

GW – 028

**Annual DP
Report
(Part 11 of 16)**

2015

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-21812		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs				
Client ID:	PBW		Batch ID:	21812		RunNo:	29527				
Prep Date:	10/13/2015		Analysis Date:	10/14/2015		SeqNo:	898372		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	2.0									
2-Methylnaphthalene	ND	2.0									
Benzo(a)pyrene	ND	0.070									
Surr: Benzo(e)pyrene	21		20.00		103	37.2	136				

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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S % Recovery outside of range due to dilution or matrix

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510410

02-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

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



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

Monthly RO Reject Sample Details Attachment



The HollyFrontier Companies

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

Sample Type	Grab <input checked="" type="checkbox"/>
Time Weighted Composite	<input type="checkbox"/>
Flow Weighted Composite	<input type="checkbox"/>

Physical Property	
Solid	<input type="checkbox"/>
Liquid	<input checked="" type="checkbox"/>
Sudge	<input type="checkbox"/>

Parts / Sample Intervals One

Type of Sampler	Directly to sample jars
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☐ North Field R.O. Reject Discharge

☒ South Field R.O. Reject Discharge

Outfall / Sample Location:

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

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

Date and Time:

Field Temp. 24.9C Field pH 7.92

Storage Method	
Ice	<input checked="" type="checkbox"/>
Refrigerated	<input type="checkbox"/>
Other	<input type="checkbox"/>

Shipping Media	
Ice	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



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

October 30, 2015

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

RE: Monthly Temporary RO Reject

OrderNo.: 1510416

Dear Robert Combs:

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

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

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

Lab ID: 1510416-001

Matrix: AQUEOUS

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

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

Lab ID: 1510416-001

Matrix: AQUEOUS

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary RO Reject

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

Lab ID: 1510416-001

Matrix: AQUEOUS

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1510416-002

Matrix: TRIP BLANK

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1510416

Date Reported: 10/30/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary RO Reject

Collection Date:

Lab ID: 1510416-002

Matrix: TRIP BLANK

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

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

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

Sample ID LCS-C	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: C29574		RunNo: 29574							
Prep Date:	Analysis Date: 10/15/2015		SeqNo: 900086		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	85	115			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.48	0.0020	0.5000	0	96.7	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: B29683			RunNo: 29683						
Prep Date:	Analysis Date: 10/20/2015			SeqNo: 903929		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	95.2	85	115			
Lead	0.012	0.00050	0.01250	0	98.6	85	115			
Selenium	0.023	0.0010	0.02500	0	90.5	85	115			
Uranium	0.012	0.00050	0.01250	0	96.7	85	115			

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R29414		RunNo: 29414							
Prep Date:	Analysis Date: 10/8/2015		SeqNo: 894692		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								

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

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21793		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range				
Client ID:	PBW		Batch ID:	21793		RunNo:	29489				
Prep Date:	10/12/2015		Analysis Date:	10/12/2015		SeqNo:	896837		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	ND	1.0									
Motor Oil Range Organics (MRO)	ND	5.0									
Surr: DNOP	1.3		1.000		128	72	136				

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R29422	RunNo:	29422					
Prep Date:		Analysis Date:	10/9/2015	SeqNo:	895544	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		88.1	57.8	137			

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21811		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 21811		RunNo: 29529					
Prep Date:	10/13/2015		Analysis Date: 10/14/2015		SeqNo: 899307		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.1		2.500		85.2	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		82.8	20.6	151			

Sample ID	LCS-21811			SampType:	LCS		TestCode:	EPA Method 8082: PCB's			
Client ID:	LCSW			Batch ID:	21811		RunNo:	29529			
Prep Date:	10/13/2015		Analysis Date:	10/14/2015		SeqNo:	899308		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	2.9	1.0	5.000	0	58.9	9.01	142				
Aroclor 1260	4.2	1.0	5.000	0	83.5	25.6	164				
Surr: Decachlorobiphenyl	1.8		2.500		74.0	17.7	151				
Surr: Tetrachloro-m-xylene	1.8		2.500		74.0	20.6	151				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R29397			RunNo: 29397					
Prep Date:		Analysis Date: 10/8/2015			SeqNo: 894164		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

Sample ID	MB-21812		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs				
Client ID:	PBW		Batch ID:	21812		RunNo:	29527				
Prep Date:	10/13/2015		Analysis Date:	10/14/2015		SeqNo:	898372		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Naphthalene	ND	2.0									
1-Methylnaphthalene	ND	2.0									
2-Methylnaphthalene	ND	2.0									
Benzo(a)pyrene	ND	0.070									
Surr: Benzo(e)pyrene	21		20.00		103	37.2	136				

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1510416

30-Oct-15

Client: Navajo Refining Company
Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1510416

RcptNo: 1

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

Chain of Custody

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

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

Log In

- Was an attempt made to cool the samples?
- Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?
- Sample(s) in proper container(s)?
- Sufficient sample volume for indicated test(s)?
- Are samples (except VOA and ONG) properly preserved?
- Was preservative added to bottles?

Yes ☒ No ☐ NA ☐
 Yes ☒ No ☐ NA ☐
 Yes ☒ No ☐
 Yes ☒ No ☐
 Yes ☐ No ☒ NA ☐

- VOA vials have zero headspace?
- Were any sample containers received broken?

Yes ☒ No ☐ No VOA Vials ☐
 Yes ☐ No ☒

- Does paperwork match bottle labels?
(Note discrepancies on chain of custody)
- Are matrices correctly identified on Chain of Custody?
- Is it clear what analyses were requested?
- Were all holding times able to be met?
(If no, notify customer for authorization.)

Yes ☒ No ☐
 Yes ☒ No ☐
 Yes ☒ No ☐

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

Special Handling (if applicable)

- Was client notified of all discrepancies with this order?

Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

- Additional remarks:

18. Cooler Information

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



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

Monthly Temporary RO Reject Sample Details



Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salisbury
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	<input checked="" type="checkbox"/>
Time Weighted Composite	<input type="checkbox"/>
Flow Weighted Composite	<input type="checkbox"/>

Physical Property	
Solid	<input type="checkbox"/>
Liquid	<input checked="" type="checkbox"/>
Sludge	<input type="checkbox"/>

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

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

☐ North Field R.O. Reject Discharge

☒ South Field R.O. Reject Discharge

Outfall / Sample Location:

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

Field Data (Weather, Observations, Etc): 10/7/2015 Temp: 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	<input checked="" type="checkbox"/>
Refrigerated	<input type="checkbox"/>
Other	<input type="checkbox"/>

Shipping Media	
Ice	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>



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)		BBL
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	
	SOUTH	NORTH					
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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 25, 2015

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

RE: Monthly RO Reject

OrderNo.: 1511135

Dear Robert Combs:

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

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

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

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

Lab ID: 1511135-001

Matrix: AQUEOUS

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

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

Lab ID: 1511135-001

Matrix: AQUEOUS

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

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

Lab ID: 1511135-001

Matrix: AQUEOUS

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1511135-002

Matrix: TRIP BLANK

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

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

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1511135

Date Reported: 11/25/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1511135-002

Matrix: TRIP BLANK

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

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

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-B		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: B30225		RunNo: 30225					
Prep Date:			Analysis Date: 11/13/2015		SeqNo: 921063		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B30317		RunNo: 30317					
Prep Date:			Analysis Date: 11/18/2015		SeqNo: 925053		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.012	0.00050	0.01250	0	96.6	85	115			
Selenium	0.026	0.0010	0.02500	0	102	85	115			
Uranium	0.012	0.00050	0.01250	0	96.9	85	115			

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22341		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	22341		RunNo:	30233				
Prep Date:	11/13/2015		Analysis Date:	11/13/2015		SeqNo:	921328		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R30015	RunNo:	30015					
Prep Date:		Analysis Date:	11/4/2015	SeqNo:	914384	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R30015	RunNo:	30015					
Prep Date:		Analysis Date:	11/4/2015	SeqNo:	914385	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	0.48	0.10	0.5000	0	96.1	90	110			
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	103	90	110			

Sample ID	1511135-001EMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	R.O. Reject	Batch ID:	R30015	RunNo:	30015					
Prep Date:		Analysis Date:	11/4/2015	SeqNo:	914409	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	3.0	0.10	0.5000	2.378	120	75.3	111			S
Nitrogen, Nitrate (As N)	3.9	0.10	2.500	1.288	103	87.3	111			

Sample ID	1511135-001EMSD	SampType:	MSD	TestCode:	EPA Method 300.0: Anions					
Client ID:	R.O. Reject	Batch ID:	R30015	RunNo:	30015					
Prep Date:		Analysis Date:	11/4/2015	SeqNo:	914410	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	3.2	0.10	0.5000	2.378	165	75.3	111	7.21	20	S
Nitrogen, Nitrate (As N)	3.9	0.10	2.500	1.288	103	87.3	111	0.531	20	

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R30336	RunNo:	30336					
Prep Date:		Analysis Date:	11/18/2015	SeqNo:	925732	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sulfate	ND	0.50								
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Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R30336	RunNo:	30336					
Prep Date:		Analysis Date:	11/18/2015	SeqNo:	925733	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	97.3	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22175		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range				
Client ID:	PBW		Batch ID:	22175		RunNo:	30057				
Prep Date:	11/4/2015		Analysis Date:	11/6/2015		SeqNo:	915909		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	ND	1.0									
Motor Oil Range Organics (MRO)	ND	5.0									
Surr: DNOP	1.1		1.000		113	72	136				

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	PBW		Batch ID:	R30036		RunNo:	30036				
Prep Date:			Analysis Date:	11/5/2015		SeqNo:	915111	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	0.050									
Surr: BFB	16		20.00		79.4	57.8	137				

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

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1511135

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-22197		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 22197		RunNo: 30067					
Prep Date:	11/5/2015		Analysis Date: 11/6/2015		SeqNo: 916012		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.4		2.500		96.4	17.7	151			
Surr: Tetrachloro-m-xylene	2.0		2.500		82.0	20.6	151			

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

Qualifiers:

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

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