date:			Analysis Date: 7/10/2014			SeqNo: 580890		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	10	1.0	10.00	0	105	80	120			
Selenium	0.050	0.0010	0.05000	0	99.8	80	120			
Silver	0.049	0.0010	0.05000	0	98.6	80	120			
Sodium	10	0.10	10.00	0	105	80	120			
Uranium	0.048	0.0010	0.05000	0	95.4	80	120			
Vanadium	0.047	0.0010	0.05000	0	94.6	80	120			
Zinc	0.050	0.010	0.05000	0	100	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-R19961		SampType:	MBLK		TestCode:	EPA 6020: Total Metals			
Client ID:	PBW		Batch ID:	R19961		RunNo:	19961			
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	579946		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Barium	ND	0.0010								
Cadmium	ND	0.0010								
Calcium	ND	0.10								
Chromium	ND	0.0010								
Iron	ND	0.010								
Lead	ND	0.0010								
Manganese	ND	0.0010								
Nickel	ND	0.0010								
Potassium	ND	0.10								
Selenium	ND	0.0010								
Sodium	ND	0.10								
Vanadium	ND	0.0010								

Sample ID	LCS-R19961		SampType:	LCS		TestCode:	EPA 6020: Total Metals			
Client ID:	LCSW		Batch ID:	R19961		RunNo:	19961			
Prep Date:			Analysis Date:	7/2/2014		SeqNo:	579947		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.051		0.05000	0	102	80	120			
Barium	0.052		0.05000	0	104	80	120			
Cadmium	0.053		0.05000	0	106	80	120			
Calcium	9.6		10.00	0	96.5	80	120			
Chromium	0.048		0.05000	0	95.6	80	120			
Iron	0.19		0.2000	0	95.5	80	120			
Lead	0.051		0.05000	0	102	80	120			
Manganese	0.048		0.05000	0	96.2	80	120			
Nickel	0.048		0.05000	0	96.4	80	120			
Potassium	9.6		10.00	0	95.8	80	120			
Selenium	0.050		0.05000	0	99.6	80	120			
Sodium	9.7		10.00	0	97.3	80	120			
Vanadium	0.050		0.05000	0	99.4	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-R20034		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R20034		RunNo:	20034			
Prep Date:			Analysis Date:	7/8/2014		SeqNo:	582232	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-0.228	0.945								
Radium-226 ±	0.511	0.945								
Radium-228	0.00147	0.771								
Radium-228 ±	0.330	0.771								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1406952

24-Jul-14

Client: Navajo Refining Company

Project: RO Reject Biannual

Sample ID	MB-13819		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	13819		RunNo:	19434				
Prep Date:	6/20/2014		Analysis Date:	6/23/2014		SeqNo:	562122		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-13819		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	13819		RunNo:	19434				
Prep Date:	6/20/2014		Analysis Date:	6/23/2014		SeqNo:	562123		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1020	20.0	1000	0	102	80	120				

Qualifiers:

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

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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1406952

RcptNo: 1

Received by/date:

Logged By: Lindsay Mangin

6/19/2014 2:35:00 PM

Completed By: Lindsay Mangin

6/20/2014 7:35:39 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA

5. Were all samples received at a temperature of >0° C to 6.0°C

Yes ☒

No ☐

NA

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

Yes ☒

No ☐

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

Yes ☒

No ☐

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

Yes ☒

No ☒

9. Was preservative added to bottles?

Yes ☒

No ☒

NA

10. VOA vials have zero headspace?

Yes ☒

No ☒

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

Special Handling (if applicable)

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

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			



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

December 15, 2014

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

RE: Biannual RO Reject

OrderNo.: 1411289

Dear Dan Crawford:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/7/2014 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1411289

Date Reported: 12/15/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: Biannual RO Reject

Collection Date: 11/6/2014 10:00:00 AM

Lab ID: 1411289-001

Matrix: AQUEOUS

Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Aroclor 1221	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Aroclor 1232	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Aroclor 1242	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Aroclor 1248	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Aroclor 1254	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Aroclor 1260	ND	1.0		µg/L	1	11/21/2014 10:03:39 AM	16369
Surr: Decachlorobiphenyl	74.4	26.3-122		%REC	1	11/21/2014 10:03:39 AM	16369
Surr: Tetrachloro-m-xylene	56.8	33.8-120		%REC	1	11/21/2014 10:03:39 AM	16369
EPA METHOD 8015D: DIESEL RANGE							Analyst: BCN
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/8/2014 7:37:40 PM	16290
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/8/2014 7:37:40 PM	16290
Surr: DNOP	121	59-141		%REC	1	11/8/2014 7:37:40 PM	16290
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/10/2014 7:20:31 PM	R22439
Surr: BFB	92.0	80-120		%REC	1	11/10/2014 7:20:31 PM	R22439
EPA METHOD 300.0: ANIONS							Analyst: Igp
Fluoride	2.9	2.0		mg/L	20	11/8/2014 12:29:25 AM	R22427
Chloride	42	10		mg/L	20	11/19/2014 12:26:57 AM	R22629
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	11/8/2014 12:17:01 AM	R22427
Nitrogen, Nitrate (As N)	0.57	0.10		mg/L	1	11/8/2014 12:17:01 AM	R22427
Sulfate	1400	25	*	mg/L	50	11/19/2014 8:10:23 PM	R22657
EPA METHOD 7470: MERCURY							Analyst: MMD
Mercury	ND	0.00020		mg/L	1	11/13/2014 11:07:04 AM	16357
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/18/2014	R23124
p-isopropyltoluene	ND	0.50		µg/L	1	11/18/2014	R23124
Benzene	ND	0.50		µg/L	1	11/18/2014	R23124
Toluene	ND	0.50		µg/L	1	11/18/2014	R23124
Ethylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	1	11/18/2014	R23124
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/18/2014	R23124
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/18/2014	R23124
Naphthalene	ND	0.50		µg/L	1	11/18/2014	R23124
Acetone	5.1	2.5		µg/L	1	11/18/2014	R23124

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1411289

Date Reported: 12/15/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: Biannual RO Reject

Collection Date: 11/6/2014 10:00:00 AM

Lab ID: 1411289-001

Matrix: AQUEOUS

Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Bromodichloromethane	1.0	0.50		µg/L	1	11/18/2014	R23124
Bromoform	1.3	0.50		µg/L	1	11/18/2014	R23124
Bromomethane	ND	0.50		µg/L	1	11/18/2014	R23124
2-Butanone	ND	5.0		µg/L	1	11/18/2014	R23124
Carbon disulfide	ND	0.50		µg/L	1	11/18/2014	R23124
Carbon Tetrachloride	ND	0.50		µg/L	1	11/18/2014	R23124
Chlorobenzene	ND	0.50		µg/L	1	11/18/2014	R23124
Chloroethane	ND	0.50		µg/L	1	11/18/2014	R23124
Chloroform	0.62	0.50		µg/L	1	11/18/2014	R23124
Chloromethane	ND	0.50		µg/L	1	11/18/2014	R23124
cis-1,2-DCE	ND	0.50		µg/L	1	11/18/2014	R23124
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/18/2014	R23124
Dibromochloromethane	1.3	0.50		µg/L	1	11/18/2014	R23124
1,1-Dichloroethane	ND	0.50		µg/L	1	11/18/2014	R23124
1,1-Dichloroethene	ND	0.50		µg/L	1	11/18/2014	R23124
1,2-Dichloropropane	ND	0.50		µg/L	1	11/18/2014	R23124
2-Hexanone	ND	2.5		µg/L	1	11/18/2014	R23124
Isopropylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
Methylene Chloride	ND	0.50		µg/L	1	11/18/2014	R23124
n-Butylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
n-Propylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
sec-Butylbenzene	ND	0.50		µg/L	1	11/18/2014	R23124
Styrene	ND	0.50		µg/L	1	11/18/2014	R23124
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/18/2014	R23124
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/18/2014	R23124
trans-1,2-DCE	ND	0.50		µg/L	1	11/18/2014	R23124
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/18/2014	R23124
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/18/2014	R23124
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/18/2014	R23124
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/18/2014	R23124
Vinyl chloride	ND	0.50		µg/L	1	11/18/2014	R23124
mp-Xylenes	ND	0.50		µg/L	1	11/18/2014	R23124
o-Xylene	ND	0.50		µg/L	1	11/18/2014	R23124
Surr: 1,2-Dichlorobenzene-d4	104	70-130		%REC	1	11/18/2014	R23124
Surr: 4-Bromofluorobenzene	95.6	70-130		%REC	1	11/18/2014	R23124
Surr: Toluene-d8	98.0	70-130		%REC	1	11/18/2014	R23124
EPA 8270D: SEMIVOLATILES							Analyst: SUB
1,1-Biphenyl	ND	0.50		µg/L	1	11/14/2014	R23129
1-Methylnaphthalene	ND	0.50		µg/L	1	11/14/2014	R23129

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 21
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1411289

Date Reported: 12/15/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: Biannual RO Reject

Collection Date: 11/6/2014 10:00:00 AM

Lab ID: 1411289-001

Matrix: AQUEOUS

Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES							Analyst: SUB
2-Methylnaphthalene	ND	0.50		µg/L	1	11/14/2014	R23129
Benzo(a)pyrene	ND	0.50		µg/L	1	11/14/2014	R23129
Naphthalene	ND	0.50		µg/L	1	11/14/2014	R23129
Phenol	ND	0.50		µg/L	1	11/14/2014	R23129
Surr: 2,4,6-Tribromophenol	109	53-122		%REC	1	11/14/2014	R23129
Surr: 2-Fluorobiphenyl	99.2	12-116		%REC	1	11/14/2014	R23129
Surr: 2-Fluorophenol	90.9	10-139		%REC	1	11/14/2014	R23129
Surr: Nitrobenzene-d5	98.7	68-118		%REC	1	11/14/2014	R23129
Surr: Phenol-d5	94.7	28-154		%REC	1	11/14/2014	R23129
Surr: Terphenyl-d14	77.6	20-137		%REC	1	11/14/2014	R23129
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	11/18/2014	R23130
EPA 6020: DISSOLVED METALS							Analyst: SUB
Uranium	0.0038	0.0010		mg/L	1	11/17/2014	R23130
Aluminum	ND	0.010		mg/L	1	11/17/2014	R23130
Arsenic	0.0010	0.0010		mg/L	1	11/17/2014	R23130
Barium	0.051	0.0010		mg/L	1	11/17/2014	R23130
Boron	0.071	0.010		mg/L	1	11/17/2014	R23130
Cadmium	ND	0.0010		mg/L	1	11/17/2014	R23130
Calcium	500	0.10		mg/L	1	11/17/2014	R23130
Chromium	ND	0.0010		mg/L	1	11/17/2014	R23130
Cobalt	ND	0.0010		mg/L	1	11/17/2014	R23130
Iron	0.012	0.010		mg/L	1	11/17/2014	R23130
Lead	ND	0.0010		mg/L	1	11/17/2014	R23130
Manganese	ND	0.0010		mg/L	1	11/17/2014	R23130
Molybdenum	0.0076	0.0010		mg/L	1	11/17/2014	R23130
Nickel	0.0012	0.0010		mg/L	1	11/17/2014	R23130
Potassium	3.5	1.0		mg/L	1	11/17/2014	R23130
Selenium	0.0066	0.0010		mg/L	1	11/17/2014	R23130
Silver	ND	0.0010		mg/L	1	11/17/2014	R23130
Sodium	39	0.10		mg/L	1	11/17/2014	R23130
Vanadium	0.0085	0.0010		mg/L	1	11/17/2014	R23130
Zinc	0.072	0.0010		mg/L	1	11/17/2014	R23130
EPA METHOD 6020: METALS							Analyst: SUB
Arsenic	ND	0.0010		mg/L	1	11/25/2014	R23130
Barium	0.052	0.0010		mg/L	1	11/25/2014	R23130
Cadmium	ND	0.0010		mg/L	1	11/25/2014	R23130
Calcium	500	1.0		mg/L	1	11/25/2014	R23130

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1411289

Date Reported: 12/15/2014

CLIENT: Navajo Refining Company

Client Sample ID: RO Reject

Project: Biannual RO Reject

Collection Date: 11/6/2014 10:00:00 AM

Lab ID: 1411289-001

Matrix: AQUEOUS

Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 6020: METALS							Analyst: SUB
Chromium	ND	0.0010		mg/L	1	11/25/2014	R23130
Iron	ND	0.010		mg/L	1	11/25/2014	R23130
Lead	ND	0.0010		mg/L	1	11/25/2014	R23130
Manganese	ND	0.0010		mg/L	1	11/25/2014	R23130
Nickel	ND	0.0010		mg/L	1	11/25/2014	R23130
Potassium	3.6	0.10		mg/L	1	11/25/2014	R23130
Selenium	0.0056	0.0010		mg/L	1	11/25/2014	R23130
Sodium	37	0.10		mg/L	1	11/25/2014	R23130
Vanadium	0.0087	0.0010		mg/L	1	11/25/2014	R23130
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.13	0.902		pCi/L	1	11/25/2014	R23137
Radium-226 ±	0.718			pCi/L	1	11/25/2014	R23137
Radium-228	0.294	0.619		pCi/L	1	11/25/2014	R23137
Radium-228 ±	0.303			pCi/L	1	11/25/2014	R23137
SM4500-H+B: PH							Analyst: JRR
pH	8.01	1.68	H	pH units	1	11/13/2014 7:57:55 PM	R22543
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2720	40.0	*	mg/L	1	11/12/2014 1:18:00 PM	16340

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 21
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1411289

Date Reported: 12/15/2014

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: Biannual RO Reject

Collection Date:

Lab ID: 1411289-002

Matrix: TRIP BLANK

Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/10/2014 7:47:38 PM	R22439
Surr: BFB	89.3	80-120		%REC	1	11/10/2014 7:47:38 PM	R22439
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Methyl isobutyl ketone	ND	2.5		µg/L	1	11/17/2014	R23124
p-isopropyltoluene	ND	0.50		µg/L	1	11/17/2014	R23124
Benzene	ND	0.50		µg/L	1	11/17/2014	R23124
Toluene	ND	0.50		µg/L	1	11/17/2014	R23124
Ethylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
Methyl tert-butyl ether (MTBE)	ND	0.50		µg/L	1	11/17/2014	R23124
1,2,4-Trimethylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
1,3,5-Trimethylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
1,2-Dichloroethane (EDC)	ND	0.50		µg/L	1	11/17/2014	R23124
1,2-Dibromoethane (EDB)	ND	0.50		µg/L	1	11/17/2014	R23124
Naphthalene	ND	0.50		µg/L	1	11/17/2014	R23124
Acetone	8.8	2.5		µg/L	1	11/17/2014	R23124
Bromodichloromethane	ND	0.50		µg/L	1	11/17/2014	R23124
Bromoform	ND	0.50		µg/L	1	11/17/2014	R23124
Bromomethane	ND	0.50		µg/L	1	11/17/2014	R23124
2-Butanone	ND	5.0		µg/L	1	11/17/2014	R23124
Carbon disulfide	ND	0.50		µg/L	1	11/17/2014	R23124
Carbon Tetrachloride	ND	0.50		µg/L	1	11/17/2014	R23124
Chlorobenzene	ND	0.50		µg/L	1	11/17/2014	R23124
Chloroethane	ND	0.50		µg/L	1	11/17/2014	R23124
Chloroform	ND	0.50		µg/L	1	11/17/2014	R23124
Chloromethane	ND	0.50		µg/L	1	11/17/2014	R23124
cis-1,2-DCE	ND	0.50		µg/L	1	11/17/2014	R23124
cis-1,3-Dichloropropene	ND	0.50		µg/L	1	11/17/2014	R23124
Dibromochloromethane	ND	0.50		µg/L	1	11/17/2014	R23124
1,1-Dichloroethane	ND	0.50		µg/L	1	11/17/2014	R23124
1,1-Dichloroethene	ND	0.50		µg/L	1	11/17/2014	R23124
1,2-Dichloropropane	ND	0.50		µg/L	1	11/17/2014	R23124
2-Hexanone	ND	2.5		µg/L	1	11/17/2014	R23124
Isopropylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
Methylene Chloride	ND	0.50		µg/L	1	11/17/2014	R23124
n-Butylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
n-Propylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
sec-Butylbenzene	ND	0.50		µg/L	1	11/17/2014	R23124
Styrene	ND	0.50		µg/L	1	11/17/2014	R23124
1,1,2,2-Tetrachloroethane	ND	0.50		µg/L	1	11/17/2014	R23124

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	Page 5 of 21
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	
	O RSD is greater than RSDlimit	P Sample pH greater than 2.	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1411289

Date Reported: 12/15/2014

CLIENT: Navajo Refining Company

Client Sample ID: TRIP BLANK

Project: Biannual RO Reject

Collection Date:

Lab ID: 1411289-002

Matrix: TRIP BLANK

Received Date: 11/7/2014 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: SUB
Tetrachloroethene (PCE)	ND	0.50		µg/L	1	11/17/2014	R23124
trans-1,2-DCE	ND	0.50		µg/L	1	11/17/2014	R23124
trans-1,3-Dichloropropene	ND	0.50		µg/L	1	11/17/2014	R23124
1,1,1-Trichloroethane	ND	0.50		µg/L	1	11/17/2014	R23124
1,1,2-Trichloroethane	ND	0.50		µg/L	1	11/17/2014	R23124
Trichloroethene (TCE)	ND	0.50		µg/L	1	11/17/2014	R23124
Vinyl chloride	ND	0.50		µg/L	1	11/17/2014	R23124
mp-Xylenes	ND	0.50		µg/L	1	11/17/2014	R23124
o-Xylene	ND	0.50		µg/L	1	11/17/2014	R23124
Surr: 1,2-Dichlorobenzene-d4	100	70-130		%REC	1	11/17/2014	R23124
Surr: 4-Bromofluorobenzene	91.6	70-130		%REC	1	11/17/2014	R23124
Surr: Toluene-d8	84.4	70-130		%REC	1	11/17/2014	R23124

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 21
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH greater than 2.	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R22427			RunNo: 22427					
Prep Date:		Analysis Date: 11/7/2014			SeqNo: 661019		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: R22427			RunNo: 22427					
Prep Date:		Analysis Date: 11/7/2014			SeqNo: 661020		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	93.8	66.6	112			
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	67.5	109			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.3	84	109			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R22427			RunNo: 22427					
Prep Date:		Analysis Date: 11/7/2014			SeqNo: 661041		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R22427		RunNo: 22427					
Prep Date:			Analysis Date: 11/7/2014		SeqNo: 661042		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.6	66.6	112			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.0	67.5	109			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.1	84	109			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R22629			RunNo: 22629					
Prep Date:		Analysis Date: 11/18/2014			SeqNo: 667493		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R22629		RunNo: 22629					
Prep Date:			Analysis Date: 11/18/2014		SeqNo: 667494		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.7	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-16290		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 16290		RunNo: 22401					
Prep Date:	11/7/2014		Analysis Date: 11/7/2014		SeqNo: 660976		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.79		1.000		79.4	59	141			

Sample ID	LCS-16290		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 16290		RunNo: 22401					
Prep Date:	11/7/2014		Analysis Date: 11/7/2014		SeqNo: 660977		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	69.7	142			
Surr: DNOP	0.51		0.5000		102	59	141			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: R22439		RunNo: 22439					
Prep Date:			Analysis Date: 11/10/2014		SeqNo: 661831		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		88.4	80	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R22439		RunNo: 22439					
Prep Date:			Analysis Date: 11/10/2014		SeqNo: 661832		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	80	120			
Surr: BFB	19		20.00		94.1	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-16369	SampType: MBLK		TestCode: EPA Method 8082: PCB's						
Client ID:	PBW	Batch ID: 16369		RunNo: 22648						
Prep Date:	11/13/2014	Analysis Date: 11/20/2014		SeqNo: 668099		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.6		2.500		64.8	26.3	122			
Surr: Tetrachloro-m-xylene	1.2		2.500		46.8	33.8	120			

Sample ID	LCS-16369			SampType:	LCS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LCSW			Batch ID:	16369		RunNo:	22648			
Prep Date:	11/13/2014			Analysis Date:	11/20/2014		SeqNo:	668105		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	2.0	1.0	5.000	0	41.0	15	134				
Aroclor 1260	2.7	1.0	5.000	0	53.5	32.1	148				
Surr: Decachlorobiphenyl	1.7		2.500		68.4	26.3	122				
Surr: Tetrachloro-m-xylene	1.4		2.500		54.8	33.8	120				

Sample ID	LCSD-16369		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 16369		RunNo: 22648					
Prep Date:	11/13/2014		Analysis Date: 11/20/2014		SeqNo: 668128		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	44.4	15	134	8.05	26.9	
Aroclor 1260	2.9	1.0	5.000	0	59.0	32.1	148	9.75	29.1	
Surr: Decachlorobiphenyl	2.0		2.500		78.0	26.3	122	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		61.6	33.8	120	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23124		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	PBW		Batch ID:	R23124		RunNo:	23124			
Prep Date:			Analysis Date:	11/17/2014		SeqNo:	682953	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl isobutyl ketone	ND	2.5								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
Methyl tert-butyl ether (MTBE)	ND	0.50								
1,2,4-Trimethylbenzene	ND	0.50								
1,3,5-Trimethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Naphthalene	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
Dibromochloromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
2-Hexanone	ND	2.5								
Isopropylbenzene	ND	0.50								
n-Butylbenzene	ND	0.50								
n-Propylbenzene	ND	0.50								
sec-Butylbenzene	ND	0.50								
Styrene	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23124		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW		Batch ID: R23124		RunNo: 23124					
Prep Date:			Analysis Date: 11/17/2014		SeqNo: 682953		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	0.50								
o-Xylene	ND	0.50								

Sample ID	LCS-R23124		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R23124		RunNo: 23124					
Prep Date:			Analysis Date: 11/17/2014		SeqNo: 682954		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.5		10.00	0	94.8	75	125			
Toluene	9.8		10.00	0	97.7	76	123			
Ethylbenzene	9.6		10.00	0	96.3	84	115			
Chlorobenzene	9.6		10.00	0	96.2	85	115			
1,1-Dichloroethene	9.7		10.00	0	96.7	68	127			
Tetrachloroethene (PCE)	10		10.00	0	102	78	119			
Trichloroethene (TCE)	10		10.00	0	100	72	125			
o-Xylene	10		10.00	0	102	83	117			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23129		SampType: MBLK		TestCode: EPA 8270D: Semivolatiles					
Client ID:	PBW		Batch ID: R23129		RunNo: 23129					
Prep Date:			Analysis Date: 11/14/2014		SeqNo: 683114		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Biphenyl	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2-Methylnaphthalene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Naphthalene	ND	0.50								
Phenol	ND	0.50								

Sample ID	LCS-R23129		SampType: LCS		TestCode: EPA 8270D: Semivolatiles					
Client ID:	LCSW		Batch ID: R23129		RunNo: 23129					
Prep Date:			Analysis Date: 11/14/2014		SeqNo: 683115		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	4.8		5.000	0	97.0	56	128			
2-Methylnaphthalene	4.6		5.000	0	93.0	56	128			
Benzo(a)pyrene	4.9		5.000	0	98.8	71	163			
Phenol	4.2		5.000	0	84.2	45	134			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23130		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R23130		RunNo:	23130				
Prep Date:			Analysis Date:	11/18/2014		SeqNo:	683284		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R23130		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R23130		RunNo: 23130					
Prep Date:			Analysis Date: 11/18/2014		SeqNo: 683285		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.503		0.5000	0	101	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-16357		SampType:	MBLK		TestCode:	EPA Method 7470: Mercury				
Client ID:	PBW		Batch ID:	16357		RunNo:	22512				
Prep Date:	11/12/2014		Analysis Date:	11/13/2014		SeqNo:	664165		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-16357			SampType:	LCS		TestCode:	EPA Method 7470: Mercury			
Client ID:	LCSW			Batch ID:	16357		RunNo:	22512			
Prep Date:	11/12/2014			Analysis Date:	11/13/2014		SeqNo:	664166		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0049	0.00020	0.005000	0	97.5	80	120				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23130		SampType:	MBLK		TestCode:	EPA 6020: Dissolved Metals			
Client ID:	PBW		Batch ID:	R23130		RunNo:	23130			
Prep Date:			Analysis Date:	11/17/2014		SeqNo:	683120	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.010								
Arsenic	ND	0.0010								
Barium	ND	0.0010								
Boron	ND	0.010								
Cadmium	ND	0.0010								
Calcium	ND	0.010								
Chromium	ND	0.0010								
Cobalt	ND	0.0010								
Iron	ND	0.010								
Lead	ND	0.0010								
Manganese	ND	0.0010								
Molybdenum	ND	0.0010								
Nickel	ND	0.0010								
Potassium	ND	0.10								
Selenium	ND	0.0010								
Silver	ND	0.0010								
Sodium	ND	0.010								
Uranium	ND	0.0010								
Vanadium	ND	0.0010								
Zinc	ND	0.0010								

Sample ID	LCS-R23130		SampType:	LCS		TestCode:	EPA 6020: Dissolved Metals			
Client ID:	LCSW		Batch ID:	R23130		RunNo:	23130			
Prep Date:			Analysis Date:	11/17/2014		SeqNo:	683121	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.20	0	0.2000	0	100	80	120			
Arsenic	0.049	0	0.05000	0	97.6	80	120			
Barium	0.048	0	0.05000	0	95.8	80	120			
Boron	0.049	0	0.05000	0	97.8	80	120			
Cadmium	0.049	0	0.05000	0	97.8	80	120			
Calcium	10	0	10.00	0	99.7	80	120			
Chromium	0.049	0	0.05000	0	98.8	80	120			
Cobalt	0.049	0	0.05000	0	98.6	80	120			
Iron	0.20	0	0.2000	0	98.5	80	120			
Lead	0.049	0	0.05000	0	97.8	80	120			
Manganese	0.049	0	0.05000	0	97.6	80	120			
Molybdenum	0.050	0	0.05000	0	99.4	80	120			
Nickel	0.050	0	0.05000	0	99.4	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	LCS-R23130		SampType: LCS		TestCode: EPA 6020: Dissolved Metals					
Client ID:	LCSW		Batch ID: R23130		RunNo: 23130					
Prep Date:			Analysis Date: 11/17/2014		SeqNo: 683121		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	10	0	10.00	0	99.7	80	120			
Selenium	0.050	0	0.05000	0	100	80	120			
Silver	0.048	0	0.05000	0	96.4	80	120			
Sodium	9.3	0	10.00	0	93.2	80	120			
Uranium	0.046	0	0.05000	0	92.6	80	120			
Vanadium	0.049	0	0.05000	0	98.6	80	120			
Zinc	0.050	0	0.05000	0	100	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23130		SampType:	MBLK		TestCode:	EPA Method 6020: Metals			
Client ID:	PBW		Batch ID:	R23130		RunNo:	23130			
Prep Date:			Analysis Date:	11/25/2014		SeqNo:	683117	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Barium	ND	0.0010								
Cadmium	ND	0.0010								
Calcium	ND	0.10								
Chromium	ND	0.0010								
Iron	ND	0.010								
Lead	ND	0.0010								
Manganese	ND	0.0010								
Nickel	ND	0.0010								
Potassium	ND	0.10								
Selenium	ND	0.0010								
Sodium	ND	0.10								
Vanadium	ND	0.0010								

Sample ID	LCS-R23130		SampType:	LCS		TestCode:	EPA Method 6020: Metals			
Client ID:	LCSW		Batch ID:	R23130		RunNo:	23130			
Prep Date:			Analysis Date:	11/25/2014		SeqNo:	683118	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.050		0.05000	0	99.8	80	120			
Barium	0.052		0.05000	0	104	80	120			
Cadmium	0.052		0.05000	0	104	80	120			
Calcium	10		10.00	0	100	80	120			
Chromium	0.050		0.05000	0	99.4	80	120			
Iron	0.21		0.2000	0	104	80	120			
Lead	0.051		0.05000	0	102	80	120			
Manganese	0.051		0.05000	0	102	80	120			
Nickel	0.050		0.05000	0	101	80	120			
Potassium	10		10.00	0	101	80	120			
Selenium	0.050		0.05000	0	99.8	80	120			
Sodium	9.7		10.00	0	96.6	80	120			
Vanadium	0.051		0.05000	0	103	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-R23137		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R23137		RunNo:	23137			
Prep Date:			Analysis Date:	11/25/2014		SeqNo:	683291	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.250	0.819								
Radium-226 ±	0.459									
Radium-228	-0.165	0.651								
Radium-228 ±	0.263									

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1411289

15-Dec-14

Client: Navajo Refining Company

Project: Biannual RO Reject

Sample ID	MB-16340		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	16340		RunNo:	22490				
Prep Date:	11/11/2014		Analysis Date:	11/12/2014		SeqNo:	663255		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-16340		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	16340		RunNo:	22490				
Prep Date:	11/11/2014		Analysis Date:	11/12/2014		SeqNo:	663256		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1010	20.0	1000	0	101	80	120				

Qualifiers:

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

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

Sample Log-In Check List

Client Name: NAVAJO REFINING COM

Work Order Number: 1411289

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

11/7/2014 9:20:00 AM

Completed By: Ashley Gallegos

11/7/2014 11:48:09 AM

Reviewed By:

CS

11/07/14

Chain of Custody

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

Log In

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

of preserved bottles checked for pH: 6
(#2 or #12 unless noted)
Adjusted? No
Checked by: pg

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: Poured from 500mL HNO₃ into a 500mL HNO₃ for sub work. 11/07
All VOA's including trip blank have bubbles.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



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

Biannual RO Reject Sample Details Attachment



Project Name	Biannual RO Reject
Sampler Name	
Sampler's Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/6/2014 @ 10:30
End Date and Time	11/6/2014 @ 10:30

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

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

Pails / Sample Intervals	One
--------------------------	-----

Type of Sample	Directly to sample jars
----------------	-------------------------

☒ North Field R.O. Reject Discharge ☐ South Field R.O. Reject Discharge

Outfall / Sample Location	
---------------------------	--

Preservatives												
Container	Size	Material	# of Containers	NaOH	HCL	HNO3	H2SO4	NaOH	Na2S2O8	NaHSO4	Other	Analysis and/or Method Requested
1	500ml	Plastic	2	X			X					pH, Cl, F, SO4, NO2/NO3, TDS
2	40ml	VOA	3		X							8015 GRO
3	500ml	Plastic	1			X						6020 total metals, 7470 Hg
4	125ml	Plastic	1			X						6020 Dissolved Metals
5	500ml	Plastic	2					X				Cyanide
6	1L	Plastic	3			X						Radium 226/228
7	40ml	VOA	2		X							8260 see attached list
8	1L	Glass	1	X								8270 see attached list
9	1L	Glass	2	X								8082 PCBs
10	40ml	VOA	2	X								8015 DRO
11	40ml	VOA	2		X							Radium 226/228

Field Data (Weather Observations, Etc.) 6/19/2014 10:30 Tmp. 60.1 Humidity 36%, Wind Dir. N, Wind Speed 4.6 mph, Conditions Clear

Date and Time

Field Temp. 22.5°C Field pH 7.72

Storage Method	Ice	☒
Refrigerated		☐
Other		☐

Shipping Media	Ice	☒
Other		☐

Appendix C

Leaks, Spills, and Releases

**C.1 7/15/2014 – Southwest Tank
Farm Diesel Pipeline Leak**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Navajo Refining Company, L.L.C.	Contact	Micki Schultz
Address	501 E. Main St. Artesia, NM 88210	Telephone No.	575-746-5281
Facility Name	Navajo Refining Company, L.L.C. Artesia	Facility Type	Refinery
Surface Owner	Mineral Owner	API No.	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County

Latitude 32°50'38.95"N Longitude 104°23'40.85"W

NATURE OF RELEASE

Type of Release	Diesel Pipe Leak	Volume of Release	approximately 700 bbl.	Volume Recovered	711 bbl. Diesel vacuumed and returned to the crude process unit
Source of Release	Inter tank transfer pipe in a containment area	Date and Hour of Occurrence	7/15/14 Unknown hour	Date and Hour of Discovery	7/15/14@7:10 am
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Carl Chavez		
By Whom?	Micki Schultz	Date and Hour	7/15/14 at 3:15 pm		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

An older above ground diesel suction line developed a leak sometime during the night where it penetrated an earthen dike between two adjacent containment areas at T-434 in the Southwest tank farm (AOC 4, part of AOC Group 2). Because it had rained during the night, rainwater had pooled in the low spots within the diked containment areas. At the morning shift inspection it was determined that the rainwater contained diesel product. The leaking line was isolated and blocked off to prevent any additional release. Vapor suppressant foam was applied to the pooled liquid to prevent volatile organics from being released during the heat of the day. Three vacuum trucks were sent to the containment areas and vacuumed the diesel/water/foam liquid mixture. The volume of water and diesel from each truckload was recorded separately to determine the amount of diesel that leaked and was returned to the crude process unit.

Describe Area Affected and Cleanup Action Taken.*

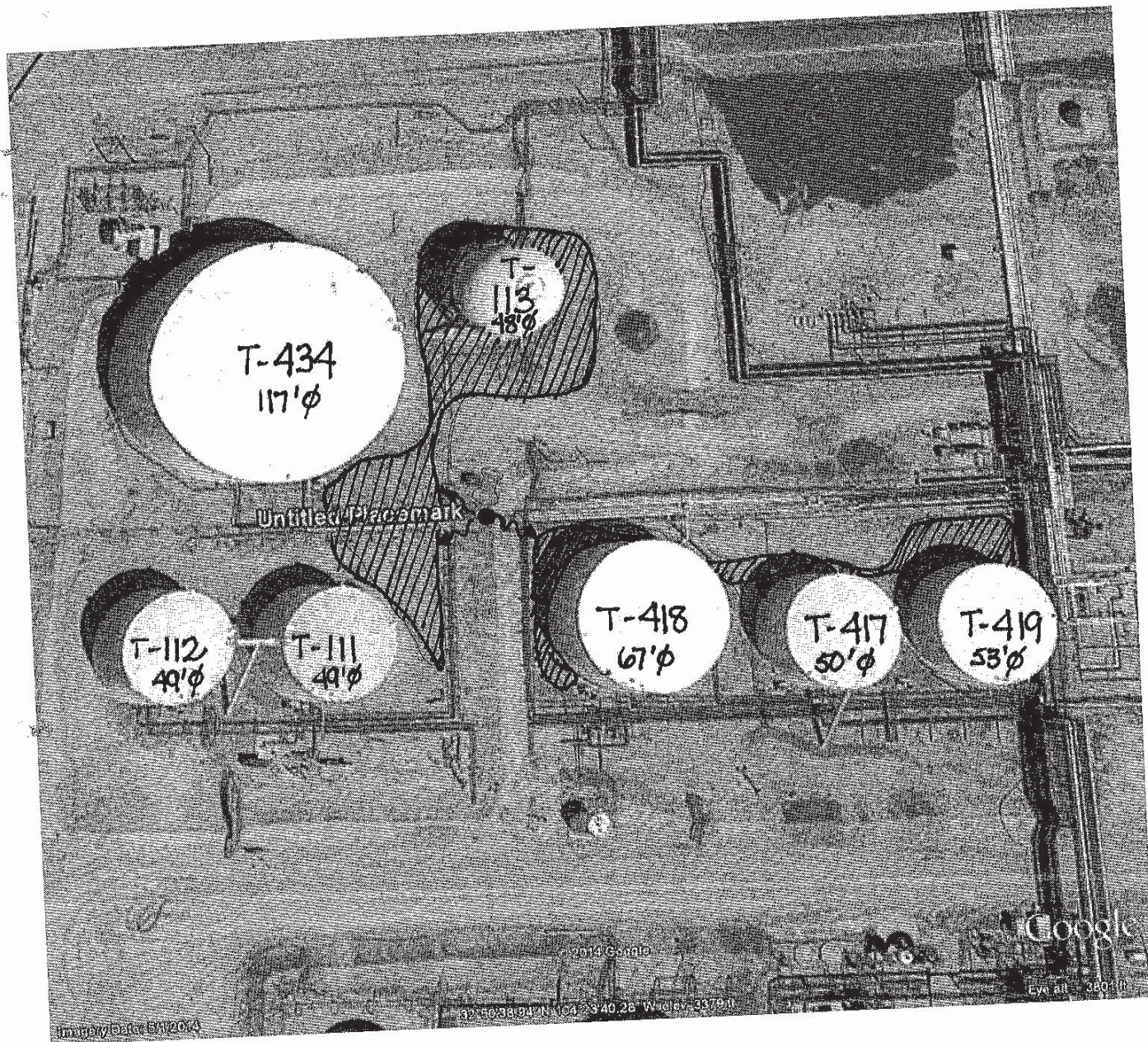
7/15/14 Two tank containment areas retained all of the leaked diesel fuel. All of the liquid was suctioned up via vacuum trucks and returned to the process at the crude tank. Absorbent pads and socks were applied to the remaining small areas where diesel fuel could not be removed. At the close of the initial response action, there was no free liquid remaining in either containment area.
7/16/14 The earthen dike around the pipe leak was removed to locate the source of the leak. The pipeline will be inspected to determine the necessary repair. The area is being staged to begin removal of impacted soil/gravel.
7/17/14 NRC's remediation contractors will commence surgical removal of impacted soil in a sequential manner until visibly saturated soil is abated. Impacted soil will be initially staged on HDPE liners and then transferred to roll-off bins.

A formal report will be submitted to OCD and HWB once corrective actions, sample results, etc. are complete.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: <i>Micki Schultz</i>		<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Micki Schultz		Approved by Environmental Specialist:	
Title: Environmental Specialist		Approval Date:	Expiration Date:
E-mail Address: micki.schultz@hollyfrontier.com		Conditions of Approval:	Attached ☐
Date: 7/16/14	Phone: 575-746-5281		

* Attach Additional Sheets If Necessary



NAVAJO REFINERY SOUTHWEST TANK FARM
7/15/14 DIESEL FUEL LINE LEAK @ DIKE (FLOW FROM WITHIN DIKE)

From: Schultz, Michele
Sent: Thursday, July 17, 2014 4:03 PM
To: 'Tsinnajinnie, Leona, NMENV'; CarlJ.Chavez@state.nm.us
Cc: Combs, Robert; Cobrain, Dave, NMENV; Dhawan, Neelam, NMENV; VanHorn, Kristen, NMENV; Crawford, Dan
Subject: Navajo Refining Company, LLC 7/15/14 Diesel line leak Initial C-141
Attachments: 071514 C-141 Initial.pdf

Leona, Carl – Attached is the initial C-141 report for Navajo Refining Company's diesel fuel line leak of 7/15/14. We are staging for the excavation work today and are awaiting recommendations from our consultant based on soil probes done this morning. The final C-141 will be submitted upon completion of the excavation and disposition of the impacted soil.

If you have questions, please contact me at 575-308-2141.

Micki Schultz, P.E., CHMM
Environmental Specialist, Water and Waste Programs
Navajo Refining Company
575-746-5281 (office)
575-308-2141 (cell)
micki.schultz@hollyfrontier.com

**C.2 10/17/2014 – Hydrocarbons in
Clark Draw**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-141
Revised August 8, 2011

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Navajo Refining Company, L.L.C.	Contact	Robert Combs
Address	501 E. Main St. Artesia, NM 88210	Telephone No.	575-746-5382
Facility Name	Navajo Refining Company, L.L.C. Artesia	Facility Type	Refinery
Surface Owner	Mineral Owner	API No.	

LOCATION OF RELEASE

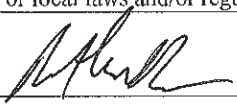
Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
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Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release: Visible evidence of hydrocarbons from groundwater expressed at the ground surface due to elevated water table.	Volume of Release approximately < 1 gallon	Volume Recovered: N/A, Absorbent material applied to recover hydrocarbons.
Source of Release Impacted groundwater	Date and Hour of Occurrence 10/17/14 Unknown hour	Date and Hour of Discovery 10/17/14@11 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? National Response Center at 12:35 pm OCD Santa Fe office at 1:47 pm OCD Artesia office, left message.	
By Whom? Gabriela Combs/Robert Combs	Date and Hour please see above	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. < 1 gallon	
If a Watercourse was Impacted, Describe Fully.* A small area of stained concrete located at the base of Clark Draw. There is no water flow in the waterway at this time.		
Describe Cause of Problem and Remedial Action Taken.* A stained area was discovered in the base of Clark Draw on 10/17/14. There is not an active release of hydrocarbons, but the impacts are being addressed by removal of hydrocarbons by absorbent materials. An absorbent boom will be installed downstream to prevent residual hydrocarbons to be released during flowing conditions in the waterway.		
Describe Area Affected and Cleanup Action Taken.* The stained area was confined to a narrow irregular strip on the concrete. The remedial action plan will be to draw down the water table in the area and utilize the product recovery system to remove phase separated hydrocarbons in the area. A vacuum truck will be used for the next several days to remove any product collected in the adjacent monitoring well. A final C-141 report will be submitted to OCD and HWB once corrective actions, sample results, etc. are complete.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		

OIL CONSERVATION DIVISION

Signature: 

Printed Name: Robert Combs

Title: Environmental Specialist

E-mail Address: robert.combs@hollyfrontier.com

Date: 10/17/14

Phone: 575-746-5382

Approved by Environmental Specialist:

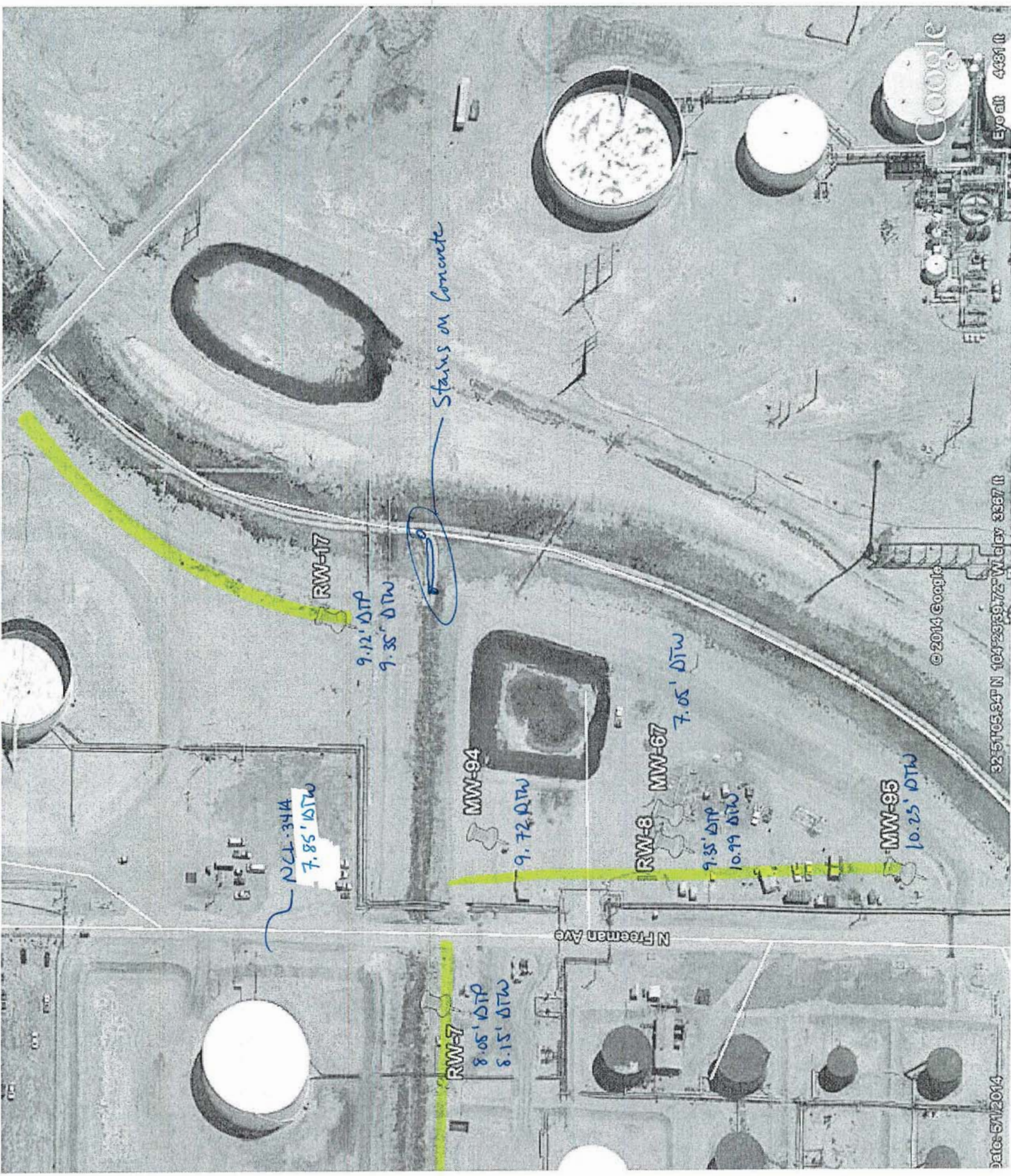
Approval Date:

Expiration Date:

Conditions of Approval:

Attached ☐

* Attach Additional Sheets If Necessary



NCL-344
7.85' DTW

RW-7

8.05' DTW
8.15' DTW

MW-94

9.72 DTW

RW-17

9.12' DTW
9.35' DTW

Status on Concrete

RW-8

9.55' DTW
10.99 DTW

MW-67

7.05' DTW

MW-95

10.25' DTW

N Freeman Ave

© 2014 Google

Date: 5/1/2014

32.510534° N 104.233972° W City 3357 R

Elevation 4231 ft

RW/MW Gauging Summary

	10/17/2014		10/20/2014		
	Depth to Product	Depth to Water	PSH Thickness	Depth to Product	Depth to Water
	feet	feet	feet	feet	feet
RW17 (south standpipe)	9.12	9.35	0.23	9.27	9.35
NCL-34A	none detected	7.85	0	none detected	7.99
RW-7R	8.05	8.15	0.1	8.41	8.44
RW-8R	9.35	10.99	1.64	8.82	8.86
MW-94	none detected	9.72	0	none detected	9.80
MW-67	none detected	7.05	0	none detected	7.23
MW-95	none detected	10.23	0	none detected	10.45

From: Combs, Gabriela
Sent: Friday, October 17, 2014 2:19 PM
To: McKee, Michael; Boans, Robert; Hollis, Steve; Crawford, Dan; Davis, Gary
Cc: Envir; Pernell, Donna
Subject: 2014-10-17 Hydrocarbons to surface - Eagle Draw

On 10/17/2014 Environmental was notified of evidence of hydrocarbons from GW being expressed to the surface in an area adjacent to Eagle Draw. Following the immediate notification requirements, I reported this event to the National Response Center (NRC) as follows:

At ~12:35 called the NRC (800-424-8802), and verbally reported to NRC official Antoney Greer. The event was labeled by the NRC as a "potential release". **NRC Report Number: 1098576.**

The Environmental and Safety Departments are currently investigating and responding to the event.

Thank you,
Gabi

Gabriela Mellace-Combs
Environmental Specialist
The HollyFrontier Companies
Gabriela.Combs@hollyfrontier.com
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Artesia, NM 88211-0159
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cell: 505-221-7785
fax: 575-746-5451

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