GW – 028

2015 Annual Discharge Permit Report

PART 11 OF 16

March 2016

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R29397**	RunNo: **29397**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894164** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R29397**	RunNo: **29397**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894164** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB-21812**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **21812**	RunNo: **29527**
Prep Date: **10/13/2015**	Analysis Date: **10/14/2015**	SeqNo: **898372** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	21		20.00		103	37.2	136			

Sample ID **LCS-21812**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **21812**	RunNo: **29527**
Prep Date: **10/13/2015**	Analysis Date: **10/14/2015**	SeqNo: **898374** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	65	2.0	80.00	0	80.7	57.8	83.9			
1-Methylnaphthalene	67	2.0	80.20	0	83.1	43.5	88.5			
2-Methylnaphthalene	65	2.0	80.00	0	81.0	34.2	94.5			
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	56.3	98.6			
Surr: Benzo(e)pyrene	21		20.00		107	37.2	136			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R29838**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R29838**	RunNo:	**29838**
Prep Date:		Analysis Date:	**10/21/2015**	SeqNo:	**908965** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.209	0.513								
Radium-226 ±	0.319	0.513								
Radium-228	0.221	0.666								
Radium-228 ±	0.31	0.666								

Sample ID	**MB-R29838**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R29838**	RunNo:	**29838**
Prep Date:		Analysis Date:	**10/21/2015**	SeqNo:	**908967** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.411	0.965								
Radium-226 ±	0.571	0.965								
Radium-228	0.403	0.785								
Radium-228 ±	0.384	0.785								

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510410**

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-21779**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**21779**	RunNo:	**29476**					
Prep Date:	**10/11/2015**	Analysis Date:	**10/12/2015**	SeqNo:	**896502**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-21779**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**21779**	RunNo:	**29476**					
Prep Date:	**10/11/2015**	Analysis Date:	**10/12/2015**	SeqNo:	**896503**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510410 RcptNo: 1

Received by/date: CS 10/08/15

Logged By: **Lindsay Mangin** 10/8/2015 9:07:00 AM

Completed By: **Lindsay Mangin** 10/8/2015 12:40:53 PM

Reviewed By: CS 10/08/15

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 7 (1)
(<2 or >12 unless noted)
Adjusted? NO
Checked by:

Special Handling (if applicable)

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

Person Notified: Date
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

17. Additional remarks:

18. **Cooler Information**

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

Chain-of-Custody Record

Client: Navajo Refinery

Mailing Address: P.O. Box 159 Artesia, NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
X Standard ☐ Rush _____

Project Name:
Monthly R.O. Reject

Project #: P.O. # 167796

Project Manager:
Robert Combs

Sampler: Elizabeth Salsberry
On Ice: X Yes ☐ No
Sample Temperature: 1.0°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510410	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB
10/7/15	9:35	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X	
10/7/15	9:35	liquid	R.O. Reject	3-40ml VOA	HCL	-001	X														
10/7/15	9:35	liquid	R.O. Reject	1-500ml P	HNO3	-001					X										
10/7/15	9:35	liquid	R.O. Reject	1-125ml P	HNO3	-001			X												
10/7/15	9:35	liquid	R.O. Reject	1-500ml P	NaOH	-001				X											
10/7/15	9:35	liquid	R.O. Reject	2- 1L P	HNO3	-001								X							
10/7/15	9:35	liquid	R.O. Reject	3-40ml VOA	Na2S2O3	-001															X
10/7/15	9:35	liquid	R.O. Reject	2 - 1L Glass	unpres	-001							X								
10/7/15	9:35	liquid	R.O. Reject	1 - 1L Glass	unpres	-001		X													
10/7/15	9:35	liquid	R.O. Reject	3-40ml VOA	HCl	-001						X									
10/7/15	9:35	liquid	R.O. Reject	1-250mlGlas	unpres	-001						X									
10/7/15	9:35	liquid	R.O. Reject	1 - 1L Glass	H2SO4	-001										X					
10/7/15	9:35	liquid	Trip Blank	2-40ml VOA	HCL	-002															

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/7/15	12:00	Elizabeth Salsberry	Celina Sanchez	10/08/15	0907
Date:	Time:	Relinquished by:	Received by:	Date	Time

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

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

Monthly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

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

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

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

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

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1	500ml	Plastic	2	X			X					pH, Cl, F, S04, NO2/NO3, TDS
2	40ml	VOA	3		X							8015 CRO
3	500ml	Plastic	1			X						6020 total metals, 7470 Hg
4	125ml	Plastic	1			X						6020 Dissolved Metals
5	500ml	Plastic	2					X				Cyanide
6	1L	Plastic	3			X						Radium 226/228
7	40ml	VOA	2		X							8260 see attached list
8	1L	Glass	1	X								8270 see attached list
9	1L	Glass	2	X								8082 PCBs
10	40ml	VOA	2	X								8015 DRO
11	40ml	VOA	2		X							Radium 226/228

Field Data (Weather, Observations, Etc): 10/7/2015 Tmp.62.6 °F, Humidity 88%, Wind Dir. North, Wind Speed 8.1 mph, Conditions Partly Cloudy

Date and Time:

Field Temp. 24.9C Field pH 7.92

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 30, 2015

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

RE: Monthly Temporary RO Reject OrderNo.: 1510416

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 10/8/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1510416**
Date Reported: **10/30/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary RO Reject
Lab ID: 1510416-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 10/7/2015 8:55:00 AM
Received Date: 10/8/2015 9:07:00 AM

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

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary RO Reject
Lab ID: 1510416-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 10/7/2015 8:55:00 AM
Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	10/15/2015 3:45:45 PM	21803
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1221	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1232	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1242	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1248	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1254	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Aroclor 1260	ND	1.0		µg/L	1	10/15/2015 2:28:06 AM	21811
Surr: Decachlorobiphenyl	82.0	17.7-151		%REC	1	10/15/2015 2:28:06 AM	21811
Surr: Tetrachloro-m-xylene	76.4	20.6-151		%REC	1	10/15/2015 2:28:06 AM	21811
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/12/2015 5:55:41 PM	21793
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/12/2015 5:55:41 PM	21793
Surr: DNOP	126	72-136		%REC	1	10/12/2015 5:55:41 PM	21793
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/9/2015 4:55:33 PM	R29422
Surr: BFB	90.2	57.8-137		%REC	1	10/9/2015 4:55:33 PM	R29422
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	10/14/2015 5:02:42 PM	21812
1-Methylnaphthalene	ND	2.0		µg/L	1	10/14/2015 5:02:42 PM	21812
2-Methylnaphthalene	ND	2.0		µg/L	1	10/14/2015 5:02:42 PM	21812
Benzo(a)pyrene	ND	0.070		µg/L	1	10/14/2015 5:02:42 PM	21812
Surr: Benzo(e)pyrene	75.2	37.2-136		%REC	1	10/14/2015 5:02:42 PM	21812
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Toluene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Ethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Carbon Tetrachloride	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Chloroform	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1-Dichloroethane	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1-Dichloroethene	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Methylene Chloride	ND	3.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	10/8/2015 5:06:31 PM	R29397
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	10/8/2015 5:06:31 PM	R29397

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Temporary R.O. Reject
Project: Monthly Temporary RO Reject
Collection Date: 10/7/2015 8:55:00 AM
Lab ID: 1510416-001 **Matrix:** AQUEOUS **Received Date:** 10/8/2015 9:07:00 AM

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

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly Temporary RO Reject
Collection Date:
Lab ID: 1510416-002
Matrix: TRIP BLANK
Received Date: 10/8/2015 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	10/15/2015 4:27:08 PM	21803
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Toluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Ethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Naphthalene	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1-Methylnaphthalene	ND	4.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Methylnaphthalene	ND	4.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Acetone	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromodichloromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromoform	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Bromomethane	ND	3.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Butanone	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Carbon disulfide	ND	10		µg/L	1	10/8/2015 5:35:16 PM	R29397
Carbon Tetrachloride	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chloroethane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chloroform	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Chloromethane	ND	3.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
2-Chlorotoluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
4-Chlorotoluene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
cis-1,2-DCE	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Dibromochloromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Dibromomethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,3-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,4-Dichlorobenzene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
Dichlorodifluoromethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1-Dichloroethane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,1-Dichloroethene	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397
1,2-Dichloropropane	ND	1.0		µg/L	1	10/8/2015 5:35:16 PM	R29397

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly Temporary RO Reject
Collection Date:
Lab ID: 1510416-002
Matrix: TRIP BLANK
Received Date: 10/8/2015 9:07:00 AM

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-C**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C29542**	RunNo: **29542**
Prep Date:	Analysis Date: **10/14/2015**	SeqNo: **898765** Units: **mg/L**

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

Sample ID **LCS-C**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C29542**	RunNo: **29542**
Prep Date:	Analysis Date: **10/14/2015**	SeqNo: **898766** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	103	85	115			
Chromium	0.50	0.0060	0.5000	0	100	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.6	85	115			
Copper	0.47	0.0060	0.5000	0	94.0	85	115			
Iron	0.49	0.020	0.5000	0	98.8	85	115			
Manganese	0.47	0.0020	0.5000	0	93.6	85	115			
Nickel	0.48	0.010	0.5000	0	96.9	85	115			
Silver	0.091	0.0050	0.1000	0	90.6	85	115			

Sample ID **LLLCS-C**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C29542**	RunNo: **29542**
Prep Date:	Analysis Date: **10/14/2015**	SeqNo: **898767** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	96.0	50	150			
Chromium	ND	0.0060	0.006000	0	91.3	50	150			
Cobalt	ND	0.0060	0.006000	0	94.3	50	150			
Copper	0.0061	0.0060	0.006000	0	102	50	150			
Iron	ND	0.020	0.02000	0	97.4	50	150			
Manganese	ND	0.0020	0.002000	0	94.5	50	150			
Nickel	ND	0.010	0.005000	0	92.2	50	150			
Silver	ND	0.0050	0.005000	0	95.4	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-C**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C29574**	RunNo: **29574**
Prep Date:	Analysis Date: **10/15/2015**	SeqNo: **900085** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Molybdenum	ND	0.0080								

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

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	85	115			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.48	0.0020	0.5000	0	96.7	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			

Sample ID **LLLCS-C**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C29574**	RunNo: **29574**
Prep Date:	Analysis Date: **10/15/2015**	SeqNo: **900087** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	102	50	150			
Boron	ND	0.040	0.04000	0	93.8	50	150			
Cadmium	0.0020	0.0020	0.002000	0	102	50	150			
Molybdenum	0.012	0.0080	0.008000	0	145	50	150			

Sample ID **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B29618**	RunNo: **29618**
Prep Date:	Analysis Date: **10/16/2015**	SeqNo: **901616** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010								

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B29618**	RunNo: **29618**
Prep Date:	Analysis Date: **10/16/2015**	SeqNo: **901617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.010	0.5000	0	91.1	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**LLLCS-B**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Dissolved Metals**
Client ID:	**BatchQC**	Batch ID:	**B29618**	RunNo:	**29618**
Prep Date:		Analysis Date:	**10/16/2015**	SeqNo:	**901618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010	0.005000	0	60.6	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B29683**	RunNo: **29683**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **903929** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	95.2	85	115			
Lead	0.012	0.00050	0.01250	0	98.6	85	115			
Selenium	0.023	0.0010	0.02500	0	90.5	85	115			
Uranium	0.012	0.00050	0.01250	0	96.7	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B29683**	RunNo: **29683**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **903932** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	96.3	50	150			
Lead	0.00051	0.00050	0.0005000	0	102	50	150			
Selenium	ND	0.0010	0.001000	0	88.7	50	150			
Uranium	ND	0.00050	0.0005000	0	99.8	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B29683**	RunNo: **29683**
Prep Date:	Analysis Date: **10/20/2015**	SeqNo: **903934** Units: **mg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29414**	RunNo: **29414**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894692** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29414**	RunNo: **29414**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894693** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R29666**	RunNo: **29666**
Prep Date:	Analysis Date: **10/19/2015**	SeqNo: **903381** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R29666**	RunNo: **29666**
Prep Date:	Analysis Date: **10/19/2015**	SeqNo: **903382** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	99.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-21803**	SampType:	**MBLK**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**PBW**	Batch ID:	**21803**	RunNo:	**29577**					
Prep Date:	**10/12/2015**	Analysis Date:	**10/15/2015**	SeqNo:	**900397**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	**LCS-21803**	SampType:	**LCS**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**LCSW**	Batch ID:	**21803**	RunNo:	**29577**					
Prep Date:	**10/12/2015**	Analysis Date:	**10/15/2015**	SeqNo:	**900399**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	112	70	130			

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-21793**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **21793**	RunNo: **29489**
Prep Date: **10/12/2015**	Analysis Date: **10/12/2015**	SeqNo: **896837** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.3		1.000		128	72	136			

Sample ID **LCS-21793**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **21793**	RunNo: **29489**
Prep Date: **10/12/2015**	Analysis Date: **10/12/2015**	SeqNo: **896840** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	107	52.4	154			
Surr: DNOP	0.55		0.5000		110	72	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R29422**	RunNo: **29422**
Prep Date:	Analysis Date: **10/9/2015**	SeqNo: **895544** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		88.1	57.8	137			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R29422**	RunNo: **29422**
Prep Date:	Analysis Date: **10/9/2015**	SeqNo: **895545** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.6	80	120			
Surr: BFB	19		20.00		93.0	57.8	137			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-21811**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**21811**	RunNo:	**29529**					
Prep Date:	**10/13/2015**	Analysis Date:	**10/14/2015**	SeqNo:	**899307**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.1		2.500		85.2	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		82.8	20.6	151			

Sample ID	**LCS-21811**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSW**	Batch ID:	**21811**	RunNo:	**29529**					
Prep Date:	**10/13/2015**	Analysis Date:	**10/14/2015**	SeqNo:	**899308**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	58.9	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	83.5	25.6	164			
Surr: Decachlorobiphenyl	1.8		2.500		74.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.8		2.500		74.0	20.6	151			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R29397**	RunNo: **29397**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894163** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	21	1.0	20.00	0	103	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	113	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R29397**	RunNo: **29397**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894164** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R29397**	RunNo: **29397**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894164** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R29397**	RunNo: **29397**
Prep Date:	Analysis Date: **10/8/2015**	SeqNo: **894164** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-21812**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **21812**	RunNo: **29527**
Prep Date: **10/13/2015**	Analysis Date: **10/14/2015**	SeqNo: **898372** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	21		20.00		103	37.2	136			

Sample ID **LCS-21812**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **21812**	RunNo: **29527**
Prep Date: **10/13/2015**	Analysis Date: **10/14/2015**	SeqNo: **898374** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	65	2.0	80.00	0	80.7	57.8	83.9			
1-Methylnaphthalene	67	2.0	80.20	0	83.1	43.5	88.5			
2-Methylnaphthalene	65	2.0	80.00	0	81.0	34.2	94.5			
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	56.3	98.6			
Surr: Benzo(e)pyrene	21		20.00		107	37.2	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-21920**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **PBW**	Batch ID: **21920**	RunNo: **29663**
Prep Date: **10/20/2015**	Analysis Date: **10/20/2015**	SeqNo: **903297** Units: **µg/L**

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

Sample ID **LCS-21920**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **LCSW**	Batch ID: **21920**	RunNo: **29663**
Prep Date: **10/20/2015**	Analysis Date: **10/20/2015**	SeqNo: **903298** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	19	2.5	20.00	0	96.2	64.4	135			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-R29838**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R29838**	RunNo:	**29838**
Prep Date:		Analysis Date:	**10/21/2015**	SeqNo:	**908965** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.209	0.513								
Radium-226 ±	0.319	0.513								
Radium-228	0.221	0.666								
Radium-228 ±	0.31	0.666								

Sample ID	**MB-R29838**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R29838**	RunNo:	**29838**
Prep Date:		Analysis Date:	**10/21/2015**	SeqNo:	**908967** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.411	0.965								
Radium-226 ±	0.571	0.965								
Radium-228	0.403	0.785								
Radium-228 ±	0.384	0.785								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1510416**

30-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-21779**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**21779**		RunNo:	**29476**				
Prep Date:	**10/11/2015**	Analysis Date:	**10/12/2015**		SeqNo:	**896502**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	**LCS-21779**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**21779**		RunNo:	**29476**				
Prep Date:	**10/11/2015**	Analysis Date:	**10/12/2015**		SeqNo:	**896503**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1510416 RcptNo: 1

Received by/date: CS 10/08/15

Logged By: Lindsay Mangin 10/8/2015 9:07:00 AM

Completed By: Lindsay Mangin 10/8/2015 12:52:31 PM

Reviewed By: CS 10/08/15

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 7 (<2 or >12 unless noted)

Adjusted? NO

Checked by: JA

Special Handling (if applicable)

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

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: Navajo Refinery

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

X Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush _____

Project Name:

Monthly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Elizabeth Salsberry

On Ice: X Yes ☐ No

Sample Temperature: 1.0°C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1510416	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB
10/7/15	8:55	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X	
10/7/15	8:55	liquid	Temporary R.O. Reject	3-40ml VOA	HCL	-001	X														
10/7/15	8:55	liquid	Temporary R.O. Reject	1-500ml P	HNO3	-001					X										
10/7/15	8:55	liquid	Temporary R.O. Reject	1-125ml P	HNO3	-001			X												
10/7/15	8:55	liquid	Temporary R.O. Reject	1-500ml P	NaOH	-001				X											
10/7/15	8:55	liquid	Temporary R.O. Reject	2- 1L P	HNO3	-001								X							
10/7/15	8:55	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3	-001															X
10/7/15	8:55	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres	-001							X								
10/7/15	8:55	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres	-001		X													
10/7/15	8:55	liquid	Temporary R.O. Reject	3-40ml VOA	HCl	-001						X									
10/7/15	8:55	liquid	Temporary R.O. Reject	1-250mlGlass	unpres	-001						X									
10/7/15	8:55	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	-001										X					
10/7/15	8:55	liquid	Trip Blank	2-40ml VOA	HCL	-002															

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/7/15	12:00	Elizabeth Salsberry	Celine Sanz	10/08/15	0907
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2 Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

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

Monthly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	10/7/2015 @ 8:55am
End Date and Time	10/7/2015 @ 9:11am

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

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

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

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1	500ml	Plastic	2	X			X					pH, Cl, F, S04, 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): 10/7/2015 Tmp.60.8 °F, Humidity 94%, Wind Dir. North, Wind Speed 8.1 mph, Conditions Partly Cloudy

Date and Time:

Field Temp. 8.13 Field pH 22.7C

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

December 15, 2015

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

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

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

Dear Sirs:

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

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

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

Navajo has calculated a penalty of $2,900 for November 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 29 days in November. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

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

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a notification to submit to OCD for Discharge Permit GW-028 authorization regarding installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to reduce the total volume of RO reject fluid produced. Navajo is also evaluating options for the underground injection, or other options for discharge of RO reject fluid.

On November 12, 2015, Navajo notified OCD that Holly Energy Partners was conducting field work in the south discharge field, and that the temporary RO discharge location would need to be moved to the north field. OCD approved this request in an email on November 12, 2015. Per OCD's request, Navajo has documented the discharge locations and volumes.

On November, 2015, Navajo and OCD met to discuss conditions of the May 2015 permit modification request to increase the discharge volume, and the Background Groundwater Report.

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

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

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

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

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
11/1/2015	141	144	285	9,771	61	2075	11,846
11/2/2015	155	148	303	10,389	63	2150	12,539
11/3/2015	146	149	295	10,114	63	2168	12,282
11/4/2015	147	144	291	9,977	65	2219	12,196
11/5/2015	144	143	287	9,840	67	2285	12,125
11/6/2015	151	141	292	10,011	68	2330	12,341
11/7/2015	146	145	291	9,977	69	2365	12,342
11/8/2015	149	140	289	9,909	70	2400	12,309
11/9/2015	147	148	295	10,114	70	2400	12,514
11/10/2015	0	145	145	4,971	51	1759	6,730
11/11/2015	149	147	296	10,149	55	1903	12,052
11/12/2015	147	143	290	9,943	70	2391	12,334
11/13/2015	149	144	293	10,046	71	2422	12,468
11/14/2015	149	140	289	9,909	71	2434	12,343
11/15/2015	149	144	293	10,046	72	2458	12,504
11/16/2015	152	140	292	10,011	56	1922	11,933
11/17/2015	148	152	300	10,286	57	1956	12,242
11/18/2015	152	143	295	10,114	58	1993	12,107
11/19/2015	149	141	290	9,943	59	2023	11,966
11/20/2015	146	144	290	9,943	60	2069	12,012
11/21/2015	146	146	292	10,011	60	2058	12,069
11/22/2015	149	142	291	9,977	64	2183	12,160
11/23/2015	154	153	307	10,526	66	2250	12,776
11/24/2015	127	150	277	9,497	91	3107	12,604
11/25/2015	139	148	287	9,840	66	2254	12,094
11/26/2015	137	148	285	9,771	67	2295	12,066
11/27/2015	143	151	294	10,080	66	2263	12,343
11/28/2015	141	148	289	9,909	66	2263	12,172
11/29/2015	138	150	288	9,874	57	1938	11,812
11/30/2015	142	153	295	10,114	67	2303	12,417

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - November 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	--	--	--
2.b.i.1	- **Prior** to Navajo submitting a discharge permit modification application	$1,000		$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels **after** Navajo submits discharge permit modification application	$100	29	$2,900
2.b.i.2	- If the daily volume exceeds 15,000 barrels **after** Navajo submits discharge permit modification application	$500		$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	$2,000		$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	$1,000		$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	$1,000		$0
		Total Amount:		**$2,900**

Attachment 3
Analytical Lab Report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

November 25, 2015

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

RE: Monthly RO Reject OrderNo.: 1511135

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/4/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1511135**
Date Reported: **11/25/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly RO Reject
Lab ID: 1511135-001 **Matrix:** AQUEOUS

Client Sample ID: R.O. Reject
Collection Date: 11/3/2015 9:00:00 AM
Received Date: 11/4/2015 9:05:00 AM

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

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: R.O. Reject
Project: Monthly RO Reject
Collection Date: 11/3/2015 9:00:00 AM
Lab ID: 1511135-001 **Matrix:** AQUEOUS **Received Date:** 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	11/6/2015 2:48:23 PM	22172
EPA METHOD 8082: PCB'S						Analyst: **JDC**	
Aroclor 1016	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1221	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1232	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1242	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1248	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1254	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Aroclor 1260	ND	1.0		µg/L	1	11/6/2015 6:25:50 PM	22197
Surr: Decachlorobiphenyl	73.2	17.7-151		%REC	1	11/6/2015 6:25:50 PM	22197
Surr: Tetrachloro-m-xylene	63.6	20.6-151		%REC	1	11/6/2015 6:25:50 PM	22197
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2015 3:31:45 PM	22175
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2015 3:31:45 PM	22175
Surr: DNOP	134	72-136		%REC	1	11/6/2015 3:31:45 PM	22175
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/5/2015 10:08:12 AM	R30036
Surr: BFB	79.0	57.8-137		%REC	1	11/5/2015 10:08:12 AM	R30036
EPA METHOD 8310: PAHS						Analyst: **JDC**	
Naphthalene	ND	2.0		µg/L	1	11/6/2015 5:45:58 PM	22195
1-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 5:45:58 PM	22195
2-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 5:45:58 PM	22195
Benzo(a)pyrene	ND	0.070		µg/L	1	11/6/2015 5:45:58 PM	22195
Surr: Benzo(e)pyrene	63.7	37.2-136		%REC	1	11/6/2015 5:45:58 PM	22195
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 2:08:57 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 2:08:57 PM	R30086

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: R.O. Reject
Project: Monthly RO Reject
Collection Date: 11/3/2015 9:00:00 AM
Lab ID: 1511135-001 **Matrix:** AQUEOUS **Received Date:** 11/4/2015 9:05:00 AM

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

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly RO Reject
Collection Date:
Lab ID: 1511135-002
Matrix: TRIP BLANK
Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	11/6/2015 3:01:56 PM	22172
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Naphthalene	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Acetone	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromodichloromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromoform	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Bromomethane	ND	3.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Butanone	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Carbon disulfide	ND	10		µg/L	1	11/6/2015 3:35:06 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chloroethane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Chloromethane	ND	3.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
2-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
4-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
cis-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Dibromochloromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Dibromomethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086
1,2-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 3:35:06 PM	R30086

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly RO Reject
Collection Date:
Lab ID: 1511135-002
Matrix: TRIP BLANK
Received Date: 11/4/2015 9:05:00 AM

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

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B30225**	RunNo: **30225**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **921063** Units: **mg/L**

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

Sample ID **LLLCS-B**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B30225**	RunNo: **30225**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **921064** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	90.0	50	150			
Barium	0.0021	0.0020	0.002000	0	105	50	150			
Boron	0.041	0.040	0.04000	0	102	50	150			
Cadmium	ND	0.0020	0.002000	0	94.0	50	150			
Chromium	0.0061	0.0060	0.006000	0	101	50	150			
Cobalt	0.0063	0.0060	0.006000	0	105	50	150			
Copper	ND	0.0060	0.006000	0	93.2	50	150			
Iron	0.025	0.020	0.02000	0	127	50	150			
Manganese	0.0022	0.0020	0.002000	0	108	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	ND	0.010	0.005000	0	108	50	150			
Silver	0.0053	0.0050	0.005000	0	106	50	150			
Zinc	ND	0.010	0.005000	0	102	50	150			

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B30225**	RunNo: **30225**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **921065** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	101	85	115			
Barium	0.48	0.0020	0.5000	0	96.6	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B30225**	RunNo: **30225**
Prep Date:	Analysis Date: **11/13/2015**	SeqNo: **921065** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.48	0.0020	0.5000	0	97.0	85	115			
Chromium	0.48	0.0060	0.5000	0	96.3	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.47	0.0060	0.5000	0	94.8	85	115			
Iron	0.49	0.020	0.5000	0	97.5	85	115			
Manganese	0.47	0.0020	0.5000	0	93.8	85	115			
Molybdenum	0.50	0.0080	0.5000	0	101	85	115			
Nickel	0.46	0.010	0.5000	0	92.0	85	115			
Silver	0.099	0.0050	0.1000	0	99.2	85	115			
Zinc	0.48	0.010	0.5000	0	96.1	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B30317**	RunNo: **30317**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **925053** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.012	0.00050	0.01250	0	96.6	85	115			
Selenium	0.026	0.0010	0.02500	0	102	85	115			
Uranium	0.012	0.00050	0.01250	0	96.9	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B30317**	RunNo: **30317**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **925054** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	105	50	150			
Lead	ND	0.00050	0.0005000	0	99.5	50	150			
Selenium	0.0010	0.0010	0.001000	0	101	50	150			
Uranium	ND	0.00050	0.0005000	0	97.4	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B30317**	RunNo: **30317**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **925055** Units: **mg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-22341**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**PBW**	Batch ID:	**22341**	RunNo:	**30233**				
Prep Date:	**11/13/2015**	Analysis Date:	**11/13/2015**	SeqNo:	**921328**	Units:	**mg/L**		

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

Sample ID	**LCS-22341**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**LCSW**	Batch ID:	**22341**	RunNo:	**30233**				
Prep Date:	**11/13/2015**	Analysis Date:	**11/13/2015**	SeqNo:	**921336**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0061	0.00020	0.005000	0	121	80	120			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R30015**	RunNo: **30015**
Prep Date:	Analysis Date: **11/4/2015**	SeqNo: **914384** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R30015**	RunNo: **30015**
Prep Date:	Analysis Date: **11/4/2015**	SeqNo: **914385** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.1	90	110			
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			

Sample ID **1511135-001EMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **R.O. Reject**	Batch ID: **R30015**	RunNo: **30015**
Prep Date:	Analysis Date: **11/4/2015**	SeqNo: **914409** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.0	0.10	0.5000	2.378	120	75.3	111			S
Nitrogen, Nitrate (As N)	3.9	0.10	2.500	1.288	103	87.3	111			

Sample ID **1511135-001EMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **R.O. Reject**	Batch ID: **R30015**	RunNo: **30015**
Prep Date:	Analysis Date: **11/4/2015**	SeqNo: **914410** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.2	0.10	0.5000	2.378	165	75.3	111	7.21	20	S
Nitrogen, Nitrate (As N)	3.9	0.10	2.500	1.288	103	87.3	111	0.531	20	

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R30336**	RunNo: **30336**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **925732** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R30336**	RunNo: **30336**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **925733** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	97.3	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		113	72	136			

Sample ID **LCS-22175**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **22175**	RunNo: **30057**
Prep Date: **11/4/2015**	Analysis Date: **11/6/2015**	SeqNo: **915910** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	52.4	154			
Surr: DNOP	0.55		0.5000		111	72	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R30036**	RunNo: **30036**
Prep Date:	Analysis Date: **11/5/2015**	SeqNo: **915111** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	16		20.00		79.4	57.8	137			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R30036**	RunNo: **30036**
Prep Date:	Analysis Date: **11/5/2015**	SeqNo: **915112** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	88.0	80	120			
Surr: BFB	20		20.00		98.3	57.8	137			

Sample ID **1511135-001JMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **R.O. Reject**	Batch ID: **R30036**	RunNo: **30036**
Prep Date:	Analysis Date: **11/5/2015**	SeqNo: **915114** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	87.9	70	130			
Surr: BFB	20		20.00		97.9	57.8	137			

Sample ID **1511135-001JMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **R.O. Reject**	Batch ID: **R30036**	RunNo: **30036**
Prep Date:	Analysis Date: **11/5/2015**	SeqNo: **915115** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.42	0.050	0.5000	0	83.8	70	130	4.80	20	
Surr: BFB	19		20.00		96.0	57.8	137	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**MB-22197**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**22197**	RunNo:	**30067**					
Prep Date:	**11/5/2015**	Analysis Date:	**11/6/2015**	SeqNo:	**916012**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.4		2.500		96.4	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		82.0	20.6	151			

Sample ID	**LCS-22197**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSW**	Batch ID:	**22197**	RunNo:	**30067**					
Prep Date:	**11/5/2015**	Analysis Date:	**11/6/2015**	SeqNo:	**916013**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.3	1.0	5.000	0	45.2	9.01	142			
Aroclor 1260	4.3	1.0	5.000	0	86.6	25.6	164			
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		80.8	20.6	151			

Qualifiers:

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