

GW-028

**Annual DP Report
(5 of 6)**

2016



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

April 01, 2016

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

RE: Monthly R.O. Reject

OrderNo.: 1603242

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/4/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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'.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603242

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 3/3/2016 9:45:00 AM

Lab ID: 1603242-001

Matrix: AQUEOUS

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						
						Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	3/7/2016 4:42:17 PM
EPA METHOD 8082: PCB'S						
						Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Aroclor 1221	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Aroclor 1232	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Aroclor 1242	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Aroclor 1248	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Aroclor 1254	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Aroclor 1260	ND	1.0		µg/L	1	3/11/2016 2:01:36 PM
Surr: Decachlorobiphenyl	100	26.1-140		%Rec	1	3/11/2016 2:01:36 PM
Surr: Tetrachloro-m-xylene	119	15-123		%Rec	1	3/11/2016 2:01:36 PM
EPA METHOD 8015M/D: DIESEL RANGE						
						Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/7/2016 5:37:40 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/7/2016 5:37:40 PM
Surr: DNOP	102	70-141		%Rec	1	3/7/2016 5:37:40 PM
EPA METHOD 8015D: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2016 9:22:09 PM
Surr: BFB	92.5	49.5-130		%Rec	1	3/4/2016 9:22:09 PM
EPA METHOD 8310: PAHS						
						Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	3/17/2016 12:56:02 PM
1-Methylnaphthalene	ND	2.0		µg/L	1	3/17/2016 12:56:02 PM
2-Methylnaphthalene	ND	2.0		µg/L	1	3/17/2016 12:56:02 PM
Benzo(a)pyrene	ND	0.070		µg/L	1	3/17/2016 12:56:02 PM
Surr: Benzo(e)pyrene	75.2	33.4-129		%Rec	1	3/17/2016 12:56:02 PM
EPA METHOD 300.0: ANIONS						
						Analyst: JRR
Fluoride	3.5	2.0		mg/L	20	3/4/2016 3:03:27 PM
Chloride	370	10		mg/L	20	3/4/2016 3:03:27 PM
Nitrogen, Nitrate (As N)	2.2	0.10		mg/L	1	3/4/2016 2:51:02 PM
Sulfate	1900	25		mg/L	50	3/18/2016 3:05:33 AM
EPA METHOD 200.7: DISSOLVED METALS						
						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	3/18/2016 6:31:34 PM
Barium	0.069	0.0020		mg/L	1	3/18/2016 6:31:34 PM
Boron	0.093	0.040		mg/L	1	3/18/2016 6:31:34 PM
Cadmium	ND	0.0020		mg/L	1	3/18/2016 6:31:34 PM
Chromium	ND	0.0060		mg/L	1	3/18/2016 6:31:34 PM
Cobalt	ND	0.0060		mg/L	1	3/18/2016 6:31:34 PM

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

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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603242

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 3/3/2016 9:45:00 AM

Lab ID: 1603242-001

Matrix: AQUEOUS

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Copper	ND	0.0060		mg/L	1	3/18/2016 6:31:34 PM
Iron	ND	0.020		mg/L	1	3/18/2016 6:31:34 PM
Manganese	ND	0.0020		mg/L	1	3/18/2016 6:31:34 PM
Molybdenum	0.0099	0.0080		mg/L	1	3/18/2016 6:31:34 PM
Nickel	ND	0.010		mg/L	1	3/18/2016 6:31:34 PM
Silver	ND	0.0050		mg/L	1	3/18/2016 6:31:34 PM
Zinc	0.014	0.010		mg/L	1	3/18/2016 6:31:34 PM
EPA 200.8: DISSOLVED METALS						Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	3/29/2016 5:36:33 PM
Lead	ND	0.0025		mg/L	5	3/29/2016 5:36:33 PM
Selenium	0.0093	0.0050		mg/L	5	3/29/2016 5:36:33 PM
Uranium	0.0058	0.0025		mg/L	5	3/29/2016 5:36:33 PM
EPA METHOD 245.1: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	3/10/2016 11:32:03 AM
EPA METHOD 8260B: VOLATILES						Analyst: DJF
Benzene	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Toluene	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Ethylbenzene	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Chloroform	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Methylene Chloride	ND	3.0		µg/L	1	3/11/2016 7:47:26 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/11/2016 7:47:26 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Vinyl chloride	ND	1.0		µg/L	1	3/11/2016 7:47:26 PM
Xylenes, Total	ND	1.5		µg/L	1	3/11/2016 7:47:26 PM
Surr: 1,2-Dichloroethane-d4	97.6	70-130		%Rec	1	3/11/2016 7:47:26 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	3/11/2016 7:47:26 PM
Surr: Dibromofluoromethane	94.2	70-130		%Rec	1	3/11/2016 7:47:26 PM
Surr: Toluene-d8	92.0	70-130		%Rec	1	3/11/2016 7:47:26 PM

TOTAL PHENOLICS BY SW-846 9067

Analyst: SCC

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
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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603242

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 3/3/2016 9:45:00 AM

Lab ID: 1603242-001

Matrix: AQUEOUS

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	3/8/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	3/16/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: SUB
Radium-226	1.08	0.770		pCi/L	1	3/18/2016 10:42:00 AM
Radium-226 ±	0.67	0.770		pCi/L	1	3/18/2016 10:42:00 AM
Radium-228	0.451	0.810		pCi/L	1	3/18/2016 10:42:00 AM
Radium-228 ±	0.39	0.810		pCi/L	1	3/18/2016 10:42:00 AM
SM4500-H+B: PH						Analyst: JRR
pH	8.02	1.68	H	pH units	1	3/7/2016 7:54:14 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	4030	20.0	*	mg/L	1	3/9/2016 11:47:00 AM

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

Qualifiers:	*	Value 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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603242

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1603242-002

Matrix: TRIP BLANK

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	3/7/2016 4:57:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2016 9:46:30 PM
Surr: BFB	88.1	49.5-130		%Rec	1	3/4/2016 9:46:30 PM
EPA METHOD 8260B: VOLATILES						Analyst: DJF
Benzene	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Toluene	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Ethylbenzene	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Chloroform	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Methylene Chloride	ND	3.0		µg/L	1	3/11/2016 8:15:43 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/11/2016 8:15:43 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Vinyl chloride	ND	1.0		µg/L	1	3/11/2016 8:15:43 PM
Xylenes, Total	ND	1.5		µg/L	1	3/11/2016 8:15:43 PM
Surr: 1,2-Dichloroethane-d4	98.7	70-130		%Rec	1	3/11/2016 8:15:43 PM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/11/2016 8:15:43 PM
Surr: Dibromofluoromethane	97.7	70-130		%Rec	1	3/11/2016 8:15:43 PM
Surr: Toluene-d8	99.6	70-130		%Rec	1	3/11/2016 8:15:43 PM

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

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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID MB-C	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: C32891		RunNo: 32891							
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008301		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS-C	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: C32891		RunNo: 32891							
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008302		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	85	115			
Barium	0.50	0.0020	0.5000	0	99.1	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.8	85	115			
Copper	0.50	0.0060	0.5000	0	101	85	115			
Iron	0.49	0.020	0.5000	0	98.4	85	115			
Manganese	0.49	0.0020	0.5000	0	97.8	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	93.6	85	115			
Zinc	0.48	0.010	0.5000	0	96.3	85	115			

Sample ID LLLCS-C	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: C32891		RunNo: 32891							
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008303		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	111	50	150			
Barium	0.0021	0.0020	0.002000	0	103	50	150			
Boron	ND	0.040	0.04000	0	97.7	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS-C		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: C32891		RunNo: 32891					
Prep Date:			Analysis Date: 3/18/2016		SeqNo: 1008303		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020	0.002000	0	99.5	50	150			
Chromium	ND	0.0060	0.006000	0	87.8	50	150			
Cobalt	ND	0.0060	0.006000	0	85.3	50	150			
Copper	0.0068	0.0060	0.006000	0	114	50	150			
Iron	0.021	0.020	0.02000	0	103	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum	0.0097	0.0080	0.008000	0	121	50	150			
Nickel	ND	0.010	0.005000	0	98.6	50	150			
Silver	ND	0.0050	0.005000	0	76.2	50	150			
Zinc	ND	0.010	0.005000	0	100	50	150			

Sample ID	LCS-C		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: C32891		RunNo: 32891					
Prep Date:			Analysis Date: 3/18/2016		SeqNo: 1008305		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	85	115			

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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B33154		RunNo: 33154					
Prep Date:			Analysis Date: 3/29/2016		SeqNo: 1018089		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.7	85	115			
Lead	0.012	0.00050	0.01250	0	95.4	85	115			
Selenium	0.025	0.0010	0.02500	0	101	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID	LLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B33154		RunNo: 33154					
Prep Date:			Analysis Date: 3/29/2016		SeqNo: 1018090		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	98.0	50	150			
Lead	0.00050	0.00050	0.0005000	0	100	50	150			
Selenium	ND	0.0010	0.001000	0	94.9	50	150			
Uranium	ND	0.00050	0.0005000	0	91.1	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B33154			RunNo: 33154					
Prep Date:		Analysis Date: 3/29/2016			SeqNo: 1018091		Units: mg/L			
Analyte	Result	PQL	SPK value	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
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RL Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-24156		SampType:	mblk		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	24156		RunNo:	32702				
Prep Date:	3/9/2016		Analysis Date:	3/10/2016		SeqNo:	1000942		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-24156		SampType: lcs		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 24156		RunNo: 32702					
Prep Date:	3/9/2016		Analysis Date: 3/10/2016		SeqNo: 1000945		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0	109	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R32618		RunNo: 32618							
Prep Date:	Analysis Date: 3/4/2016		SeqNo: 997926		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R32618		RunNo: 32618							
Prep Date:	Analysis Date: 3/4/2016		SeqNo: 997927		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R32879		RunNo: 32879							
Prep Date:	Analysis Date: 3/17/2016		SeqNo: 1007965		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R32879		RunNo: 32879							
Prep Date:	Analysis Date: 3/17/2016		SeqNo: 1007966		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	94.6	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-24100		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	24100		RunNo:	32621				
Prep Date:	3/7/2016		Analysis Date:	3/7/2016		SeqNo:	998470		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.010									

Sample ID	LCS-24100		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 24100		RunNo: 32621					
Prep Date:	3/7/2016		Analysis Date: 3/7/2016		SeqNo: 998471		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	108	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS-24101		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 24101		RunNo: 32603					
Prep Date:	3/7/2016		Analysis Date: 3/7/2016		SeqNo: 997914		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	71.3	139			
Surr: DNOP	0.50		0.5000		99.7	70	141			

Sample ID	MB-24101		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 24101		RunNo: 32603					
Prep Date:	3/7/2016		Analysis Date: 3/7/2016		SeqNo: 997915		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.91		1.000		90.8	70	141			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A32596	RunNo:	32596					
Prep Date:		Analysis Date:	3/4/2016	SeqNo:	997207	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		95.0	49.5	130			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A32596	RunNo:	32596					
Prep Date:		Analysis Date:	3/4/2016	SeqNo:	997208	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	103	80	120			
Surr: BFB	21		20.00		106	49.5	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-24175		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 24175		RunNo: 32727					
Prep Date:	3/10/2016		Analysis Date: 3/11/2016		SeqNo: 1002684		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.4		2.500		94.4	26.1	140			
Surr: Tetrachloro-m-xylene	3.9		2.500		155	15	123			S

Sample ID	LCS-24175		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 24175		RunNo: 32727					
Prep Date:	3/10/2016		Analysis Date: 3/11/2016		SeqNo: 1002685		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.3	15	131			
Aroclor 1260	3.3	1.0	5.000	0	66.9	15	162			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	26.1	140			
Surr: Tetrachloro-m-xylene	3.0		2.500		122	15	123			

Sample ID	LCSD-24175		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 24175		RunNo: 32727					
Prep Date:	3/10/2016		Analysis Date: 3/11/2016		SeqNo: 1002686		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.4	1.0	5.000	0	68.0	15	131	8.66	24.4	
Aroclor 1260	3.7	1.0	5.000	0	74.8	15	162	11.1	28	
Surr: Decachlorobiphenyl	2.4		2.500		94.8	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	3.3		2.500		130	15	123	0	0	S

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B32762			RunNo: 32762						
Prep Date:	Analysis Date: 3/11/2016			SeqNo: 1002996		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		90.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID 100ng lcs b	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: B32762			RunNo: 32762						
Prep Date:	Analysis Date: 3/11/2016			SeqNo: 1003007		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.5	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.8	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.1		10.00		90.9	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-24176		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	24176		RunNo:	32851			
Prep Date:	3/10/2016		Analysis Date:	3/17/2016		SeqNo:	1006908	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	13		20.00		64.4	33.4	129			

Sample ID	LCS-24176		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	24176		RunNo:	32851			
Prep Date:	3/10/2016		Analysis Date:	3/17/2016		SeqNo:	1006935	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.6	54.6	110			
1-Methylnaphthalene	75	2.0	80.20	0	93.6	49.1	116			
2-Methylnaphthalene	75	2.0	80.00	0	94.1	52.5	111			
Acenaphthylene	69	2.5	80.20	0	85.9	63.7	122			
Acenaphthene	77	2.0	80.00	0	96.2	50.6	114			
Fluorene	8.0	0.80	8.020	0	99.6	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	100	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	8.1	0.30	8.020	0	101	59.7	118			
Benz(a)anthracene	0.75	0.070	0.8020	0	93.5	56.6	109			
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.96	0.10	1.002	0	95.8	54.9	106			
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS-24176		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 24176		RunNo: 32851					
Prep Date:	3/10/2016		Analysis Date: 3/17/2016		SeqNo: 1006935		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	103	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	103	56.9	110			
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109			
Surr: Benzo(e)pyrene	17		20.00		83.0	33.4	129			

Sample ID	LCSD-24176		SampType: LCSD		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSS02		Batch ID: 24176		RunNo: 32851					
Prep Date:	3/10/2016		Analysis Date: 3/17/2016		SeqNo: 1006990		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.3	54.6	110	0.314	20	
1-Methylnaphthalene	73	2.0	80.20	0	91.2	49.1	116	2.51	20	
2-Methylnaphthalene	73	2.0	80.00	0	90.7	52.5	111	3.64	20	
Acenaphthylene	68	2.5	80.20	0	85.4	63.7	122	0.640	20	
Acenaphthene	74	2.0	80.00	0	92.3	50.6	114	4.22	20	
Fluorene	7.2	0.80	8.020	0	89.7	48.9	106	10.5	20	
Phenanthrene	4.0	0.60	4.020	0	99.5	54.7	110	0.747	24	
Anthracene	3.7	0.60	4.020	0	92.5	52	106	0	20	
Fluoranthene	8.7	0.30	8.020	0	108	57.8	113	0.460	20.9	
Pyrene	8.1	0.30	8.020	0	101	59.7	118	0.618	20.8	
Benz(a)anthracene	0.77	0.070	0.8020	0	96.0	56.6	109	2.63	20	
Chrysene	4.1	0.20	4.020	0	102	57.6	110	0.244	20	
Benzo(b)fluoranthene	0.95	0.10	1.002	0	94.8	54.9	106	1.05	20.6	
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112	0	20.8	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	0	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	104	54.8	108	0.966	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	103	56.9	110	0	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	0	20	
Surr: Benzo(e)pyrene	17		20.00		82.8	33.4	129	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-24124		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	24124		RunNo:	32622				
Prep Date:	3/8/2016		Analysis Date:	3/8/2016		SeqNo:	998125		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	ND	2.5									

Sample ID	LCS-24124		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 24124		RunNo: 32622					
Prep Date:	3/8/2016		Analysis Date: 3/8/2016		SeqNo: 998126		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	21	2.5	20.00	0	106	64.4	135			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R32959		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R32959		RunNo:	32959				
Prep Date:			Analysis Date:	3/16/2016		SeqNo:	1010968	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R32959		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R32959		RunNo: 32959					
Prep Date:			Analysis Date: 3/16/2016		SeqNo: 1010969		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.493		0.5000	0	98.6	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R32954		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R32954		RunNo:	32954			
Prep Date:			Analysis Date:	3/18/2016		SeqNo:	1010754	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.501	0.776								
Radium-226 ±	0.521	0.776								
Radium-228	0.0536	0.871								
Radium-228 ±	0.38	0.871								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603242

01-Apr-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-24120		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	24120		RunNo:	32669				
Prep Date:	3/7/2016		Analysis Date:	3/9/2016		SeqNo:	999682		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	ND	20.0									

Sample ID	LCS-24120		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	24120		RunNo:	32669				
Prep Date:	3/7/2016		Analysis Date:	3/9/2016		SeqNo:	999683		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1030	20.0	1000	0	103	80	120				

Qualifiers:

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

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



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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1603242

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

Completed By: Ashley Gallegos

Reviewed By: IO

3/4/2016 10:00:00 AM

3/4/2016 10:28:24 AM

03/04/16

Ag
Ag

Chain of Custody

1. Custody seals intact on sample bottles?
2. Is Chain of Custody complete?
3. How was the sample delivered?

Yes ☐

No ☐

Not Present ☒

Yes ☒

No ☐

Not Present ☐

Courier

Log In

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

Yes ☒

No ☐

NA ☐

Yes ☒

No ☐

NA ☐

Yes ☒

No ☐

Yes ☒

No ☐

Yes ☒

No ☐

Yes ☐

No ☒

NA ☐

Yes ☒

No ☐

No VOA Vials ☐

Yes ☐

No ☒

of preserved
bottles checked
for pH:

Yes ☒

No ☐

Adjusted?

7 or >12 (unless noted)
NO

Yes ☒

No ☐

Yes ☒

No ☐

Yes ☒

No ☐

Checked by:

ag

Special Handling (if applicable)

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

Yes ☐

No ☐

NA ☒

Person Notified:

Date

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			



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

April 01, 2016

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

RE: Monthly Temporary R.O. Reject

OrderNo.: 1603243

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/4/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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', with a stylized flourish at the end.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603243

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 3/3/2016 9:30:00 AM

Lab ID: 1603243-001

Matrix: AQUEOUS

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8011/504.1: EDB						
						Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	3/7/2016 5:12:38 PM
EPA METHOD 8082: PCB'S						
						Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Aroclor 1221	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Aroclor 1232	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Aroclor 1242	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Aroclor 1248	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Aroclor 1254	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Aroclor 1260	ND	1.0		µg/L	1	3/11/2016 3:10:44 PM
Surr: Decachlorobiphenyl	119	26.1-140		%Rec	1	3/11/2016 3:10:44 PM
Surr: Tetrachloro-m-xylene	126	15-123	S	%Rec	1	3/11/2016 3:10:44 PM
EPA METHOD 8015M/D: DIESEL RANGE						
						Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/7/2016 5:59:24 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/7/2016 5:59:24 PM
Surr: DNOP	102	70-141		%Rec	1	3/7/2016 5:59:24 PM
EPA METHOD 8015D: GASOLINE RANGE						
						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2016 10:11:02 PM
Surr: BFB	89.2	49.5-130		%Rec	1	3/4/2016 10:11:02 PM
EPA METHOD 8310: PAHS						
						Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	3/17/2016 1:25:22 PM
1-Methylnaphthalene	ND	2.0		µg/L	1	3/17/2016 1:25:22 PM
2-Methylnaphthalene	ND	2.0		µg/L	1	3/17/2016 1:25:22 PM
Benzo(a)pyrene	ND	0.070		µg/L	1	3/17/2016 1:25:22 PM
Surr: Benzo(e)pyrene	75.2	33.4-129		%Rec	1	3/17/2016 1:25:22 PM
EPA METHOD 300.0: ANIONS						
						Analyst: JRR
Fluoride	2.6	2.0		mg/L	20	3/4/2016 3:28:16 PM
Chloride	100	10		mg/L	20	3/4/2016 3:28:16 PM
Nitrogen, Nitrate (As N)	1.5	0.10		mg/L	1	3/4/2016 3:15:51 PM
Sulfate	1100	25		mg/L	50	3/18/2016 3:17:58 AM
EPA METHOD 200.7: DISSOLVED METALS						
						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	3/18/2016 6:33:30 PM
Barium	0.047	0.0020		mg/L	1	3/18/2016 6:33:30 PM
Boron	0.066	0.040		mg/L	1	3/18/2016 6:33:30 PM
Cadmium	ND	0.0020		mg/L	1	3/18/2016 6:33:30 PM
Chromium	ND	0.0060		mg/L	1	3/18/2016 6:33:30 PM
Cobalt	ND	0.0060		mg/L	1	3/18/2016 6:33:30 PM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603243

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 3/3/2016 9:30:00 AM

Lab ID: 1603243-001

Matrix: AQUEOUS

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Copper	ND	0.0060		mg/L	1	3/23/2016 5:28:16 PM
Iron	ND	0.020		mg/L	1	3/18/2016 6:33:30 PM
Manganese	ND	0.0020		mg/L	1	3/18/2016 6:33:30 PM
Molybdenum	ND	0.0080		mg/L	1	3/18/2016 6:33:30 PM
Nickel	ND	0.010		mg/L	1	3/18/2016 6:33:30 PM
Silver	ND	0.0050		mg/L	1	3/18/2016 6:33:30 PM
Zinc	0.043	0.010		mg/L	1	3/18/2016 6:33:30 PM
EPA 200.8: DISSOLVED METALS						Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	3/29/2016 5:48:50 PM
Lead	ND	0.00050		mg/L	1	3/28/2016 8:28:07 PM
Selenium	0.0065	0.0010		mg/L	1	3/28/2016 8:28:07 PM
Uranium	0.0042	0.00050		mg/L	1	3/28/2016 8:28:07 PM
EPA METHOD 245.1: MERCURY						Analyst: pmf
Mercury	ND	0.00020		mg/L	1	3/10/2016 11:34:07 AM
EPA METHOD 8260B: VOLATILES						Analyst: DJF
Benzene	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Toluene	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Ethylbenzene	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Chloroform	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Methylene Chloride	ND	3.0		µg/L	1	3/11/2016 8:44:01 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/11/2016 8:44:01 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Vinyl chloride	ND	1.0		µg/L	1	3/11/2016 8:44:01 PM
Xylenes, Total	ND	1.5		µg/L	1	3/11/2016 8:44:01 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	3/11/2016 8:44:01 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	3/11/2016 8:44:01 PM
Surr: Dibromofluoromethane	99.8	70-130		%Rec	1	3/11/2016 8:44:01 PM
Surr: Toluene-d8	94.1	70-130		%Rec	1	3/11/2016 8:44:01 PM

TOTAL PHENOLICS BY SW-846 9067

Analyst: SCC

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	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603243

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 3/3/2016 9:30:00 AM

Lab ID: 1603243-001

Matrix: AQUEOUS

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
TOTAL PHENOLICS BY SW-846 9067						Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	3/8/2016
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	3/8/2016
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: SUB
Radium-226	0.561	0.671		pCi/L	1	3/21/2016 10:40:00 AM
Radium-226 ±	0.478	0.671		pCi/L	1	3/21/2016 10:40:00 AM
Radium-228	0.425	0.810		pCi/L	1	3/21/2016 10:40:00 AM
Radium-228 ±	0.397	0.810		pCi/L	1	3/21/2016 10:40:00 AM
SM4500-H+B: PH						Analyst: JRR
pH	8.15	1.68	H	pH units	1	3/7/2016 7:58:22 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	2490	20.0	*	mg/L	1	3/9/2016 11:47:00 AM

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

Qualifiers:	*	Value 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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1603243

Date Reported: 4/1/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1603243-002

Matrix: TRIP BLANK

Received Date: 3/4/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/4/2016 10:35:40 PM
Surr: BFB	87.8	49.5-130		%Rec	1	3/4/2016 10:35:40 PM
EPA METHOD 8260B: VOLATILES						Analyst: DJF
Benzene	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Toluene	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Ethylbenzene	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Chloroform	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Methylene Chloride	ND	3.0		µg/L	1	3/11/2016 9:12:13 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/11/2016 9:12:13 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Vinyl chloride	ND	1.0		µg/L	1	3/11/2016 9:12:13 PM
Xylenes, Total	ND	1.5		µg/L	1	3/11/2016 9:12:13 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%Rec	1	3/11/2016 9:12:13 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	3/11/2016 9:12:13 PM
Surr: Dibromofluoromethane	94.6	70-130		%Rec	1	3/11/2016 9:12:13 PM
Surr: Toluene-d8	98.6	70-130		%Rec	1	3/11/2016 9:12:13 PM

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

Qualifiers:	* 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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB-C	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: C32891		RunNo: 32891							
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008301		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS-C	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: C32891		RunNo: 32891							
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008302		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	85	115			
Barium	0.50	0.0020	0.5000	0	99.1	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.8	85	115			
Iron	0.49	0.020	0.5000	0	98.4	85	115			
Manganese	0.49	0.0020	0.5000	0	97.8	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	93.6	85	115			
Zinc	0.48	0.010	0.5000	0	96.3	85	115			

Sample ID LLLCS-C	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: C32891		RunNo: 32891							
Prep Date:	Analysis Date: 3/18/2016		SeqNo: 1008303		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	111	50	150			
Barium	0.0021	0.0020	0.002000	0	103	50	150			
Boron	ND	0.040	0.04000	0	97.7	50	150			
Cadmium	ND	0.0020	0.002000	0	99.5	50	150			
Chromium	ND	0.0060	0.006000	0	87.8	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID LLLCS-C	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: C32891			RunNo: 32891						
Prep Date:	Analysis Date: 3/18/2016			SeqNo: 1008303		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060	0.006000	0	85.3	50	150			
Iron	0.021	0.020	0.02000	0	103	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum	0.0097	0.0080	0.008000	0	121	50	150			
Nickel	ND	0.010	0.005000	0	98.6	50	150			
Silver	ND	0.0050	0.005000	0	76.2	50	150			
Zinc	ND	0.010	0.005000	0	100	50	150			

Sample ID LCS-C	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: C32891			RunNo: 32891						
Prep Date:	Analysis Date: 3/18/2016			SeqNo: 1008305		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	101	85	115			

Sample ID MB-C	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: PBW	Batch ID: C33001			RunNo: 33001						
Prep Date:	Analysis Date: 3/23/2016			SeqNo: 1012812		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								

Sample ID LCS-C	SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: LCSW	Batch ID: C33001			RunNo: 33001						
Prep Date:	Analysis Date: 3/23/2016			SeqNo: 1012813		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.48	0.0060	0.5000	0	95.4	85	115			

Sample ID LLLCS-C	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID: BatchQC	Batch ID: C33001			RunNo: 33001						
Prep Date:	Analysis Date: 3/23/2016			SeqNo: 1012814		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.0074	0.0060	0.006000	0	124	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: C33120			RunNo: 33120						
Prep Date:	Analysis Date: 3/28/2016			SeqNo: 1016768		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012	0.00050	0.01250	0	98.1	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			
Uranium	0.012	0.00050	0.01250	0	95.1	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: C33120			RunNo: 33120						
Prep Date:	Analysis Date: 3/28/2016			SeqNo: 1016770		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00051	0.00050	0.0005000	0	103	50	150			
Selenium	0.0011	0.0010	0.001000	0	108	50	150			
Uranium	ND	0.00050	0.0005000	0	96.8	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: C33120			RunNo: 33120						
Prep Date:	Analysis Date: 3/28/2016			SeqNo: 1016772		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: B33154			RunNo: 33154						
Prep Date:	Analysis Date: 3/29/2016			SeqNo: 1018089		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.7	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: B33154			RunNo: 33154						
Prep Date:	Analysis Date: 3/29/2016			SeqNo: 1018090		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	98.0	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	B33154	RunNo:	33154					
Prep Date:		Analysis Date:	3/29/2016	SeqNo:	1018091	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID	MB-24156	SampType:	mblk	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	24156	RunNo:	32702					
Prep Date:	3/9/2016	Analysis Date:	3/10/2016	SeqNo:	1000942	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-24156	SampType:	lcs	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	24156	RunNo:	32702					
Prep Date:	3/9/2016	Analysis Date:	3/10/2016	SeqNo:	1000945	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0	109	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R32618		RunNo: 32618							
Prep Date:	Analysis Date: 3/4/2016		SeqNo: 997926		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R32618		RunNo: 32618							
Prep Date:	Analysis Date: 3/4/2016		SeqNo: 997927		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R32879		RunNo: 32879							
Prep Date:	Analysis Date: 3/17/2016		SeqNo: 1007965		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R32879		RunNo: 32879							
Prep Date:	Analysis Date: 3/17/2016		SeqNo: 1007966		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	94.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-24100		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	24100		RunNo:	32621				
Prep Date:	3/7/2016		Analysis Date:	3/7/2016		SeqNo:	998470		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.010									

Sample ID	LCS-24100		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 24100		RunNo: 32621					
Prep Date:	3/7/2016		Analysis Date: 3/7/2016		SeqNo: 998471		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	108	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	LCS-24101		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 24101		RunNo: 32603					
Prep Date:	3/7/2016		Analysis Date: 3/7/2016		SeqNo: 997914		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	71.3	139			
Surr: DNOP	0.50		0.5000		99.7	70	141			

Sample ID	MB-24101		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 24101		RunNo: 32603					
Prep Date:	3/7/2016		Analysis Date: 3/7/2016		SeqNo: 997915		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.91		1.000		90.8	70	141			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: A32596		RunNo: 32596							
Prep Date:	Analysis Date: 3/4/2016		SeqNo: 997207		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		95.0	49.5	130			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: A32596		RunNo: 32596							
Prep Date:	Analysis Date: 3/4/2016		SeqNo: 997208		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	103	80	120			
Surr: BFB	21		20.00		106	49.5	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-24175		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 24175		RunNo: 32727					
Prep Date:	3/10/2016		Analysis Date: 3/11/2016		SeqNo: 1002684		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.4		2.500		94.4	26.1	140			
Surr: Tetrachloro-m-xylene	3.9		2.500		155	15	123			S

Sample ID	LCS-24175		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 24175		RunNo: 32727					
Prep Date:	3/10/2016		Analysis Date: 3/11/2016		SeqNo: 1002685		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.3	15	131			
Aroclor 1260	3.3	1.0	5.000	0	66.9	15	162			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	26.1	140			
Surr: Tetrachloro-m-xylene	3.0		2.500		122	15	123			

Sample ID	LCSD-24175		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 24175		RunNo: 32727					
Prep Date:	3/10/2016		Analysis Date: 3/11/2016		SeqNo: 1002686		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.4	1.0	5.000	0	68.0	15	131	8.66	24.4	
Aroclor 1260	3.7	1.0	5.000	0	74.8	15	162	11.1	28	
Surr: Decachlorobiphenyl	2.4		2.500		94.8	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	3.3		2.500		130	15	123	0	0	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID rb	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: B32762		RunNo: 32762							
Prep Date:	Analysis Date: 3/11/2016		SeqNo: 1002996		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		90.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID 100ng lcs b	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: B32762		RunNo: 32762							
Prep Date:	Analysis Date: 3/11/2016		SeqNo: 1003007		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.5	70	130			
Toluene	20	1.0	20.00	0	98.8	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.8	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.1		10.00		90.9	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID	MB-24176		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	24176		RunNo:	32851			
Prep Date:	3/10/2016		Analysis Date:	3/17/2016		SeqNo:	1006908	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	13		20.00		64.4	33.4	129			

Sample ID	LCS-24176		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	24176		RunNo:	32851			
Prep Date:	3/10/2016		Analysis Date:	3/17/2016		SeqNo:	1006935	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.6	54.6	110			
1-Methylnaphthalene	75	2.0	80.20	0	93.6	49.1	116			
2-Methylnaphthalene	75	2.0	80.00	0	94.1	52.5	111			
Acenaphthylene	69	2.5	80.20	0	85.9	63.7	122			
Acenaphthene	77	2.0	80.00	0	96.2	50.6	114			
Fluorene	8.0	0.80	8.020	0	99.6	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	100	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	8.1	0.30	8.020	0	101	59.7	118			
Benz(a)anthracene	0.75	0.070	0.8020	0	93.5	56.6	109			
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.96	0.10	1.002	0	95.8	54.9	106			
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

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

Sample ID	LCS-24176		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 24176		RunNo: 32851					
Prep Date:	3/10/2016		Analysis Date: 3/17/2016		SeqNo: 1006935		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	103	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	103	56.9	110			
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109			
Surr: Benzo(e)pyrene	17		20.00		83.0	33.4	129			

Sample ID	LCSD-24176		SampType: LCSD		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSS02		Batch ID: 24176		RunNo: 32851					
Prep Date:	3/10/2016		Analysis Date: 3/17/2016		SeqNo: 1006990		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	73	2.0	80.00	0	91.3	54.6	110	0.314	20	
1-Methylnaphthalene	73	2.0	80.20	0	91.2	49.1	116	2.51	20	
2-Methylnaphthalene	73	2.0	80.00	0	90.7	52.5	111	3.64	20	
Acenaphthylene	68	2.5	80.20	0	85.4	63.7	122	0.640	20	
Acenaphthene	74	2.0	80.00	0	92.3	50.6	114	4.22	20	
Fluorene	7.2	0.80	8.020	0	89.7	48.9	106	10.5	20	
Phenanthrene	4.0	0.60	4.020	0	99.5	54.7	110	0.747	24	
Anthracene	3.7	0.60	4.020	0	92.5	52	106	0	20	
Fluoranthene	8.7	0.30	8.020	0	108	57.8	113	0.460	20.9	
Pyrene	8.1	0.30	8.020	0	101	59.7	118	0.618	20.8	
Benz(a)anthracene	0.77	0.070	0.8020	0	96.0	56.6	109	2.63	20	
Chrysene	4.1	0.20	4.020	0	102	57.6	110	0.244	20	
Benzo(b)fluoranthene	0.95	0.10	1.002	0	94.8	54.9	106	1.05	20.6	
Benzo(k)fluoranthene	0.52	0.070	0.5000	0	104	59.3	112	0	20.8	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	0	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	104	54.8	108	0.966	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	103	56.9	110	0	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	0	20	
Surr: Benzo(e)pyrene	17		20.00		82.8	33.4	129	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-24124		SampType: MBLK		TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW		Batch ID: 24124		RunNo: 32622					
Prep Date:	3/8/2016		Analysis Date: 3/8/2016		SeqNo: 998125		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID	LCS-24124		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 24124		RunNo: 32622					
Prep Date:	3/8/2016		Analysis Date: 3/8/2016		SeqNo: 998126		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	21	2.5	20.00	0	106	64.4	135			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R33030		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R33030		RunNo:	33030				
Prep Date:			Analysis Date:	3/8/2016		SeqNo:	1013399	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R33030		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R33030		RunNo: 33030					
Prep Date:			Analysis Date: 3/8/2016		SeqNo: 1013400		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.545		0.5000	0	109	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R32960		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R32960		RunNo:	32960			
Prep Date:			Analysis Date:	3/21/2016		SeqNo:	1010971	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0	0.643								
Radium-226 ±	0.287	0.643								
Radium-228	0.31	0.686								
Radium-228 ±	0.33	0.686								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603243

01-Apr-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-24120		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 24120		RunNo: 32669					
Prep Date:	3/7/2016		Analysis Date: 3/9/2016		SeqNo: 999682		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-24120		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	24120		RunNo:	32669				
Prep Date:	3/7/2016		Analysis Date:	3/9/2016		SeqNo:	999683		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1030	20.0	1000	0	103	80	120				

Qualifiers:

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

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



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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1603243

ReptNo: 1

Received by/date:

Logged By: Ashley Gallegos

Completed By: Ashley Gallegos

Reviewed By:

03/04/16
3/4/2016 10:00:00 AM

3/4/2016 10:29:02 AM

03/04/16

Ag
Ag

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
- # of preserved bottles checked for pH: 5 1 3/03/16
as
(<2 or >12 unless noted)
Adjusted? NO
Checked by: as

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			



June 15, 2016

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

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

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

Dear Sirs:

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

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

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

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

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

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

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

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

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

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

Sincerely,



Scott M. Denton
Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

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

Attachment 3: Analytical Lab Report (May 2016)

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

Attachment 1
Daily Discharge Flow Rates and Volumes

**Daily RO Reject Discharge Flow Rate Measurements
and Calculated Daily Discharge**

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

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



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

June 13, 2016

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

RE: Quarterly Temporary R.O. Reject

OrderNo.: 1604182

Dear Robert Combs:

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

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

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

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

Case Narrative

WO#: 1604182
Date: 6/13/2016

CLIENT: Navajo Refining Company
Project: Quarterly Temporary R.O. Reject

Analytical Notes Regarding EPA Method 8015 DRO/MRO:
The results for EPA Method 8015 DRO/MRO are being reported as past the holding time due to a laboratory error.

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1604182

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Quarterly Temporary R.O. Reject

Collection Date: 4/5/2016 7:45:00 AM

Lab ID: 1604182-001

Matrix: AQUEOUS

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	4/8/2016 2:24:54 PM	24682
EPA METHOD 8082: PCB'S								
Aroclor 1016	ND	0.28	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1221	ND	0.70	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1232	ND	0.76	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1242	ND	0.20	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1248	ND	0.57	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1254	ND	0.97	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Aroclor 1260	ND	0.24	1.0		µg/L	1	4/19/2016 2:04:17 AM	24708
Surr: Decachlorobiphenyl	106	0	26.1-140		%Rec	1	4/19/2016 2:04:17 AM	24708
Surr: Tetrachloro-m-xylene	74.4	0	15-123		%Rec	1	4/19/2016 2:04:17 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE								
Diesel Range Organics (DRO)	ND	0.69	1.0	H	mg/L	1	5/27/2016 3:28:07 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0	5.0	H	mg/L	1	5/27/2016 3:28:07 PM	24652
Surr: DNOP	92.1	0	70-141	H	%Rec	1	5/27/2016 3:28:07 PM	24652
EPA METHOD 8015D: GASOLINE RANGE								
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	4/8/2016 10:42:12 AM	R33412
Surr: BFB	84.7	0	49.5-130		%Rec	1	4/8/2016 10:42:12 AM	R33412
EPA METHOD 8310: PAHS								
Naphthalene	ND	1.1	2.0		µg/L	1	4/19/2016 11:01:30 AM	24709
1-Methylnaphthalene	ND	1.1	2.0		µg/L	1	4/19/2016 11:01:30 AM	24709
2-Methylnaphthalene	ND	1.1	2.0		µg/L	1	4/19/2016 11:01:30 AM	24709
Benzo(a)pyrene	ND	0.018	0.070		µg/L	1	4/19/2016 11:01:30 AM	24709
Surr: Benzo(e)pyrene	101	0	33.4-129		%Rec	1	4/19/2016 11:01:30 AM	24709
EPA METHOD 300.0: ANIONS								
Fluoride	1.9	0.023	0.10		mg/L	1	4/18/2016 10:02:35 PM	R33628
Chloride	55	0.55	10		mg/L	20	4/7/2016 5:15:57 AM	R33368
Nitrogen, Nitrite (As N)	ND	0.042	0.10		mg/L	1	4/7/2016 5:03:33 AM	R33368
Nitrogen, Nitrate (As N)	1.0	0.042	0.10		mg/L	1	4/7/2016 5:03:33 AM	R33368
Sulfate	880	3.2	25		mg/L	50	4/18/2016 10:15:00 PM	R33628
EPA METHOD 200.7: DISSOLVED METALS								
Aluminum	ND	0.0038	0.020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Barium	0.040	0.0013	0.0020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Boron	0.052	0.0011	0.040		mg/L	1	4/18/2016 5:39:41 PM	A33606
Cadmium	ND	0.00075	0.0020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Chromium	ND	0.0018	0.0060		mg/L	1	4/18/2016 5:39:41 PM	A33606

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1604182

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Quarterly Temporary R.O. Reject

Collection Date: 4/5/2016 7:45:00 AM

Lab ID: 1604182-001

Matrix: AQUEOUS

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Cobalt	0.0010	0.00074	0.0060	J	mg/L	1	4/18/2016 5:39:41 PM	A33606
Copper	ND	0.0040	0.0060		mg/L	1	4/18/2016 5:39:41 PM	A33606
Iron	0.051	0.0091	0.020		mg/L	1	4/18/2016 5:39:41 PM	A33606
Manganese	0.0015	0.00032	0.0020	J	mg/L	1	4/18/2016 5:39:41 PM	A33606
Molybdenum	ND	0.0019	0.0080		mg/L	1	4/18/2016 5:39:41 PM	A33606
Nickel	ND	0.0024	0.010		mg/L	1	4/18/2016 5:39:41 PM	A33606
Silver	ND	0.0028	0.0050		mg/L	1	4/18/2016 5:39:41 PM	A33606
Zinc	0.032	0.0028	0.010		mg/L	1	4/18/2016 5:39:41 PM	A33606
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0014	0.00069	0.0050	J	mg/L	5	4/19/2016 6:16:53 PM	A33644
Lead	0.000082	0.000072	0.00050	J	mg/L	1	4/19/2016 2:29:28 PM	A33635
Selenium	0.0047	0.0011	0.0050	J	mg/L	5	4/20/2016 6:26:09 PM	A33677
Uranium	0.0029	0.000051	0.00050		mg/L	1	4/19/2016 2:29:28 PM	A33635
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	4/15/2016 11:59:33 AM	24817
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Toluene	ND	0.089	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Ethylbenzene	ND	0.11	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
1,2-Dichloroethane (EDC)	0.33	0.053	1.0	J	µg/L	1	4/14/2016 6:01:59 PM	R33550
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Chloroform	ND	0.089	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
1,1-Dichloroethene	ND	0.076	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Methylene Chloride	ND	0.063	3.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
1,1,2,2-Tetrachloroethane	ND	0.11	2.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
1,1,1-Trichloroethane	ND	0.063	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
1,1,2-Trichloroethane	ND	0.077	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Vinyl chloride	ND	0.063	1.0		µg/L	1	4/14/2016 6:01:59 PM	R33550
Xylenes, Total	ND	0.32	1.5		µg/L	1	4/14/2016 6:01:59 PM	R33550
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550
Surr: 4-Bromofluorobenzene	108	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550
Surr: Dibromofluoromethane	117	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550
Surr: Toluene-d8	103	0	70-130		%Rec	1	4/14/2016 6:01:59 PM	R33550

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

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

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** Temporary R.O. Reject**Project:** Quarterly Temporary R.O. Reject**Collection Date:** 4/5/2016 7:45:00 AM**Lab ID:** 1604182-001**Matrix:** AQUEOUS**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		µg/L	1	4/21/2016	24923
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB	
Cyanide	ND	0.0100	0.0100		mg/L	1	4/8/2016	R34094
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB	
Radium-226	5.67	0.512	0.512		pCi/L	1	4/26/2016 7:54:00 PM	R34094
Radium-226 ±	2.13	0.512	0.512		pCi/L	1	4/26/2016 7:54:00 PM	R34094
Radium-228	0.76	0.949	0.949		pCi/L	1	4/26/2016 7:54:00 PM	R34094
Radium-228 ±	0.5	0.949	0.949		pCi/L	1	4/26/2016 7:54:00 PM	R34094
SM4500-H+B: PH							Analyst: MRA	
pH	8.26	0.100	1.68	H	pH units	1	4/9/2016 2:18:47 AM	R33424
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	1870	10.5	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID MB-A	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: A33606		RunNo: 33606							
Prep Date:	Analysis Date: 4/18/2016		SeqNo: 1034060		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS-A	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: A33606		RunNo: 33606							
Prep Date:	Analysis Date: 4/18/2016		SeqNo: 1034061		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID LLLCS-A	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: A33606		RunNo: 33606							
Prep Date:	Analysis Date: 4/18/2016		SeqNo: 1034062		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.010	0.020	0.01000	0	100	50	150			J
Barium	0.0019	0.0020	0.002000	0	94.5	50	150			J

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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A33606		RunNo: 33606					
Prep Date:			Analysis Date: 4/18/2016		SeqNo: 1034062		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.038	0.040	0.04000	0	94.9	50	150			J
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	0.0056	0.0060	0.006000	0	92.7	50	150			J
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	0.020	0.020	0.02000	0	98.6	50	150			J
Manganese	0.0018	0.0020	0.002000	0	90.5	50	150			J
Molybdenum	0.0079	0.0080	0.008000	0	99.0	50	150			J
Nickel	0.0043	0.010	0.005000	0	86.2	50	150			J
Silver	0.0046	0.0050	0.005000	0	92.6	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: A33635			RunNo: 33635						
Prep Date:	Analysis Date: 4/19/2016			SeqNo: 1035657			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: A33635			RunNo: 33635						
Prep Date:	Analysis Date: 4/19/2016			SeqNo: 1035658			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Uranium	0.00049	0.00050	0.0005000	0	97.6	50	150			J

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: A33635			RunNo: 33635						
Prep Date:	Analysis Date: 4/19/2016			SeqNo: 1035659			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: A33644			RunNo: 33644						
Prep Date:	Analysis Date: 4/19/2016			SeqNo: 1036133			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			

Sample ID LCSLL	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: A33644			RunNo: 33644						
Prep Date:	Analysis Date: 4/19/2016			SeqNo: 1036134			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: A33644			RunNo: 33644						
Prep Date:	Analysis Date: 4/19/2016			SeqNo: 1036136			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

- | | |
|---|---|
| * Value exceeds Maximum Contaminant Level. | 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 | W Sample container temperature is out of limit as specified |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: A33677			RunNo: 33677						
Prep Date:	Analysis Date: 4/20/2016			SeqNo: 1037321		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	97.2	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: A33677			RunNo: 33677						
Prep Date:	Analysis Date: 4/20/2016			SeqNo: 1037322		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: A33677			RunNo: 33677						
Prep Date:	Analysis Date: 4/20/2016			SeqNo: 1037323		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24817		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	24817		RunNo:	33567				
Prep Date:	4/14/2016		Analysis Date:	4/15/2016		SeqNo:	1032804		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-24817		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 24817		RunNo: 33567					
Prep Date:	4/14/2016		Analysis Date: 4/15/2016		SeqNo: 1032805		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R33368		RunNo: 33368							
Prep Date:	Analysis Date: 4/6/2016		SeqNo: 1025773		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R33368		RunNo: 33368							
Prep Date:	Analysis Date: 4/6/2016		SeqNo: 1025774		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R33628		RunNo: 33628							
Prep Date:	Analysis Date: 4/18/2016		SeqNo: 1035257		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R33628		RunNo: 33628							
Prep Date:	Analysis Date: 4/18/2016		SeqNo: 1035258		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24682	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	24682	RunNo:	33411					
Prep Date:	4/7/2016	Analysis Date:	4/8/2016	SeqNo:	1027492	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	LCS-24682	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	24682	RunNo:	33411					
Prep Date:	4/7/2016	Analysis Date:	4/8/2016	SeqNo:	1027494	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24652		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range			
Client ID:	PBW		Batch ID:	24652		RunNo:	33385			
Prep Date:	4/6/2016		Analysis Date:	4/8/2016		SeqNo:	1026445	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID	LCS-24652		SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range			
Client ID:	LCSW		Batch ID:	24652		RunNo:	33385			
Prep Date:	4/6/2016		Analysis Date:	4/8/2016		SeqNo:	1026634	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Sample ID	LCS-25494		SampType:	LCS		TestCode:	EPA Method 8015M/D: Diesel Range			
Client ID:	LCSW		Batch ID:	25494		RunNo:	34489			
Prep Date:	5/25/2016		Analysis Date:	5/26/2016		SeqNo:	1064130	Units:	%Rec	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.50		0.5000		101	70	141			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: R33412		RunNo: 33412							
Prep Date:	Analysis Date: 4/8/2016		SeqNo: 1027408		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R33412		RunNo: 33412							
Prep Date:	Analysis Date: 4/8/2016		SeqNo: 1027409		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Sample ID 1604182-001BMS	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: Temporary R.O. Rej	Batch ID: R33412		RunNo: 33412							
Prep Date:	Analysis Date: 4/8/2016		SeqNo: 1027412		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	70	130			
Surr: BFB	20		20.00		98.2	49.5	130			

Sample ID 1604182-001BMSD	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: Temporary R.O. Rej	Batch ID: R33412		RunNo: 33412							
Prep Date:	Analysis Date: 4/8/2016		SeqNo: 1027413		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.6	70	130	0.884	20	
Surr: BFB	20		20.00		99.5	49.5	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24708		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 24708		RunNo: 33583					
Prep Date:	4/11/2016		Analysis Date: 4/18/2016		SeqNo: 1034347		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID	LCS-24708		SampType:	LCS		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSW		Batch ID:	24708		RunNo:	33583				
Prep Date:	4/11/2016		Analysis Date:	4/18/2016		SeqNo:	1034348		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	6.5	1.0	5.000	0	130	15	131				
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S	
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S	
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S	

Sample ID	LCSD-24708		SampType:	LCSD		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSS02		Batch ID:	24708		RunNo:	33583				
Prep Date:	4/11/2016		Analysis Date:	4/18/2016		SeqNo:	1034349		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R	
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R	
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0		
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R33550			RunNo: 33550					
Prep Date:	Analysis Date: 4/14/2016			SeqNo: 1032303		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R33550			RunNo: 33550					
Prep Date:		Analysis Date: 4/14/2016			SeqNo: 1032305		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.33	1.0								J
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	0.79	3.0								J
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24709		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	24709		RunNo:	33614			
Prep Date:	4/11/2016		Analysis Date:	4/19/2016		SeqNo:	1034469	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID	LCS-24709		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	24709		RunNo:	33614			
Prep Date:	4/11/2016		Analysis Date:	4/19/2016		SeqNo:	1034474	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	LCS-24709		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 24709		RunNo: 33614					
Prep Date:	4/11/2016		Analysis Date: 4/19/2016		SeqNo: 1034474		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID	LCSD-24709		SampType: LCSD		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSS02		Batch ID: 24709		RunNo: 33614					
Prep Date:	4/11/2016		Analysis Date: 4/19/2016		SeqNo: 1034484		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24923		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	24923		RunNo:	33678				
Prep Date:	4/21/2016		Analysis Date:	4/21/2016		SeqNo:	1037376		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	ND	2.5									

Sample ID	LCS-24923		SampType:	LCS		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	LCSW		Batch ID:	24923		RunNo:	33678				
Prep Date:	4/21/2016		Analysis Date:	4/21/2016		SeqNo:	1037377	Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-R34094			SampType:	MBLK			TestCode:	EPA 335.4: Total Cyanide Subbed		
Client ID:	PBW			Batch ID:	R34094			RunNo:	34094		
Prep Date:				Analysis Date:	4/8/2016			SeqNo:	1050918	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R34094		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R34094		RunNo: 34094					
Prep Date:			Analysis Date: 4/8/2016		SeqNo: 1050919		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.512		0.5000	0	102	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-R34094		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R34094		RunNo:	34094			
Prep Date:			Analysis Date:	4/26/2016		SeqNo:	1050921	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.965	0.799								
Radium-226 ±	0.644	0.799								
Radium-228	0.0941	0.772								
Radium-228 ±	0.341	0.772								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604182

13-Jun-16

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

Sample ID	MB-24656		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	24656		RunNo:	33372				
Prep Date:	4/6/2016		Analysis Date:	4/7/2016		SeqNo:	1025974		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	ND	20.0									

Sample ID	LCS-24656		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	24656		RunNo:	33372				
Prep Date:	4/6/2016		Analysis Date:	4/7/2016		SeqNo:	1025975		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1040	20.0	1000	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
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1604182

RcptNo: 1

Received by/date:

Am 04/06/16

Logged By: Ashley Gallegos

4/6/2016 9:40:00 AM

Ag

Completed By: Ashley Gallegos

4/6/2016 12:16:42 PM

Ag

Reviewed By:

Ag/SA 04/06/16

Chain of Custody

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

Log In

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

of preserved bottles checked for pH: 6
(6 < 2 or > 12 unless noted)
Adjusted? yes
Checked by: as

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks: *For metals analysis: added 1 mL HNO₃ to -0016 for acceptable pH*

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

*4/7 @ 1150
as*



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

Quarterly Temporary RO Reject Sample Details



The HollyFrontier Companies

Project Name		Biannual RO Reject	
Samplers Name		Brady Hubbard	
Samplers Affiliation		Navajo Refining Co. LLC	
Start Date and Time		4/5/2016 @ 7:30 a.m.	
End Date and Time		4/5/2016 @ 8:00 a.m.	

Sample Type	
Time Weighted Composite	☐
Flow Weighted Composite	☐

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

Type of Sampler	Directly to sample jars
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Parts / Sample Intervals	
One	

Outfall / Sample Location	☐ North Field R.O. Reject Discharge ☒ South Field R.O. Reject Discharge
---------------------------	--

				Preservatives								
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	Analysis and/or Method Requested
1	500ml	Plastic	2	X			X					pH, Cl, F, SO4, NO2/NO3, TDS
2	40ml	VOA	3		X							
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							3260 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.)		4/5/2016 Tmp. 48.2 °F, Humidity 46%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear
Date and Time		

Field Temp. 23.6C Field pH 7.05

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐



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

June 13, 2016

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

RE: Quarterly R.O. Reject

OrderNo.: 1604184

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/6/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued May 12, 2016.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Case Narrative

WO#: 1604184
Date: 6/13/2016

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

Analytical Notes Regarding EPA Method 8015 DRO/MRO:

The results for EPA Method 8015 DRO/MRO are being reported as past the holding time due to a laboratory error.

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1604184

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject

Collection Date: 4/5/2016 8:15:00 AM

Lab ID: 1604184-001

Matrix: AQUEOUS

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								
Analyst: JME								
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	4/8/2016 2:39:53 PM	24682
EPA METHOD 8082: PCB'S								
Analyst: SCC								
Aroclor 1016	ND	0.28	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1221	ND	0.70	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1232	ND	0.76	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1242	ND	0.20	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1248	ND	0.57	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1254	ND	0.97	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Aroclor 1260	ND	0.24	1.0		µg/L	1	4/19/2016 2:38:24 AM	24708
Surr: Decachlorobiphenyl	121	0	26.1-140		%Rec	1	4/19/2016 2:38:24 AM	24708
Surr: Tetrachloro-m-xylene	95.2	0	15-123		%Rec	1	4/19/2016 2:38:24 AM	24708
EPA METHOD 8015M/D: DIESEL RANGE								
Analyst: TOM								
Diesel Range Organics (DRO)	ND	0.69	1.0	H	mg/L	1	5/27/2016 3:55:42 PM	24652
Motor Oil Range Organics (MRO)	ND	5.0	5.0	H	mg/L	1	5/27/2016 3:55:42 PM	24652
Surr: DNOP	94.1	0	70-141	H	%Rec	1	5/27/2016 3:55:42 PM	24652
EPA METHOD 8015D: GASOLINE RANGE								
Analyst: NSB								
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	4/8/2016 11:55:58 AM	R33412
Surr: BFB	89.0	0	49.5-130		%Rec	1	4/8/2016 11:55:58 AM	R33412
EPA METHOD 8310: PAHS								
Analyst: SCC								
Naphthalene	ND	1.1	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
1-Methylnaphthalene	ND	1.1	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
2-Methylnaphthalene	ND	1.1	2.0		µg/L	1	4/19/2016 11:30:48 AM	24709
Benzo(a)pyrene	ND	0.018	0.070		µg/L	1	4/19/2016 11:30:48 AM	24709
Surr: Benzo(e)pyrene	74.7	0	33.4-129		%Rec	1	4/19/2016 11:30:48 AM	24709
EPA METHOD 300.0: ANIONS								
Analyst: LGT								
Fluoride	4.7	0.45	2.0	*	mg/L	20	4/18/2016 10:52:15 PM	R33628
Chloride	390	2.7	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
Nitrogen, Nitrite (As N)	ND	0.83	2.0		mg/L	20	4/7/2016 4:51:08 AM	R33368
Nitrogen, Nitrate (As N)	2.4	0.042	0.10		mg/L	1	4/7/2016 4:38:43 AM	R33368
Sulfate	2400	6.4	50		mg/L	100	4/18/2016 11:04:39 PM	R33628
EPA METHOD 200.7: DISSOLVED METALS								
Analyst: ELS								
Aluminum	ND	0.0038	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Barium	0.094	0.0013	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Boron	0.10	0.0011	0.040		mg/L	1	4/18/2016 5:43:21 PM	A33606
Cadmium	ND	0.00075	0.0020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Chromium	ND	0.0018	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1604184

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Quarterly R.O. Reject

Collection Date: 4/5/2016 8:15:00 AM

Lab ID: 1604184-001

Matrix: AQUEOUS

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Cobalt	0.0022	0.00074	0.0060	J	mg/L	1	4/18/2016 5:43:21 PM	A33606
Copper	ND	0.0040	0.0060		mg/L	1	4/18/2016 5:43:21 PM	A33606
Iron	0.034	0.0091	0.020		mg/L	1	4/18/2016 5:43:21 PM	A33606
Manganese	0.0014	0.00032	0.0020	J	mg/L	1	4/18/2016 5:43:21 PM	A33606
Molybdenum	0.0068	0.0019	0.0080	J	mg/L	1	4/18/2016 5:43:21 PM	A33606
Nickel	ND	0.0024	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
Silver	ND	0.0028	0.0050		mg/L	1	4/18/2016 5:43:21 PM	A33606
Zinc	0.027	0.0028	0.010		mg/L	1	4/18/2016 5:43:21 PM	A33606
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0027	0.00069	0.0050	J	mg/L	5	4/19/2016 6:19:56 PM	A33644
Lead	ND	0.00036	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
Selenium	0.011	0.0042	0.020	J	mg/L	20	4/20/2016 6:29:13 PM	A33677
Uranium	0.0067	0.00026	0.0025		mg/L	5	4/19/2016 6:19:56 PM	A33644
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	4/15/2016 12:01:33 PM	24817
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Toluene	ND	0.089	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Ethylbenzene	ND	0.11	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dichloroethane (EDC)	0.32	0.053	1.0	J	µg/L	1	4/14/2016 6:30:43 PM	R33550
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Chloroform	ND	0.089	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1-Dichloroethene	ND	0.076	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Methylene Chloride	ND	0.063	3.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2,2-Tetrachloroethane	ND	0.11	2.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,1-Trichloroethane	ND	0.063	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
1,1,2-Trichloroethane	ND	0.077	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Vinyl chloride	ND	0.063	1.0		µg/L	1	4/14/2016 6:30:43 PM	R33550
Xylenes, Total	ND	0.32	1.5		µg/L	1	4/14/2016 6:30:43 PM	R33550
Surr: 1,2-Dichloroethane-d4	98.3	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Dibromofluoromethane	110	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550
Surr: Toluene-d8	94.9	0	70-130		%Rec	1	4/14/2016 6:30:43 PM	R33550

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** R.O. Reject**Project:** Quarterly R.O. Reject**Collection Date:** 4/5/2016 8:15:00 AM**Lab ID:** 1604184-001**Matrix:** AQUEOUS**Received Date:** 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		µg/L	1	4/21/2016	24923
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB	
Cyanide	ND	0.0100	0.0100		mg/L	1	4/13/2016	R34156
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB	
Radium-226	1.02	0.578	0.578		pCi/L	1	4/29/2016	R34156
Radium-226 ±	0.608	0.578	0.578		pCi/L	1	4/29/2016	R34156
Radium-228	0.143	0.803	0.803		pCi/L	1	4/29/2016	R34156
Radium-228 ±	0.361	0.803	0.803		pCi/L	1	4/29/2016	R34156
SM4500-H+B: PH							Analyst: MRA	
pH	8.17	0.100	1.68	H	pH units	1	4/9/2016 2:23:07 AM	R33424
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	5190	10.5	20.0	*	mg/L	1	4/7/2016 3:22:00 PM	24656

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1604184

Date Reported: 6/13/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Quarterly R.O. Reject

Collection Date:

Lab ID: 1604184-002

Matrix: TRIP BLANK

Received Date: 4/6/2016 9:40:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	4/8/2016 2:54:59 PM	24682
EPA METHOD 8015D: GASOLINE RANGE								
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	4/8/2016 12:20:35 PM	R33412
Surr: BFB	85.7	0	49.5-130		%Rec	1	4/8/2016 12:20:35 PM	R33412
EPA METHOD 8260B: VOLATILES								
Benzene	ND	0.096	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Toluene	ND	0.089	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Ethylbenzene	ND	0.11	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dichloroethane (EDC)	0.33	0.053	1.0	J	µg/L	1	4/14/2016 6:59:37 PM	R33550
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Chloroform	ND	0.089	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1-Dichloroethene	ND	0.076	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Methylene Chloride	ND	0.063	3.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2,2-Tetrachloroethane	ND	0.11	2.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,1-Trichloroethane	ND	0.063	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
1,1,2-Trichloroethane	ND	0.077	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Vinyl chloride	ND	0.063	1.0		µg/L	1	4/14/2016 6:59:37 PM	R33550
Xylenes, Total	ND	0.32	1.5		µg/L	1	4/14/2016 6:59:37 PM	R33550
Surr: 1,2-Dichloroethane-d4	106	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Dibromofluoromethane	111	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550
Surr: Toluene-d8	96.2	0	70-130		%Rec	1	4/14/2016 6:59:37 PM	R33550

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-A		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	A33606		RunNo:	33606			
Prep Date:			Analysis Date:	4/18/2016		SeqNo:	1034060	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-A		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	A33606		RunNo:	33606			
Prep Date:			Analysis Date:	4/18/2016		SeqNo:	1034061	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.46	0.020	0.5000	0	92.5	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.50	0.040	0.5000	0	99.1	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.3	85	115			
Chromium	0.48	0.0060	0.5000	0	96.7	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.7	85	115			
Iron	0.47	0.020	0.5000	0	93.8	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.46	0.010	0.5000	0	91.9	85	115			
Silver	0.097	0.0050	0.1000	0	96.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID	LLLCS-A		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	A33606		RunNo:	33606			
Prep Date:			Analysis Date:	4/18/2016		SeqNo:	1034062	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.010	0.020	0.01000	0	100	50	150			J
Barium	0.0019	0.0020	0.002000	0	94.5	50	150			J

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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A33606		RunNo: 33606					
Prep Date:			Analysis Date: 4/18/2016		SeqNo: 1034062		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.038	0.040	0.04000	0	94.9	50	150			J
Cadmium	0.0028	0.0020	0.002000	0	140	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	0.0056	0.0060	0.006000	0	92.7	50	150			J
Copper	0.0090	0.0060	0.006000	0	150	50	150			S
Iron	0.020	0.020	0.02000	0	98.6	50	150			J
Manganese	0.0018	0.0020	0.002000	0	90.5	50	150			J
Molybdenum	0.0079	0.0080	0.008000	0	99.0	50	150			J
Nickel	0.0043	0.010	0.005000	0	86.2	50	150			J
Silver	0.0046	0.0050	0.005000	0	92.6	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A33644		RunNo: 33644					
Prep Date:			Analysis Date: 4/19/2016		SeqNo: 1036133		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.5	85	115			
Lead	0.011	0.00050	0.01250	0	91.9	85	115			
Uranium	0.011	0.00050	0.01250	0	91.8	85	115			

Sample ID	LCSLL		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A33644		RunNo: 33644					
Prep Date:			Analysis Date: 4/19/2016		SeqNo: 1036134		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Uranium	0.00050	0.00050	0.0005000	0	99.1	50	150			J

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A33644			RunNo: 33644					
Prep Date:		Analysis Date: 4/19/2016			SeqNo: 1036136		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	LCSW		Batch ID:	A33677		RunNo:	33677				
Prep Date:			Analysis Date:	4/20/2016		SeqNo:	1037321	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Selenium	0.024	0.0010	0.02500	0	97.2	85	115				

Sample ID	LLLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A33677		RunNo: 33677					
Prep Date:			Analysis Date: 4/20/2016		SeqNo: 1037322		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0011	0.0010	0.001000	0	106	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	A33677	RunNo:	33677					
Prep Date:		Analysis Date:	4/20/2016	SeqNo:	1037323	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24817	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	24817	RunNo:	33567					
Prep Date:	4/14/2016	Analysis Date:	4/15/2016	SeqNo:	1032804	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-24817	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	24817	RunNo:	33567					
Prep Date:	4/14/2016	Analysis Date:	4/15/2016	SeqNo:	1032805	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	105	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R33368	RunNo:	33368					
Prep Date:		Analysis Date:	4/6/2016	SeqNo:	1025773	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R33368	RunNo:	33368					
Prep Date:		Analysis Date:	4/6/2016	SeqNo:	1025774	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R33628	RunNo:	33628					
Prep Date:		Analysis Date:	4/18/2016	SeqNo:	1035257	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R33628	RunNo:	33628					
Prep Date:		Analysis Date:	4/18/2016	SeqNo:	1035258	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	4.8	0.50	5.000	0	96.7	90	110			
Sulfate	9.8	0.50	10.00	0	98.3	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
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24682		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	24682		RunNo:	33411				
Prep Date:	4/7/2016		Analysis Date:	4/8/2016		SeqNo:	1027492		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.010									

Sample ID	LCS-24682		SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	LCSW		Batch ID:	24682		RunNo:	33411				
Prep Date:	4/7/2016		Analysis Date:	4/8/2016		SeqNo:	1027494		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.12	0.010	0.1000	0	116	70	130				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24652		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 24652		RunNo: 33385					
Prep Date:	4/6/2016		Analysis Date: 4/8/2016		SeqNo: 1026445		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Sample ID	LCS-24652		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 24652		RunNo: 33385					
Prep Date:	4/6/2016		Analysis Date: 4/8/2016		SeqNo: 1026634		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	71.3	139			
Surr: DNOP	0.53		0.5000		107	70	141			

Sample ID	LCS-25494		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 25494		RunNo: 34489					
Prep Date:	5/25/2016		Analysis Date: 5/26/2016		SeqNo: 1064130		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	0.50		0.5000		101	70	141			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R33412	RunNo:	33412					
Prep Date:		Analysis Date:	4/8/2016	SeqNo:	1027408	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.6	49.5	130			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R33412	RunNo:	33412					
Prep Date:		Analysis Date:	4/8/2016	SeqNo:	1027409	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.9	80	120			
Surr: BFB	19		20.00		96.6	49.5	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24708		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 24708		RunNo: 33583					
Prep Date:	4/11/2016		Analysis Date: 4/18/2016		SeqNo: 1034347		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.5		2.500		99.2	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		93.2	15	123			

Sample ID	LCS-24708		SampType:	LCS		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSW		Batch ID:	24708		RunNo:	33583				
Prep Date:	4/11/2016		Analysis Date:	4/18/2016		SeqNo:	1034348		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	6.5	1.0	5.000	0	130	15	131				
Aroclor 1260	9.4	1.0	5.000	0	189	15	162			S	
Surr: Decachlorobiphenyl	5.2		2.500		208	26.1	140			S	
Surr: Tetrachloro-m-xylene	5.2		2.500		208	15	123			S	

Sample ID	LCSD-24708		SampType:	LCSD		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSS02		Batch ID:	24708		RunNo:	33583				
Prep Date:	4/11/2016		Analysis Date:	4/18/2016		SeqNo:	1034349		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	3.5	1.0	5.000	0	70.0	15	131	60.1	24.4	R	
Aroclor 1260	6.1	1.0	5.000	0	123	15	162	42.3	28	R	
Surr: Decachlorobiphenyl	3.3		2.500		133	26.1	140	0	0		
Surr: Tetrachloro-m-xylene	2.9		2.500		118	15	123	0	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R33550			RunNo: 33550					
Prep Date:	Analysis Date: 4/14/2016			SeqNo: 1032303		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	99.7	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	12		10.00		117	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R33550			RunNo: 33550					
Prep Date:		Analysis Date: 4/14/2016			SeqNo: 1032305		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	0.33	1.0								J
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	0.79	3.0								J
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24709		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	24709		RunNo:	33614			
Prep Date:	4/11/2016		Analysis Date:	4/19/2016		SeqNo:	1034469	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	15		20.00		77.2	33.4	129			

Sample ID	LCS-24709		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	24709		RunNo:	33614			
Prep Date:	4/11/2016		Analysis Date:	4/19/2016		SeqNo:	1034474	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	79	2.0	80.00	0	98.3	54.6	110			
1-Methylnaphthalene	80	2.0	80.20	0	99.9	49.1	116			
2-Methylnaphthalene	81	2.0	80.00	0	101	52.5	111			
Acenaphthylene	73	2.5	80.20	0	91.0	63.7	122			
Acenaphthene	81	2.0	80.00	0	101	50.6	114			
Fluorene	8.2	0.80	8.020	0	103	48.9	106			
Phenanthrene	4.0	0.60	4.020	0	98.5	54.7	110			
Anthracene	3.7	0.60	4.020	0	92.5	52	106			
Fluoranthene	8.7	0.30	8.020	0	109	57.8	113			
Pyrene	7.6	0.30	8.020	0	95.3	59.7	118			
Benz(a)anthracene	0.88	0.070	0.8020	0	110	56.6	109			S
Chrysene	4.1	0.20	4.020	0	102	57.6	110			
Benzo(b)fluoranthene	0.91	0.10	1.002	0	90.8	54.9	106			
Benzo(k)fluoranthene	0.51	0.070	0.5000	0	102	59.3	112			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	LCS-24709		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 24709		RunNo: 33614					
Prep Date:	4/11/2016		Analysis Date: 4/19/2016		SeqNo: 1034474		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107			
Dibenz(a,h)anthracene	1.1	0.12	1.002	0	106	54.8	108			
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	105	56.9	110			
Indeno(1,2,3-cd)pyrene	2.3	0.25	2.004	0	113	55.2	109			S
Surr: Benzo(e)pyrene	11		20.00		53.7	33.4	129			

Sample ID	LCSD-24709		SampType: LCSD		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSS02		Batch ID: 24709		RunNo: 33614					
Prep Date:	4/11/2016		Analysis Date: 4/19/2016		SeqNo: 1034484		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	76	2.0	80.00	0	94.6	54.6	110	3.77	20	
1-Methylnaphthalene	74	2.0	80.20	0	92.8	49.1	116	7.35	20	
2-Methylnaphthalene	73	2.0	80.00	0	91.6	52.5	111	9.80	20	
Acenaphthylene	70	2.5	80.20	0	87.3	63.7	122	4.19	20	
Acenaphthene	73	2.0	80.00	0	91.4	50.6	114	10.4	20	
Fluorene	6.6	0.80	8.020	0	82.8	48.9	106	21.4	20	R
Phenanthrene	3.8	0.60	4.020	0	95.0	54.7	110	3.60	24	
Anthracene	3.6	0.60	4.020	0	88.6	52	106	4.40	20	
Fluoranthene	8.4	0.30	8.020	0	104	57.8	113	3.98	20.9	
Pyrene	7.3	0.30	8.020	0	91.5	59.7	118	4.01	20.8	
Benz(a)anthracene	0.85	0.070	0.8020	0	106	56.6	109	3.47	20	
Chrysene	4.0	0.20	4.020	0	98.8	57.6	110	3.47	20	
Benzo(b)fluoranthene	0.86	0.10	1.002	0	85.8	54.9	106	5.65	20.6	
Benzo(k)fluoranthene	0.49	0.070	0.5000	0	98.0	59.3	112	4.00	20.8	
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107	3.85	20	
Dibenz(a,h)anthracene	1.0	0.12	1.002	0	101	54.8	108	4.83	20	
Benzo(g,h,i)perylene	1.0	0.12	1.000	0	100	56.9	110	4.88	20	
Indeno(1,2,3-cd)pyrene	2.1	0.25	2.004	0	105	55.2	109	7.78	20	
Surr: Benzo(e)pyrene	10		20.00		51.5	33.4	129	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24923		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	24923		RunNo:	33678				
Prep Date:	4/21/2016		Analysis Date:	4/21/2016		SeqNo:	1037376		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	ND	2.5									

Sample ID	LCS-24923		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 24923		RunNo: 33678					
Prep Date:	4/21/2016		Analysis Date: 4/21/2016		SeqNo: 1037377		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	89.0	64.4	135			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-R34156		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R34156		RunNo:	34156				
Prep Date:			Analysis Date:	4/13/2016		SeqNo:	1053134	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R34156		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R34156		RunNo: 34156					
Prep Date:			Analysis Date: 4/13/2016		SeqNo: 1053135		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.507		0.5000	0	101	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-R34156		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R34156		RunNo:	34156			
Prep Date:			Analysis Date:	4/29/2016		SeqNo:	1053137	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-2.01	0.933								
Radium-226 ±	0.459	0.933								
Radium-228	0.321	0.795								
Radium-228 ±	0.376	0.795								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1604184

13-Jun-16

Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	MB-24656		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	24656		RunNo:	33372				
Prep Date:	4/6/2016		Analysis Date:	4/7/2016		SeqNo:	1025974		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	ND	20.0									

Sample ID	LCS-24656		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	24656		RunNo:	33372				
Prep Date:	4/6/2016		Analysis Date:	4/7/2016		SeqNo:	1025975		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1040	20.0	1000	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
W Sample container temperature is out of limit as specified



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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1604184

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

4/6/2016 9:40:00 AM

Completed By: Ashley Gallegos

4/6/2016 12:24:03 PM

Reviewed By:

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH:

6 1
(2 or 12 unless noted)

Adjusted? NO

Checked by: AS

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

	CC List VOCs
	CC list SVOCs
	CC Metals
	Cyanide
	unry
	, DRO, ORO
s	
y (Ra-226+Ra-228)	pride
	te
	lved Solids
	(Y or N)

[illegible]

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

Any sub-contracted data will be clearly notated on the analytical report.



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

Quarterly RO Reject Sample Details Attachment



Project Name	Biannual RO Reject
Samplers Name	Brady Hubbard
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	4/5/2016 @ 8:05 a.m.
End Date and Time	4/5/2016 @ 8:30 a.m.

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

Physical Property	Solid ☐
	Liquid ☒
	Sludge ☐

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

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

Outfall / Sample Location	☐ North Field R.O. Reject Discharge ☒ South Field R.O. Reject Discharge
---------------------------	--

Container	Size	Material	Total Containers	Preservatives						Analysis and/or Method Requested
				NaOH	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	NaHSO ₄	
1	500ml	Plastic	2	X		X				pH, Cl, F, SO ₄ , NO ₂ /NO ₃ , TDS
2	40ml	VOA	3							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							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

Storage Method	Ice ☒
	Refrigerated ☐
	Other ☐

Shipping Media	Ice ☒
	Other ☐

Field Data (Weather, Observations, Etc.)	4/5/2016 Tmp 55.4 °F, Humidity 41%, Wind Dir. SE, Wind Speed 4.6mph, Conditions Clear
Date and Time	
Field Temp 23.6C	Field pH 7.05

Combs, Robert

From: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Sent: Wednesday, May 18, 2016 12:35 PM
To: Combs, Robert; Griswold, Jim, EMNRD
Cc: McWatters, Denise; O'Brien, Robert (Bob) K.; Holder, Mike; Denton, Scott; Marks, Allison, EMNRD; Brancard, Bill, EMNRD
Subject: RE: April RO Reject Monthly Report

Follow Up Flag: Follow up
Flag Status: Flagged

Robert:

Good afternoon.

The New Mexico Oil Conservation Division observes environmental water quality detections of Diesel Range Organics-DRO and notices the Detection Limits used for GRO and MRO appear to be too high.

The detection of DROs in the RO Effluent appears to be new and may be associated with recent HollyFrontier Wastewater treatment activities at the facility? **OCD hereby requires** immediate resampling and environmental analysis of RO Reject Water from the Permanent RO and Temporary RO Units for Method 8015 (GRO/DRO/MRO) and Method 8260 **Full Scan** to identify the specific DROs detected in the above subject report with environmental analyses.

Please submit the analytical data with full QA/QC to OCD within the next 30-days with a summary explanation of any explanations for the recent detections in the RO effluent discharged to the farm fields. Please contact me if you have questions.

Thank you.

Carl J. Chavez, CHMM
Environmental Engineer
Oil Conservation Division- Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
Phone: (505) 476-3490
Main Phone: (505) 476-3440
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: www.emnrd.state.nm.us/ocd

Why not prevent pollution, minimize waste, reduce operation costs, and move forward with the rest of the Nation? To see how, go to "Publications" and "Pollution Prevention" on the OCD Website.

From: Combs, Robert [<mailto:Robert.Combs@HollyFrontier.com>]
Sent: Thursday, May 12, 2016 4:11 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>
Cc: McWatters, Denise <Denise.McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K. <Robert.O'Brien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Denton, Scott <Scott.Denton@HollyFrontier.com>; Marks, Allison, EMNRD <AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD <bill.brancard@state.nm.us>
Subject: April RO Reject Monthly Report

Jim & Carl,

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

Please let me know if you have any questions.

Thanks,
Robert

Robert Combs

Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

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

Combs, Robert

From: Andy Freeman <andy@hallenvironmental.com>
Sent: Thursday, May 26, 2016 9:53 AM
To: Combs, Robert
Subject: Updated DRO values for RO Reject and Temporary RO Reject collected 4/5/2016

Hi Robert,

I would like to inform you about an error that happened at Hall Environmental in regards to the DRO results for the RO Reject and the Temporary RO Reject samples collected on 4/5/2016.

At your request, on the week of 5/16, we reviewed the DRO results for both the Temporary RO Reject and the RO Reject samples collected on 4/5/2016. The laboratory data was correct as reported according to the chromatograms that we had on file, however the results were not consistent with past results. We located the samples and reextracted and reanalyzed the water samples, past the holding time. The new results for both the Temporary RO Reject and the RO Reject samples were different than the original results reported. The new results for both samples were nondetect. We reviewed the original 8015 DRO batch run and we believe that our analyst made an error in the placement of your samples on the autosampler and two different samples were analyzed in place of your samples. We reviewed the results and the chromatograms for the 8260 samples and the 8310 samples and the new nondetect results are in line with the new nondetect results for these two DRO samples. We will be reissuing both the Temporary RO Reject report and the RO Reject reports, collected on 4/5, to reflect the nondetect results. These updated results will be flagged as being out of holding time and out of temperature. We received new RO Reject and Temporary RO Reject samples on 5/20 and both of the DRO results were nondetect for these samples.

Hall Environmental would like to apologize for this error. It is rare for this type of error to occur and we take great pride in our work. We have reviewed this error with the analyst and the entire semivolatiles section and ways to prevent this from happening in the future.

Please let me know if you have any questions.

Thank you,

Andy Freeman
Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
505-345-3975
505-345-4107 fax
www.hallenvironmental.com
andy@hallenvironmental.com

****Hall Environmental is going paperless!**** Beginning February 1st, 2014, paper copies of final reports and invoices will no longer be mailed. All final reports and invoices will be sent directly to the e-mail(s) specified on the chain(s) and will also be posted to our web portal.

To sign up for access to our web portal, go to our website, www.hallenvironmental.com, and click on the "ClientLogin" tab. From this screen, click on the "Sign up" tab and follow the instructions to set up a username and password. Feel free to contact us at any time at 505-345-3975 if you require paper copies or have any other questions.

We welcome your feedback. Please visit the survey site below to complete a brief survey on your experience with Hall Environmental.

<https://www.surveymonkey.com/r/NGVXRBV>

Attachment 3
Analytical Lab Report
(May 2016)



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

May 27, 2016

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

RE: Monthly Temporary R.O. Reject

OrderNo.: 1605957

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/20/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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'.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605957

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 5/19/2016 9:30:00 AM

Lab ID: 1605957-001

Matrix: AQUEOUS

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								Analyst: JME
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	5/23/2016 7:19:12 PM	25433
EPA METHOD 8082: PCB'S								Analyst: SCC
Aroclor 1016	ND	0.28	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1221	ND	0.70	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1232	ND	0.76	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1242	ND	0.20	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1248	ND	0.57	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1254	ND	0.97	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Aroclor 1260	ND	0.24	1.0		µg/L	1	5/26/2016 1:01:11 PM	25436
Surr: Decachlorobiphenyl	50.8	0	26.1-140		%Rec	1	5/26/2016 1:01:11 PM	25436
Surr: Tetrachloro-m-xylene	53.2	0	15-123		%Rec	1	5/26/2016 1:01:11 PM	25436
EPA METHOD 8015D: DIESEL RANGE								Analyst: KJH
Diesel Range Organics (DRO)	ND	0.20	0.20		mg/L	1	5/23/2016 10:32:02 AM	25440
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	5/23/2016 10:32:02 AM	25440
Surr: DNOP	116	0	63.2-161		%Rec	1	5/23/2016 10:32:02 AM	25440
EPA METHOD 8015D: GASOLINE RANGE								Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 11:54:29 AM	A34422
Surr: BFB	89.9	0	66.4-120		%Rec	1	5/23/2016 11:54:29 AM	A34422
EPA METHOD 8310: PAHS								Analyst: SCC
Naphthalene	ND	1.1	2.0		µg/L	1	5/24/2016 3:56:19 PM	25416
1-Methylnaphthalene	ND	1.1	2.0		µg/L	1	5/24/2016 3:56:19 PM	25416
2-Methylnaphthalene	ND	1.1	2.0		µg/L	1	5/24/2016 3:56:19 PM	25416
Benzo(a)pyrene	ND	0.018	0.070		µg/L	1	5/24/2016 3:56:19 PM	25416
Surr: Benzo(e)pyrene	70.2	0	20-153		%Rec	1	5/24/2016 3:56:19 PM	25416
EPA METHOD 300.0: ANIONS								Analyst: LGT
Fluoride	2.5	0.023	0.10		mg/L	1	5/24/2016 8:25:09 PM	R34457
Chloride	36	1.4	25		mg/L	50	5/24/2016 8:37:33 PM	R34457
Sulfate	990	3.2	25		mg/L	50	5/24/2016 8:37:33 PM	R34457
Nitrate+Nitrite as N	1.3	0.42	1.0		mg/L	5	5/24/2016 8:49:59 PM	R34457
EPA METHOD 200.7: DISSOLVED METALS								Analyst: ELS
Aluminum	ND	0.0038	0.020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Barium	0.040	0.0013	0.0020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Boron	0.060	0.0011	0.040		mg/L	1	5/23/2016 11:58:08 AM	A34409
Cadmium	ND	0.00075	0.0020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Chromium	ND	0.0018	0.0060		mg/L	1	5/23/2016 11:58:08 AM	A34409
Cobalt	0.0029	0.00074	0.0060	J	mg/L	1	5/23/2016 11:58:08 AM	A34409

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605957

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 5/19/2016 9:30:00 AM

Lab ID: 1605957-001

Matrix: AQUEOUS

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Copper	ND	0.0040	0.0060		mg/L	1	5/23/2016 11:58:08 AM	A34409
Iron	ND	0.0091	0.020		mg/L	1	5/23/2016 11:58:08 AM	A34409
Manganese	0.00056	0.00032	0.0020	J	mg/L	1	5/23/2016 11:58:08 AM	A34409
Molybdenum	0.011	0.0019	0.0080		mg/L	1	5/23/2016 11:58:08 AM	A34409
Nickel	ND	0.0024	0.010		mg/L	1	5/23/2016 11:58:08 AM	A34409
Silver	ND	0.0028	0.0050		mg/L	1	5/23/2016 11:58:08 AM	A34409
Zinc	0.0056	0.0028	0.010	J	mg/L	1	5/23/2016 11:58:08 AM	A34409
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0013	0.00014	0.0010		mg/L	1	5/20/2016 3:46:20 PM	B34393
Lead	ND	0.00017	0.00050		mg/L	1	5/20/2016 3:46:20 PM	B34393
Selenium	0.0064	0.00021	0.0010		mg/L	1	5/20/2016 3:46:20 PM	B34393
Uranium	0.0030	0.000051	0.00050		mg/L	1	5/20/2016 3:46:20 PM	B34393
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	5/24/2016 10:55:01 AM	25455
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Toluene	ND	0.12	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Chloroform	ND	0.089	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/21/2016 7:30:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/21/2016 7:30:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	83.7	0	70-130		%Rec	1	5/21/2016 7:30:00 AM	C34390
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	5/21/2016 7:30:00 AM	C34390
Surr: Dibromofluoromethane	82.8	0	70-130		%Rec	1	5/21/2016 7:30:00 AM	C34390
Surr: Toluene-d8	95.5	0	70-130		%Rec	1	5/21/2016 7:30:00 AM	C34390
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	

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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605957

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 5/19/2016 9:30:00 AM

Lab ID: 1605957-001

Matrix: AQUEOUS

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		µg/L	1	5/27/2016	25543
SM4500-H+B: PH							Analyst: JRR	
pH	7.75	0.100	1.68	H	pH units	1	5/23/2016 3:18:46 PM	R34435
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	1890	10.5	20.0	*	mg/L	1	5/25/2016 3:53:00 PM	25475

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Navajo Refining Company**Client Sample ID:** Trip Blank**Project:** Monthly Temporary R.O. Reject**Collection Date:****Lab ID:** 1605957-002**Matrix:** TRIP BLANK**Received Date:** 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	5/23/2016 7:50:20 PM	25433
EPA METHOD 8015D: GASOLINE RANGE								
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 1:08:34 PM	A34422
Surr: BFB	91.1	0	66.4-120		%Rec	1	5/23/2016 1:08:34 PM	A34422
EPA METHOD 8260B: VOLATILES								
Benzene	ND	0.096	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Toluene	ND	0.12	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Chloroform	ND	0.089	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/21/2016 7:54:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/21/2016 7:54:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	83.4	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390
Surr: Dibromofluoromethane	83.2	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390
Surr: Toluene-d8	93.1	0	70-130		%Rec	1	5/21/2016 7:54:00 AM	C34390

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Anatek Labs, Inc.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

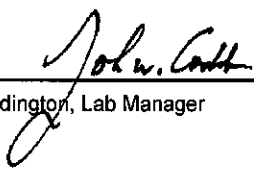
Batch #: 160524029
Project Name: 1605957

Analytical Results Report

Sample Number	160524029-001	Sampling Date	5/19/2016	Date/Time Received	5/24/2016 12:45 PM
Client Sample ID	1605957-001J / TEMPORARY R.O. REJECT			Sampling Time	9:30 AM
Matrix	Water	Sample Location			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	5/27/2016	MER	EPA 335.4	

Authorized Signature


John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160524029
Project Name: 1605957

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.534	mg/L	0.5	106.8	90-110	5/27/2016	5/27/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160519034-025	Cyanide	ND	0.510	mg/L	0.5	102.0	90-110	5/27/2016	5/27/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.532	mg/L	0.5	106.4	4.2	0-20	5/27/2016	5/27/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	5/27/2016	5/27/2016

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID MB-A	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: A34409		RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016		SeqNo: 1060909		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS-A	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: A34409		RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016		SeqNo: 1060910		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	106	85	115			
Barium	0.50	0.0020	0.5000	0	101	85	115			
Boron	0.52	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.50	0.0060	0.5000	0	100	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Molybdenum	0.53	0.0080	0.5000	0	105	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	101	85	115			

Sample ID LLLCS-A	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: A34409		RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016		SeqNo: 1060911		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.0097	0.020	0.01000	0	96.7	50	150			J
Barium	0.0018	0.0020	0.002000	0	89.0	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	LLLCS-A		SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID: A34409			RunNo: 34409				
Prep Date:			Analysis Date: 5/23/2016			SeqNo: 1060911		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.040	0.040	0.04000	0	100	50	150			
Cadmium	0.0017	0.0020	0.002000	0	87.0	50	150			J
Chromium	0.0058	0.0060	0.006000	0	96.3	50	150			J
Cobalt	0.0064	0.0060	0.006000	0	106	50	150			
Copper	0.0071	0.0060	0.006000	0	119	50	150			
Iron	0.023	0.020	0.02000	0	116	50	150			
Manganese	0.0021	0.0020	0.002000	0	103	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	0.0055	0.010	0.005000	0	110	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J
Zinc	0.0048	0.010	0.005000	0	95.4	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: B34393			RunNo: 34393						
Prep Date:	Analysis Date: 5/20/2016			SeqNo: 1060562		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.5	85	115			
Lead	0.012	0.00050	0.01250	0	97.6	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			
Uranium	0.012	0.00050	0.01250	0	99.4	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: B34393			RunNo: 34393						
Prep Date:	Analysis Date: 5/20/2016			SeqNo: 1060563		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00099	0.0010	0.001000	0	98.8	50	150			J
Lead	0.00049	0.00050	0.0005000	0	97.8	50	150			J
Selenium	0.0010	0.0010	0.001000	0	99.6	50	150			J
Uranium	0.00049	0.00050	0.0005000	0	97.0	50	150			J

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: B34393			RunNo: 34393						
Prep Date:	Analysis Date: 5/20/2016			SeqNo: 1060564		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
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-25455		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	25455		RunNo:	34451				
Prep Date:	5/23/2016		Analysis Date:	5/24/2016		SeqNo:	1062360		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-25455		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 25455		RunNo: 34451					
Prep Date:	5/23/2016		Analysis Date: 5/24/2016		SeqNo: 1062361		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R34457		RunNo: 34457							
Prep Date:	Analysis Date: 5/24/2016		SeqNo: 1062706		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R34457		RunNo: 34457							
Prep Date:	Analysis Date: 5/24/2016		SeqNo: 1062707		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	95.0	90	110			
Sulfate	9.8	0.50	10.00	0	97.7	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.5	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-25433		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	25433		RunNo:	34423				
Prep Date:	5/23/2016		Analysis Date:	5/23/2016		SeqNo:	1061420		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.010									

Sample ID	LCS-25433		SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	LCSW		Batch ID:	25433		RunNo:	34423				
Prep Date:	5/23/2016		Analysis Date:	5/23/2016		SeqNo:	1061422		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.12	0.010	0.1000	0	122	70	130				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID	LCS-25440		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 25440		RunNo: 34408					
Prep Date:	5/23/2016		Analysis Date: 5/23/2016		SeqNo: 1060963		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	101	65.4	162			
Surr: DNOP	0.24		0.2500		97.5	63.2	161			

Sample ID	MB-25440	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 25440			RunNo: 34408					
Prep Date:	5/23/2016	Analysis Date: 5/23/2016			SeqNo: 1060964		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		111	63.2	161			

Sample ID	1605957-001AMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Temporary R.O. Rej		Batch ID: 25440		RunNo: 34408					
Prep Date:	5/23/2016		Analysis Date: 5/23/2016		SeqNo: 1061172		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	73.3	174			
Surr: DNOP	0.29		0.2500		115	63.2	161			

Sample ID	1605957-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	Temporary R.O. Rej		Batch ID:	25440		RunNo:	34408				
Prep Date:	5/23/2016		Analysis Date:	5/23/2016		SeqNo:	1061173		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	112	73.3	174	1.16	20		
Surr: DNOP	0.27		0.2500		108	63.2	161	0	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: A34422		RunNo: 34422					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061336		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		94.8	66.4	120			

Sample ID	2.5UG GRO LCSB		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: A34422		RunNo: 34422					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061337		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	99.4	80	120			
Surr: BFB	22		20.00		108	66.4	120			

Sample ID	1605957-001BMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	Temporary R.O. Rej		Batch ID: A34422		RunNo: 34422					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061342		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	99.9	70	130			
Surr: BFB	20		20.00		102	66.4	120			

Sample ID	1605957-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	Temporary R.O. Rej		Batch ID:	A34422		RunNo:	34422				
Prep Date:			Analysis Date:	5/23/2016		SeqNo:	1061343		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	70	130	5.26	20		
Surr: BFB	21		20.00		107	66.4	120	0	0		

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID	MB-25436		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 25436		RunNo: 34486					
Prep Date:	5/23/2016		Analysis Date: 5/26/2016		SeqNo: 1063584		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.0		2.500		81.2	26.1	140			
Surr: Tetrachloro-m-xylene	3.0		2.500		119	15	123			

Sample ID	LCS-25436		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 25436		RunNo: 34486					
Prep Date:	5/23/2016		Analysis Date: 5/26/2016		SeqNo: 1063585		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.8	1.0	5.000	0	75.4	15	131			
Aroclor 1260	3.8	1.0	5.000	0	75.9	15	162			
Surr: Decachlorobiphenyl	1.9		2.500		75.6	26.1	140			
Surr: Tetrachloro-m-xylene	2.3		2.500		92.8	15	123			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID	100ng LCS	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: C34390			RunNo: 34390					
Prep Date:		Analysis Date: 5/20/2016			SeqNo: 1060663		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.4	70	130			
Toluene	19	1.0	20.00	0	97.5	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	83.3	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		82.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	8.5		10.00		85.4	70	130			
Surr: Toluene-d8	9.6		10.00		95.8	70	130			

Sample ID	rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: C34390			RunNo: 34390					
Prep Date:		Analysis Date: 5/20/2016			SeqNo: 1060664		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	8.5		10.00		84.6	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Qualifiers:

*	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	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

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

Sample ID MB-25416	SampType: MBLK		TestCode: EPA Method 8310: PAHs							
Client ID: PBW	Batch ID: 25416		RunNo: 34425							
Prep Date: 5/20/2016	Analysis Date: 5/24/2016		SeqNo: 1061459		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	14		20.00		69.0	20	153			

Sample ID LCS-25416	SampType: LCS		TestCode: EPA Method 8310: PAHs							
Client ID: LCSW	Batch ID: 25416		RunNo: 34425							
Prep Date: 5/20/2016	Analysis Date: 5/24/2016		SeqNo: 1061630		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	66	2.0	80.00	0	82.8	55.6	124			
1-Methylnaphthalene	65	2.0	80.20	0	80.8	55.3	124			
2-Methylnaphthalene	64	2.0	80.00	0	80.6	55.4	124			
Acenaphthylene	66	2.5	80.20	0	82.9	60.2	119			
Acenaphthene	64	2.0	80.00	0	80.4	56	126			
Fluorene	6.2	0.80	8.020	0	77.8	51.6	129			
Phenanthrene	3.3	0.60	4.020	0	81.1	58.8	129			
Anthracene	3.3	0.60	4.020	0	82.3	59.9	121			
Fluoranthene	5.4	0.30	8.020	0	67.0	48	145			
Pyrene	6.6	0.30	8.020	0	81.7	56.2	130			
Benz(a)anthracene	0.67	0.070	0.8020	0	83.5	50.4	142			
Chrysene	3.2	0.20	4.020	0	80.6	54.7	134			
Benzo(b)fluoranthene	0.82	0.10	1.002	0	81.8	61.8	120			
Benzo(k)fluoranthene	0.42	0.070	0.5000	0	84.0	55.9	134			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	LCS-25416		SampType: LCS		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSW		Batch ID: 25416		RunNo: 34425					
Prep Date:	5/20/2016		Analysis Date: 5/24/2016		SeqNo: 1061630		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.43	0.070	0.5020	0	85.7	51.3	137			
Dibenz(a,h)anthracene	0.84	0.12	1.002	0	83.8	57.8	134			
Benzo(g,h,i)perylene	0.85	0.12	1.000	0	85.0	57.2	134			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	58.2	137			
Surr: Benzo(e)pyrene	15		20.00		76.9	20	153			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-25543		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	25543		RunNo:	34512				
Prep Date:	5/27/2016		Analysis Date:	5/27/2016		SeqNo:	1064497		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	ND	2.5									

Sample ID	LCS-25543		SampType:	LCS		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	LCSW		Batch ID:	25543		RunNo:	34512				
Prep Date:	5/27/2016		Analysis Date:	5/27/2016		SeqNo:	1064498	Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	23	2.5	20.00	0	116	64.4	135				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605957

27-May-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-25475		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 25475		RunNo: 34475					
Prep Date:	5/24/2016		Analysis Date: 5/25/2016		SeqNo: 1063156		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-25475		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 25475		RunNo: 34475					
Prep Date:	5/24/2016		Analysis Date: 5/25/2016		SeqNo: 1063157		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

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

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO**

Work Order Number: **1605957**

RcptNo: **1**

Received by/date:

SA *05/20/16*

Logged By:

Lindsay Mangin
5/20/2016 9:50:00 AM
[Signature]

Completed By:

Lindsay Mangin
5/20/2016 10:07:53 AM
[Signature]

Reviewed By:

[Signature]
05/20/16

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

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

Yes ☒

No ☐

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

Yes ☒

No ☐

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

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted?

12. Does paperwork match bottle labels?

(Note discrepancies on chain of custody)

Yes ☒

No ☐

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

(If no, notify customer for authorization.)

Yes ☒

No ☐

Checked by:

Special Handling (if applicable)

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

Yes ☐

No ☐

NA ☒

Person Notified:

Date

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.8	Good	Yes			



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

May 27, 2016

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

RE: Monthly R.O. Reject

OrderNo.: 1605958

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/20/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data 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'.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605958

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 5/19/2016 10:15:00 AM

Lab ID: 1605958-001

Matrix: AQUEOUS

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	5/23/2016 8:05:54 PM	25433
EPA METHOD 8082: PCB'S								
Aroclor 1016	ND	0.28	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1221	ND	0.70	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1232	ND	0.76	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1242	ND	0.20	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1248	ND	0.57	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1254	ND	0.97	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Aroclor 1260	ND	0.24	1.0		µg/L	1	5/26/2016 2:13:41 PM	25436
Surr: Decachlorobiphenyl	67.2	0	26.1-140		%Rec	1	5/26/2016 2:13:41 PM	25436
Surr: Tetrachloro-m-xylene	73.6	0	15-123		%Rec	1	5/26/2016 2:13:41 PM	25436
EPA METHOD 8015D: DIESEL RANGE								
Diesel Range Organics (DRO)	ND	0.20	0.20		mg/L	1	5/23/2016 10:53:32 AM	25440
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	5/23/2016 10:53:32 AM	25440
Surr: DNOP	119	0	63.2-161		%Rec	1	5/23/2016 10:53:32 AM	25440
EPA METHOD 8015D: GASOLINE RANGE								
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 1:33:07 PM	A34422
Surr: BFB	89.1	0	66.4-120		%Rec	1	5/23/2016 1:33:07 PM	A34422
EPA METHOD 8310: PAHS								
Naphthalene	ND	1.1	2.0		µg/L	1	5/24/2016 4:25:34 PM	25416
1-Methylnaphthalene	ND	1.1	2.0		µg/L	1	5/24/2016 4:25:34 PM	25416
2-Methylnaphthalene	ND	1.1	2.0		µg/L	1	5/24/2016 4:25:34 PM	25416
Benzo(a)pyrene	ND	0.018	0.070		µg/L	1	5/24/2016 4:25:34 PM	25416
Surr: Benzo(e)pyrene	73.0	0	20-153		%Rec	1	5/24/2016 4:25:34 PM	25416
EPA METHOD 300.0: ANIONS								
Fluoride	1.9	0.023	0.10		mg/L	1	5/21/2016 4:05:35 AM	A34410
Chloride	190	0.55	10		mg/L	20	5/21/2016 4:42:49 AM	A34410
Nitrogen, Nitrate (As N)	1.2	0.042	0.10		mg/L	1	5/21/2016 4:05:35 AM	A34410
Sulfate	1000	3.2	25		mg/L	50	5/24/2016 10:29:18 PM	R34453
EPA METHOD 200.7: DISSOLVED METALS								
Aluminum	ND	0.0038	0.020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Barium	0.067	0.0013	0.0020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Boron	0.096	0.0011	0.040		mg/L	1	5/23/2016 11:59:58 AM	A34409
Cadmium	ND	0.00075	0.0020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Chromium	ND	0.0018	0.0060		mg/L	1	5/23/2016 11:59:58 AM	A34409
Cobalt	0.0031	0.00074	0.0060	J	mg/L	1	5/23/2016 11:59:58 AM	A34409

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605958

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 5/19/2016 10:15:00 AM

Lab ID: 1605958-001

Matrix: AQUEOUS

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Copper	ND	0.0040	0.0060		mg/L	1	5/23/2016 11:59:58 AM	A34409
Iron	0.033	0.0091	0.020		mg/L	1	5/23/2016 11:59:58 AM	A34409
Manganese	0.0017	0.00032	0.0020	J	mg/L	1	5/23/2016 11:59:58 AM	A34409
Molybdenum	0.0060	0.0019	0.0080	J	mg/L	1	5/23/2016 11:59:58 AM	A34409
Nickel	ND	0.0024	0.010		mg/L	1	5/23/2016 11:59:58 AM	A34409
Silver	ND	0.0028	0.0050		mg/L	1	5/23/2016 11:59:58 AM	A34409
Zinc	0.023	0.0028	0.010		mg/L	1	5/23/2016 11:59:58 AM	A34409
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0016	0.00069	0.0050	J	mg/L	5	5/20/2016 4:01:39 PM	B34393
Lead	ND	0.00017	0.00050		mg/L	1	5/20/2016 3:58:35 PM	B34393
Selenium	0.0088	0.00021	0.0010		mg/L	1	5/20/2016 3:58:35 PM	B34393
Uranium	0.0054	0.000051	0.00050		mg/L	1	5/20/2016 3:58:35 PM	B34393
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	5/24/2016 10:57:02 AM	25455
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Toluene	ND	0.12	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Chloroform	ND	0.089	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/21/2016 8:17:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/21/2016 8:17:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	84.7	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390
Surr: Dibromofluoromethane	83.6	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390
Surr: Toluene-d8	94.7	0	70-130		%Rec	1	5/21/2016 8:17:00 AM	C34390

TOTAL PHENOLICS BY SW-846 9067

Analyst: **SCC**

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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605958

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 5/19/2016 10:15:00 AM

Lab ID: 1605958-001

Matrix: AQUEOUS

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC	
Phenolics, Total Recoverable	ND	1.5	2.5		µg/L	1	5/27/2016	25543
SM4500-H+B: PH							Analyst: JRR	
pH	7.85	0.100	1.68	H	pH units	1	5/23/2016 3:23:24 PM	R34435
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS	
Total Dissolved Solids	2280	10.5	20.0	*	mg/L	1	5/25/2016 3:53:00 PM	25475

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605958

Date Reported: 5/27/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1605958-002

Matrix: TRIP BLANK

Received Date: 5/20/2016 9:50:00 AM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8011/504.1: EDB								Analyst: JME
1,2-Dibromoethane	ND	0.0033	0.010		µg/L	1	5/23/2016 8:52:29 PM	25433
EPA METHOD 8015D: GASOLINE RANGE								Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/23/2016 1:57:51 PM	A34422
Surr: BFB	91.4	0	66.4-120		%Rec	1	5/23/2016 1:57:51 PM	A34422
EPA METHOD 8260B: VOLATILES								Analyst: BCN
Benzene	ND	0.096	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Toluene	ND	0.12	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Chloroform	ND	0.089	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Methylene Chloride	ND	0.19	3.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/21/2016 8:41:00 AM	C34390
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/21/2016 8:41:00 AM	C34390
Surr: 1,2-Dichloroethane-d4	85.5	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390
Surr: 4-Bromofluorobenzene	99.4	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390
Surr: Dibromofluoromethane	84.3	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390
Surr: Toluene-d8	94.0	0	70-130		%Rec	1	5/21/2016 8:41:00 AM	C34390

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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	W	Sample container temperature is out of limit as specified

Anatek Labs, Inc.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

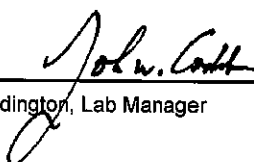
Batch #: 160524028
Project Name: 1605958

Analytical Results Report

Sample Number	160524028-001	Sampling Date	5/19/2016	Date/Time Received	5/24/2016 12:45 PM
Client Sample ID	1605958-001J / R.O. REJECT			Sampling Time	10:15 AM
Matrix	Water	Sample Location			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	5/27/2016	MER	EPA 335.4	

Authorized Signature


John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

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

Anatek Labs, Inc.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160524028
Project Name: 1605958

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.534	mg/L	0.5	106.8	90-110	5/27/2016	5/27/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160519034-025	Cyanide	ND	0.510	mg/L	0.5	102.0	90-110	5/27/2016	5/27/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.532	mg/L	0.5	106.4	4.2	0-20	5/27/2016	5/27/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	5/27/2016	5/27/2016

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0085; FL(NELAP): E871099

Friday, May 27, 2016

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID MB-A	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: A34409		RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016		SeqNo: 1060909		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS-A	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: A34409		RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016		SeqNo: 1060910		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	106	85	115			
Barium	0.50	0.0020	0.5000	0	101	85	115			
Boron	0.52	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.50	0.0060	0.5000	0	100	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			
Manganese	0.49	0.0020	0.5000	0	98.4	85	115			
Molybdenum	0.53	0.0080	0.5000	0	105	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	101	85	115			

Sample ID LLLCS-A	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: A34409		RunNo: 34409							
Prep Date:	Analysis Date: 5/23/2016		SeqNo: 1060911		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.0097	0.020	0.01000	0	96.7	50	150			J
Barium	0.0018	0.0020	0.002000	0	89.0	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS-A		SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID: A34409			RunNo: 34409				
Prep Date:			Analysis Date: 5/23/2016			SeqNo: 1060911		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	0.040	0.040	0.04000	0	100	50	150			
Cadmium	0.0017	0.0020	0.002000	0	87.0	50	150			J
Chromium	0.0058	0.0060	0.006000	0	96.3	50	150			J
Cobalt	0.0064	0.0060	0.006000	0	106	50	150			
Copper	0.0071	0.0060	0.006000	0	119	50	150			
Iron	0.023	0.020	0.02000	0	116	50	150			
Manganese	0.0021	0.0020	0.002000	0	103	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	0.0055	0.010	0.005000	0	110	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J
Zinc	0.0048	0.010	0.005000	0	95.4	50	150			J

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B34393		RunNo: 34393					
Prep Date:			Analysis Date: 5/20/2016		SeqNo: 1060562		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.5	85	115			
Lead	0.012	0.00050	0.01250	0	97.6	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			
Uranium	0.012	0.00050	0.01250	0	99.4	85	115			

Sample ID	LLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B34393		RunNo: 34393					
Prep Date:			Analysis Date: 5/20/2016		SeqNo: 1060563		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00099	0.0010	0.001000	0	98.8	50	150			J
Lead	0.00049	0.00050	0.0005000	0	97.8	50	150			J
Selenium	0.0010	0.0010	0.001000	0	99.6	50	150			J
Uranium	0.00049	0.00050	0.0005000	0	97.0	50	150			J

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B34393			RunNo: 34393					
Prep Date:		Analysis Date: 5/20/2016			SeqNo: 1060564		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
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-25455	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25455	RunNo:	34451					
Prep Date:	5/23/2016	Analysis Date:	5/24/2016	SeqNo:	1062360	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25455	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25455	RunNo:	34451					
Prep Date:	5/23/2016	Analysis Date:	5/24/2016	SeqNo:	1062361	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions			
Client ID:	PBW		Batch ID:	A34410		RunNo:	34410			
Prep Date:			Analysis Date:	5/20/2016		SeqNo:	1061021	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:	A34410		RunNo:	34410			
Prep Date:			Analysis Date:	5/20/2016		SeqNo:	1061022	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.47	0.10	0.5000	0	94.7	90	110			
Chloride	4.9	0.50	5.000	0	97.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.3	90	110			

Sample ID	1605958-001FMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions			
Client ID:	R.O. Reject		Batch ID:	A34410		RunNo:	34410			
Prep Date:			Analysis Date:	5/21/2016		SeqNo:	1061050	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.2	0.10	0.5000	1.948	59.5	71.4	120			S
Nitrogen, Nitrate (As N)	3.7	0.10	2.500	1.246	99.1	87.3	111			

Sample ID	1605958-001FMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions			
Client ID:	R.O. Reject		Batch ID:	A34410		RunNo:	34410			
Prep Date:			Analysis Date:	5/21/2016		SeqNo:	1061051	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.10	0.5000	1.948	92.5	71.4	120	7.09	20	
Nitrogen, Nitrate (As N)	3.7	0.10	2.500	1.246	99.0	87.3	111	0.0806	20	

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions			
Client ID:	PBW		Batch ID:	R34453		RunNo:	34453			
Prep Date:			Analysis Date:	5/24/2016		SeqNo:	1062512	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R34453		RunNo: 34453					
Prep Date:			Analysis Date: 5/24/2016		SeqNo: 1062513		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	96.5	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-25433		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	25433		RunNo:	34423				
Prep Date:	5/23/2016		Analysis Date:	5/23/2016		SeqNo:	1061420		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.010									

Sample ID	LCS-25433		SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	LCSW		Batch ID:	25433		RunNo:	34423				
Prep Date:	5/23/2016		Analysis Date:	5/23/2016		SeqNo:	1061422		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.12	0.010	0.1000	0	122	70	130				

Sample ID	1605958-001CMS		SampType:	MS		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	R.O. Reject		Batch ID:	25433		RunNo:	34423				
Prep Date:	5/23/2016		Analysis Date:	5/23/2016		SeqNo:	1061456		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.11	0.010	0.1000	0	114	40.3	153				

Sample ID	1605958-001CMSD			SampType:	MSD		TestCode:	EPA Method 8011/504.1: EDB			
Client ID:	R.O. Reject			Batch ID:	25433		RunNo:	34423			
Prep Date:	5/23/2016			Analysis Date:	5/23/2016		SeqNo:	1061458		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	117	40.3	153	3.01	29.5		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LCS-25440		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 25440		RunNo: 34408					
Prep Date:	5/23/2016		Analysis Date: 5/23/2016		SeqNo: 1060963		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	101	65.4	162			
Surr: DNOP	0.24		0.2500		97.5	63.2	161			

Sample ID	MB-25440		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 25440		RunNo: 34408					
Prep Date:	5/23/2016		Analysis Date: 5/23/2016		SeqNo: 1060964		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		111	63.2	161			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A34422	RunNo:	34422					
Prep Date:		Analysis Date:	5/23/2016	SeqNo:	1061336	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		94.8	66.4	120			

Sample ID	2.5UG GRO LCSB	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A34422	RunNo:	34422					
Prep Date:		Analysis Date:	5/23/2016	SeqNo:	1061337	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	99.4	80	120			
Surr: BFB	22		20.00		108	66.4	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-25436		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 25436		RunNo: 34486					
Prep Date:	5/23/2016		Analysis Date: 5/26/2016		SeqNo: 1063584		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.0		2.500		81.2	26.1	140			
Surr: Tetrachloro-m-xylene	3.0		2.500		119	15	123			

Sample ID	LCS-25436		SampType:	LCS		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSW		Batch ID:	25436		RunNo:	34486				
Prep Date:	5/23/2016		Analysis Date:	5/26/2016		SeqNo:	1063585		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	3.8	1.0	5.000	0	75.4	15	131				
Aroclor 1260	3.8	1.0	5.000	0	75.9	15	162				
Surr: Decachlorobiphenyl	1.9		2.500		75.6	26.1	140				
Surr: Tetrachloro-m-xylene	2.3		2.500		92.8	15	123				

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	100ng LCS	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: C34390			RunNo: 34390					
Prep Date:	Analysis Date: 5/20/2016			SeqNo: 1060663		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.4	70	130			
Toluene	19	1.0	20.00	0	97.5	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	83.3	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.6	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		82.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	8.5		10.00		85.4	70	130			
Surr: Toluene-d8	9.6		10.00		95.8	70	130			

Sample ID	rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: C34390			RunNo: 34390					
Prep Date:		Analysis Date: 5/20/2016			SeqNo: 1060664		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	8.5		10.00		84.6	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605958

27-May-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-25416		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	25416		RunNo:	34425			
Prep Date:	5/20/2016		Analysis Date:	5/24/2016		SeqNo:	1061459	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	14		20.00		69.0	20	153			

Sample ID	LCS-25416		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	25416		RunNo:	34425			
Prep Date:	5/20/2016		Analysis Date:	5/24/2016		SeqNo:	1061630	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	66	2.0	80.00	0	82.8	55.6	124			
1-Methylnaphthalene	65	2.0	80.20	0	80.8	55.3	124			
2-Methylnaphthalene	64	2.0	80.00	0	80.6	55.4	124			
Acenaphthylene	66	2.5	80.20	0	82.9	60.2	119			
Acenaphthene	64	2.0	80.00	0	80.4	56	126			
Fluorene	6.2	0.80	8.020	0	77.8	51.6	129			
Phenanthrene	3.3	0.60	4.020	0	81.1	58.8	129			
Anthracene	3.3	0.60	4.020	0	82.3	59.9	121			
Fluoranthene	5.4	0.30	8.020	0	67.0	48	145			
Pyrene	6.6	0.30	8.020	0	81.7	56.2	130			
Benz(a)anthracene	0.67	0.070	0.8020	0	83.5	50.4	142			
Chrysene	3.2	0.20	4.020	0	80.6	54.7	134			
Benzo(b)fluoranthene	0.82	0.10	1.002	0	81.8	61.8	120			
Benzo(k)fluoranthene	0.42	0.070	0.5000	0	84.0	55.9	134			

Qualifiers:

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

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