

GW-028

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

2016

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R37942	RunNo:	37942					
Prep Date:		Analysis Date:	10/13/2016	SeqNo:	1182401	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	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:	R37942	RunNo:	37942					
Prep Date:		Analysis Date:	10/13/2016	SeqNo:	1182402	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	107	90	110			
Bromide	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.3	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R38187	RunNo:	38187					
Prep Date:		Analysis Date:	10/25/2016	SeqNo:	1193019	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R38187	RunNo:	38187					
Prep Date:		Analysis Date:	10/25/2016	SeqNo:	1193020	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	96.7	90	110			
Sulfate	9.9	0.50	10.00	0	99.1	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#: 1610612

16-Nov-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-R38745	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/20/2016	SeqNo:	1210379	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetonitrile	ND	0.50								
Allyl chloride	ND	0.50								
Chloroprene	ND	0.50								
Ethyl methacrylate	ND	2.5								
Isobutanol	ND	10								
Methacrylonitrile	ND	2.5								
Methyl ethyl ketone	ND	2.5								
Methyl isobutyl ketone	ND	2.5								
Methyl methacrylate	ND	2.5								
Propionitrile	ND	2.5								
Benzene	ND	0.50								
Toluene	ND	0.50								
Ethylbenzene	ND	0.50								
1,2-Dichloroethane (EDC)	ND	0.50								
1,2-Dibromoethane (EDB)	ND	0.50								
Acetone	ND	2.5								
Bromodichloromethane	ND	0.50								
Bromoform	ND	0.50								
Bromomethane	ND	0.50								
2-Butanone	ND	2.5								
Carbon disulfide	ND	0.50								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	0.50								
Chloroethane	ND	0.50								
Chloroform	ND	0.50								
Chloromethane	ND	0.50								
cis-1,2-DCE	ND	0.50								
cis-1,3-Dichloropropene	ND	0.50								
1,2-Dibromo-3-chloropropane	ND	0.50								
Dibromochloromethane	ND	0.50								
Dibromomethane	ND	0.50								
1,2-Dichlorobenzene	ND	0.50								
1,4-Dichlorobenzene	ND	0.50								
Dichlorodifluoromethane	ND	0.50								
1,1-Dichloroethane	ND	0.50								
1,1-Dichloroethene	ND	0.50								
1,2-Dichloropropane	ND	0.50								
1,3-Dichloropropane	ND	0.50								
2,2-Dichloropropane	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#: 1610612

16-Nov-16

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

Sample ID	MB-R38745	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/20/2016	SeqNo:	1210379	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.50								
2-Hexanone	ND	0.50								
Methylene Chloride	ND	2.5								
Styrene	ND	0.50								
1,1,1,2-Tetrachloroethane	ND	0.50								
1,1,2,2-Tetrachloroethane	ND	0.50								
Tetrachloroethene (PCE)	ND	0.50								
trans-1,2-DCE	ND	0.50								
trans-1,3-Dichloropropene	ND	0.50								
1,1,1-Trichloroethane	ND	0.50								
1,1,2-Trichloroethane	ND	0.50								
Trichloroethene (TCE)	ND	0.50								
Trichlorofluoromethane	ND	0.50								
1,2,3-Trichloropropane	ND	0.50								
Vinyl chloride	ND	0.50								
mp-Xylenes	ND	1.0								
o-Xylene	ND	0.50								
Acrolein	ND	2.5								
Acrylonitrile	ND	2.5								
Bromochloromethane	ND	0.50								
Iodomethane	ND	0.50								
trans-1,4-Dichloro-2-butene	ND	0.50								
Vinyl acetate	ND	0.50								

Sample ID	LCS-R38745	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/20/2016	SeqNo:	1210380	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.7	0	10.00	0	96.7	80	120			
Toluene	9.7	0	10.00	0	97.2	80	120			
Ethylbenzene	9.8	0	10.00	0	98.0	80	120			
Chlorobenzene	9.8	0	10.00	0	97.8	80	120			
1,1-Dichloroethene	9.7	0	10.00	0	96.7	80	120			
Tetrachloroethene (PCE)	9.5	0	10.00	0	95.0	80	120			
Trichloroethene (TCE)	9.7	0	10.00	0	96.6	80	120			
o-Xylene	10	0	10.00	0	102	80	120			

Qualifiers:

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- E Value above quantitation range
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WO#: 1610612

16-Nov-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-R38745	SampType:	MBLK	TestCode:	EPA 8270C: Semivolatiles/Mod					
Client ID:	PBW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/29/2016	SeqNo:	1210383	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acetophenone	ND	5.0								
1-Methylnaphthalene	ND	5.0								
2,3,4,6-Tetrachlorophenol	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Anthracene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benz(a)anthracene	ND	0.10								
Benzo(a)pyrene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Carbazole	ND	5.0								

Qualifiers:

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W Sample container temperature is out of limit as specified

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16-Nov-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-R38745	SampType:	MBLK	TestCode:	EPA 8270C: Semivolatiles/Mod					
Client ID:	PBW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/29/2016	SeqNo:	1210383	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	ND	0.10								
Dibenz(a,h)anthracene	ND	0.10								
Dibenzofuran	ND	5.0								
Diethyl phthalate	ND	5.0								
Dimethyl phthalate	ND	5.0								
Di-n-butyl phthalate	ND	5.0								
Di-n-octyl phthalate	ND	5.0								
Fluoranthene	ND	5.0								
Fluorene	ND	5.0								
Hexachlorobenzene	ND	1.0								
Hexachlorobutadiene	ND	5.0								
Hexachlorocyclopentadiene	ND	5.0								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	0.10								
Isophorone	ND	5.0								
Naphthalene	ND	5.0								
Nitrobenzene	ND	5.0								
N-Nitrosodi-n-propylamine	ND	2.0								
N-Nitrosodiphenylamine	ND	2.0								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	1.0								
Phenol	ND	5.0								
Pyrene	ND	5.0								
o-Toluidine	ND	5.0								
Pyridine	ND	5.0								
1,2,4,5-Tetrachlorobenzene	ND	5.0								

Sample ID	LCS-R38745	SampType:	LCS	TestCode:	EPA 8270C: Semivolatiles/Mod					
Client ID:	LCSW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/29/2016	SeqNo:	1210384	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	5.5	0	5.000	0	110	49	134			
2-Chlorophenol	4.6	0	5.000	0	91.4	50	131			
4-Chloro-3-methylphenol	5.1	0	5.000	0	102	42	139			
4-Nitrophenol	5.5	0	5.000	0	110	19	137			
Acenaphthene	5.0	0	5.000	0	101	36	122			
Bis(2-ethylhexyl)phthalate	4.9	0	5.000	0	98.6	43	142			
N-Nitrosodi-n-propylamine	4.3	0	5.000	0	86.8	46	140			

Qualifiers:

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- H Holding times for preparation or analysis exceeded
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- S % Recovery outside of range due to dilution or matrix

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	LCS-R38745		SampType:	LCS		TestCode:	EPA 8270C: Semivolatiles/Mod			
Client ID:	LCSW		Batch ID:	R38745		RunNo:	38745			
Prep Date:			Analysis Date:	10/29/2016		SeqNo:	1210384		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Pentachlorophenol	5.5	0	5.000	0	111	22	138			
Phenol	4.7	0	5.000	0	94.4	45	134			
Pyrene	4.5	0	5.000	0	90.8	45	138			

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#: 1610612

16-Nov-16

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

Sample ID	MB-28113	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185736	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-28113	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185737	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.6	80	120			

Sample ID	1610612-001BMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185804	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0061	0.00020	0.005000	0.0001625	118	75	125			

Sample ID	1610612-001BMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28113	RunNo:	38030					
Prep Date:	10/17/2016	Analysis Date:	10/18/2016	SeqNo:	1185805	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0059	0.00020	0.005000	0.0001625	114	75	125	3.16	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-28165		SampType:	MBLK		TestCode:	MERCURY, TCLP			
Client ID:	PBW		Batch ID:	28165		RunNo:	38056			
Prep Date:	10/19/2016		Analysis Date:	10/19/2016		SeqNo:	1186813	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID	LCS-28165		SampType:	LCS		TestCode:	MERCURY, TCLP			
Client ID:	LCSW		Batch ID:	28165		RunNo:	38056			
Prep Date:	10/19/2016		Analysis Date:	10/19/2016		SeqNo:	1186814	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	104	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

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WO#: 1610612

16-Nov-16

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

Sample ID	MB-28191		SampType:	MBLK		TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW		Batch ID:	28191		RunNo:	38144			
Prep Date:	10/20/2016		Analysis Date:	10/24/2016		SeqNo:	1190360	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID	LCS-28191		SampType:	LCS		TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	LCSW		Batch ID:	28191		RunNo:	38144			
Prep Date:	10/20/2016		Analysis Date:	10/24/2016		SeqNo:	1190361	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	108	80	120			
Barium	ND	100	0.5000	0	96.0	80	120			
Cadmium	ND	1.0	0.5000	0	101	80	120			
Chromium	ND	5.0	0.5000	0	97.0	80	120			
Lead	ND	5.0	0.5000	0	93.2	80	120			
Selenium	ND	1.0	0.5000	0	106	80	120			
Silver	ND	5.0	0.1000	0	106	80	120			

Sample ID	TCLP FL#2-2661		SampType:	MBLK		TestCode:	EPA Method 6010B: TCLP Metals			
Client ID:	PBW		Batch ID:	28191		RunNo:	38144			
Prep Date:	10/20/2016		Analysis Date:	10/24/2016		SeqNo:	1190451	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

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#: 1610612

16-Nov-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	MB-28190	SampType:	MBLK		TestCode:	EPA 6010B: Metals				
Client ID:	PBW	Batch ID:	28190		RunNo:	38332				
Prep Date:	10/20/2016	Analysis Date:	10/31/2016		SeqNo:	1196520	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Thallium	ND	0.050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID	LCS-28190	SampType: LCS			TestCode: EPA 6010B: Metals					
Client ID:	LCSW	Batch ID: 28190			RunNo: 38332					
Prep Date:	10/20/2016	Analysis Date: 10/31/2016			SeqNo: 1196521		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	109	80	120			
Antimony	0.49	0.050	0.5000	0	98.4	80	120			
Arsenic	0.52	0.020	0.5000	0	104	80	120			
Barium	0.50	0.020	0.5000	0	100	80	120			
Beryllium	0.53	0.0030	0.5000	0	106	80	120			
Cadmium	0.51	0.0020	0.5000	0	101	80	120			
Chromium	0.50	0.0060	0.5000	0	99.5	80	120			
Cobalt	0.49	0.0060	0.5000	0	97.7	80	120			
Copper	0.50	0.0060	0.5000	0	99.6	80	120			
Iron	0.50	0.050	0.5000	0	101	80	120			
Lead	0.50	0.0050	0.5000	0	99.5	80	120			
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.50	0.010	0.5000	0	99.9	80	120			
Potassium	50	1.0	50.00	0	100	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#: 1610612

16-Nov-16

Client: Navajo Refining Company

Project: Quarterly WDW-1, 2, &3 Inj Well

Sample ID	LCS-28190		SampType: LCS		TestCode: EPA 6010B: Metals					
Client ID:	LCSW		Batch ID: 28190		RunNo: 38332					
Prep Date:	10/20/2016		Analysis Date: 10/31/2016		SeqNo: 1196521		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.49	0.050	0.5000	0	99.0	80	120			
Silver	0.10	0.0050	0.1000	0	103	80	120			
Thallium	0.49	0.050	0.5000	0	98.9	80	120			
Vanadium	0.53	0.050	0.5000	0	105	80	120			
Zinc	0.50	0.020	0.5000	0	101	80	120			

Sample ID	1610612-001BMS		SampType:	MS		TestCode:	EPA 6010B: Metals				
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38332				
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196523		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.89	0.020	0.5000	0.3134	115	75	125				
Antimony	0.47	0.050	0.5000	0	94.3	75	125				
Arsenic	0.57	0.020	0.5000	0.04017	106	75	125				
Barium	0.50	0.020	0.5000	0.01602	96.0	75	125				
Beryllium	0.51	0.0030	0.5000	0	102	75	125				
Cadmium	0.50	0.0020	0.5000	0	99.7	75	125				
Chromium	0.47	0.0060	0.5000	0	94.3	75	125				
Cobalt	0.47	0.0060	0.5000	0.003260	93.6	75	125				
Copper	0.53	0.0060	0.5000	0.01704	103	75	125				
Iron	0.63	0.050	0.5000	0.1353	98.3	75	125				
Lead	0.47	0.0050	0.5000	0	94.8	75	125				
Manganese	0.53	0.0020	0.5000	0.05227	95.7	75	125				
Nickel	0.49	0.010	0.5000	0.006520	95.7	75	125				
Selenium	0.52	0.050	0.5000	0	103	75	125				
Silver	0.10	0.0050	0.1000	0	104	75	125				
Thallium	0.46	0.050	0.5000	0.01260	89.8	75	125				
Vanadium	0.52	0.050	0.5000	0.006120	103	75	125				
Zinc	0.53	0.020	0.5000	0.02719	99.6	75	125				

Sample ID	1610612-001BMSD		SampType: MSD		TestCode: EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen		Batch ID: 28190		RunNo: 38332					
Prep Date:	10/20/2016		Analysis Date: 10/31/2016		SeqNo: 1196524		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.88	0.020	0.5000	0.3134	114	75	125	0.858	20	
Antimony	0.45	0.050	0.5000	0	90.8	75	125	3.77	20	
Arsenic	0.55	0.020	0.5000	0.04017	103	75	125	2.57	20	
Barium	0.49	0.020	0.5000	0.01602	94.6	75	125	1.42	20	
Beryllium	0.51	0.0030	0.5000	0	101	75	125	1.17	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	1610612-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals				
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38332				
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196524		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cadmium	0.49	0.0020	0.5000	0	98.2	75	125	1.47	20		
Chromium	0.46	0.0060	0.5000	0	92.6	75	125	1.81	20		
Cobalt	0.46	0.0060	0.5000	0.003260	91.8	75	125	1.92	20		
Copper	0.54	0.0060	0.5000	0.01704	104	75	125	0.996	20		
Iron	0.64	0.050	0.5000	0.1353	102	75	125	2.59	20		
Lead	0.47	0.0050	0.5000	0	93.8	75	125	1.05	20		
Manganese	0.52	0.0020	0.5000	0.05227	94.4	75	125	1.23	20		
Nickel	0.48	0.010	0.5000	0.006520	94.3	75	125	1.45	20		
Selenium	0.51	0.050	0.5000	0	102	75	125	1.76	20		
Silver	0.10	0.0050	0.1000	0	103	75	125	1.49	20		
Thallium	0.45	0.050	0.5000	0.01260	86.9	75	125	3.22	20		
Vanadium	0.51	0.050	0.5000	0.006120	101	75	125	1.60	20		
Zinc	0.52	0.020	0.5000	0.02719	98.2	75	125	1.35	20		

Sample ID	1610612-001BMS	SampType:	MS	TestCode:	EPA 6010B: Metals					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	28190	RunNo:	38332					
Prep Date:	10/20/2016	Analysis Date:	10/31/2016	SeqNo:	1196526	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	180	5.0	50.00	123.0	104	75	125			

Sample ID	1610612-001BMSD			SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen			Batch ID:	28190		RunNo:	38332			
Prep Date:	10/20/2016		Analysis Date:	10/31/2016		SeqNo:	1196527		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Potassium	180	5.0	50.00	123.0	123	75	125	5.31	20		

Sample ID	MB-28190	SampType:	MBLK	TestCode:	EPA 6010B: Metals					
Client ID:	PBW	Batch ID:	28190	RunNo:	38490					
Prep Date:	10/20/2016	Analysis Date:	11/7/2016	SeqNo:	1202197	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Sodium	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	LCS-28190		SampType:	LCS		TestCode:	EPA 6010B: Metals			
Client ID:	LCSW		Batch ID:	28190		RunNo:	38490			
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202198		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	51	1.0	50.00	0	102	80	120			
Magnesium	52	1.0	50.00	0	103	80	120			
Sodium	51	1.0	50.00	0	102	80	120			

Sample ID	1610612-001BMS		SampType:	MS		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38490			
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202200		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	86	1.0	50.00	35.82	100	75	125			

Sample ID	1610612-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38490			
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202201		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	86	1.0	50.00	35.82	101	75	125	0.560	20	

Sample ID	1610612-001BMS		SampType:	MS		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38490			
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202203		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	140	5.0	50.00	95.77	95.5	75	125			

Sample ID	1610612-001BMSD		SampType:	MSD		TestCode:	EPA 6010B: Metals			
Client ID:	WDW-1,2,&3 Effluen		Batch ID:	28190		RunNo:	38490			
Prep Date:	10/20/2016		Analysis Date:	11/7/2016		SeqNo:	1202211		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	150	5.0	50.00	95.77	105	75	125	3.14	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-R38745	SampType:	MBLK	TestCode:	CYANIDE, Reactive					
Client ID:	PBW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/25/2016	SeqNo:	1210388	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	ND	1.00								

Sample ID	LCS-R38745	SampType:	LCS	TestCode:	CYANIDE, Reactive					
Client ID:	LCSW	Batch ID:	R38745	RunNo:	38745					
Prep Date:		Analysis Date:	10/25/2016	SeqNo:	1210389	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide, Reactive	0.542		0.5000	0	108	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#: 1610612

16-Nov-16

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

Sample ID	MB-R38745	SampType	MBLK	TestCode	SULFIDE, Reactive					
Client ID	PBW	Batch ID	R38745	RunNo	38745					
Prep Date:		Analysis Date	10/18/2016	SeqNo	1210391	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	ND	1.0								

Sample ID	LCS-R38745	SampType	LCS	TestCode	SULFIDE, Reactive					
Client ID	LCSW	Batch ID	R38745	RunNo	38745					
Prep Date:		Analysis Date	10/18/2016	SeqNo	1210392	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Reactive Sulfide	0.16		0.2000	0	80.0	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	mb-1	SampType	mblk	TestCode	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R38048	RunNo:	38048					
Prep Date:		Analysis Date:	10/18/2016	SeqNo:	1186486	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1	SampType	lcs	TestCode	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R38048	RunNo:	38048					
Prep Date:		Analysis Date:	10/18/2016	SeqNo:	1186487	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.60	20.00	80.00	0	101	90	110			

Sample ID	mb-2	SampType	mblk	TestCode	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R38048	RunNo:	38048					
Prep Date:		Analysis Date:	10/18/2016	SeqNo:	1186510	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2	SampType	lcs	TestCode	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R38048	RunNo:	38048					
Prep Date:		Analysis Date:	10/18/2016	SeqNo:	1186511	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81.52	20.00	80.00	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#: 1610612

16-Nov-16

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

Sample ID	1610612-001ADUP	SampType:	DUP	TestCode:	Specific Gravity					
Client ID:	WDW-1,2,&3 Effluen	Batch ID:	R38258	RunNo:	38258					
Prep Date:	Analysis Date: 10/27/2016		SeqNo:	1193976	Units:					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Specific Gravity	0.9993	0						0.0400	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1610612

16-Nov-16

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

Sample ID	MB-28098		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	28098		RunNo:	38034				
Prep Date:	10/17/2016		Analysis Date:	10/18/2016		SeqNo:	1185818		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-28098		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	28098		RunNo:	38034				
Prep Date:	10/17/2016		Analysis Date:	10/18/2016		SeqNo:	1185819		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1050	20.0	1000	0	105	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 |



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: **1610612**

RcptNo: **1**

Received by/date: **AC 10/13/16**

Logged By: **Ashley Gallegos**

10/13/2016 8:30:00 AM

Completed By: **Ashley Gallegos**

10/13/2016 11:20:49 AM

Reviewed By: **JC 10/23/16 10/13/16**

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 ☒
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: **22**
(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	1.0	Good	Yes			

Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P.O. Box 159 Artesia,

VM 88211-0159

Phone #: 575-748-3311

Email or Fax#: 575-746-5451

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Quarterly WDW-1, 2, & 3 Inj Well

Project #: P.O. # 167796

Project Manager:

Micki Schultz / Scott Denton / Mike Holder

Sampler: Brady Hubbard

Date Time Matrix Sample Request ID

10/11/16 9:00 Liquid WDW-1, 2, & 3 Effluent

10/11/16 9:00 Liquid WDW-1, 2, & 3 Effluent

10/11/16 9:00 Liquid WDW-1, 2, & 3 Effluent

10/11/16 9:00 Liquid WDW-1, 2, & 3 Effluent

10/11/16 9:00 Liquid WDW-1, 2, & 3 Effluent

10/11/16 9:00 Liquid Trip Blank

10/11/16 9:00 Liquid Temperature Blank

Container Type and #

3 Neat/H2SO4

1 HNO3

3 HCL

2 Neat

2 Neat

2 Neat

1 Neat

Preservative Type

-001

-002

Date: 10-11-16

Time: 11:00

Date: 10-11-16

Time: 11:00

Relinquished by: Brady Hubbard

Relinquished by: Brady Hubbard

Received by: Amy Conner

Received by: Amy Conner

Date: 10/13/16

Time: 0830

Date: 10/13/16

Time: 0830

Remarks: Send results to Scott Denton, Mike Holder, Robert Combs and Andrew Contreras.

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



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Specific Gravity, HCO3, CO3, Cl, SO4, TDS, pH, cond, FI, Cation/anion bal, Br, Eh/40

VOCs/SW-846 Method 8260C (see attached list 'VOCs')

SVOCs/SW-846 Method 8270D (see attached list 'SVOCs')

R, C, I/40 CFR part 261

Metals/SW-846 Method 6010, 7470 (see attached list 'Metals')

Ca, K, Mg, Na/40 CFR 136.3

TCLP Metals, only /40 CFR Part 261 SW-846 Method 1311

District I

P. O. Box 1980, Hobbs, NM 88241-1980

District II

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

District III

1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
P. O. Box 6429
Santa Fe, NM 87505
OPERATOR'S MONTHLY REPORT

Form C-115 First Page
Revised October 17, 1993
Instruction on Reverse Side
1 ☐ Amended Report

2 Operator NAVAJO REFINING CO						3 OGRID: 15694				4 Month/Year 01/2016					
501 E MAIN PO BOX 159, ARTESIA, N.M. 88210										6 Page 1					
Z POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN															
	30-015-27592 WDW-1	D 143,486	1,377	W											
	30-015-20894 WDW-2	D 90,343	1,329	W											
78890 ILLINOIS CAMP MORROW NORTH															
	30-015-26575 WDW-3	D 161,554	1,377	W											

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

24

Signature Randy Dade Environmental Specialist
Printed Name & Title

Date 4/18/2016 Phone Number 575-748-3311

District I

P. O. Box 1980, Hobbs, NM 88241-1980

District II

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

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501 E MAIN PO BOX 159, ARTESIA, N.M. 88210										6 Page 1					
Z POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
		8 C O D E 1 9 Volume	10 Pressure	11 C O D E 2 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4 Oil on hand at end of month	23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN															
30-015-27592 WDW-1		D	134,743	1,399	W										
30-015-20894 WDW-2		D	105,943	1,394	W										
78890 ILLINOIS CAMP:MORROW NORTH															
30-015-26575 WDW-3		D	160,457	1,387	W										

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

24

Signature _____ Randy Dade _____ Environmental Specialist
Printed Name & Title

Date _____ 4/18/2016 _____
Phone Number 575-748-3311

District I

P. O. Box 1980, Hobbs, NM 88241-1980

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1000 Rio Brazos, Aztec, NM 84710

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Z POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
		8 C O D E 1 9 Volume	10 Pressure	11 C O D E 2 Barrels of Oil/condensate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Produced	16 C O D E 3 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4 Oil on hand at end of month	23 Oil on hand at end of month	
96918 NAVAJO PERMO-PENN															
30-015-27592 WDW-1		D	137,109	1,389	W										
30-015-20894 WDW-2		D	112,663	1,385	W										
78890 ILLINOIS CAMP MORROW NORTH															
30-015-26575 WDW-3		D	167,931	1,384	W										

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

24

Signature	Randy Dade Printed Name & Title	Environmental Specialist	Date	4/18/2016	575-748-3311	Phone Number
-----------	------------------------------------	--------------------------	------	-----------	--------------	--------------

District I
1625 North French, Hobbs, NM 88241

District II
811 S. First St., Artesia, NM 88210

District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department

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5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210										6 Page 1 of 4					
Z <u>POOL NO. AND NAME</u> Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER							
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN															
30-015-27592 WDW - 1	D 133,178	1,361	W												
<u>30-015-20894 WDW - 2</u>	D 109,111	1,360	W												
78890 ILLINOIS CAMP; MORROW NORTH															
30-015-26575 WDW - 3	D 161,973	1,355	W												

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	7/14/2016	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

District I
1625 North French, Hobbs, NM 88241

District II
811 S. First St., Artesia, NM 88210

District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department

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1220 South Saint Francis Drive
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2 Operator NAVAJO REFINERY CO.										3 OGRID: 15694			4 05/2016				
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210													6 Page 1 of 4				
Z POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		8 C O D E 1	INJECTION		11 C O D E 2	PRODUCTION				16 C O D E 3	DISPOSITION OF OIL, GAS, AND WATER						
			9 Volume	10 Pressure		12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced		17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
96918 NAVAJO PERMO-PENN																	
30-015-27592 WDW - 1		D	143,265	1,387	W												
30-015-20894 WDW - 2		D	119,407	1,388	W												
78890 ILLINOIS CAMP; MORROW NORTH																	
30-015-26575 WDW - 3		D	170,061	1,375	W												

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	07/14/216	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

District I
1625 North French, Hobbs, NM 88241

District II
811 S. First St., Artesia, NM 88210

District III
1000 Rio Brazos, Aztec, NM 84710

State of New Mexico
Energy, Minerals & Natural Resources Department

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Santa Fe, NM 87505

OPERATOR'S MONTHLY REPORT

Form C-115 First Page
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2 Operator NAVAJO REFINERY CO.										3 OGRID: 15694			4 06/2016			
5 Address: 501 E. MAIN PO BOX 159, ARTESIA, NM. 88210													6 Page 1 of 4			
		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER								
7	8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
<u>Z</u> <u>POOL NO. AND NAME</u> Property No. and Name Well No. & U-L-S-T-R API No.																
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1		D	141,316	1,343 W												
<u>30-015-20894 WDW - 2</u>		D	103,015	1,315 W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3		D	151,485	1,313 W												

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	07/14/216	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

District I
1625 North French, Hobbs, NM 88241

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811 S. First St., Artesia, NM 88210

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		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER								
7	8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month
<u>I</u> <u>POOL NO. AND NAME</u> Property No. and Name Well No. & U-L-S-T-R API No.																
96918 NAVAJO PERMO-PENN																
30-015-27592 WDW - 1		D	133,920	1,290 W												
30-015-20894 WDW - 2		D	106,285	1,307 W												
78890 ILLINOIS CAMP; MORROW NORTH																
30-015-26575 WDW - 3		D	145,611	1,256 W												

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

24

Signature	L. R. DADE	Printed Name & Title	ENVIR. SPEC.	E-Mail Address	Lewis.Dade@hollyfrontier.com	Date	11/9/2016	Phone Number	575-746-5281
-----------	------------	----------------------	--------------	----------------	------------------------------	------	-----------	--------------	--------------

District I
1625 North French, Hobbs, NM 88241

District II
811 S. First St., Artesia, NM 88210

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1000 Rio Brazos, Aztec, NM 84710

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Z POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER									
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month		
96918 NAVAJO PERMO-PENN 30-015-27592 WDW - 1 30-015-20894 WDW - 2 78890 ILLINOIS CAMP; MORROW NORTH 30-015-26575 WDW - 3																	
D	140,297	1,312	W														
D	102,034	1,294	W														
D	151,989	1,311	W														

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

24

L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	11/9/2016	575-746-5281
Signature	Printed Name & Title	E-Mail Address	Date	Phone Number

District I
1625 North French, Hobbs, NM 88241

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811 S. First St., Artesia, NM 88210

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Z <u>POOL NO. AND NAME</u> Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER									
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month		
96918 NAVAJO PERMO-PENN																	
30-015-27592 WDW - 1	D 147,086	1,363	W														
30-015-20894 WDW - 2	D 121,371	1,360	W														
78890 ILLINOIS CAMP; MORROW NORTH																	
30-015-26575 WDW - 3	D 162,514	1,340	W														

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	11/9/16	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

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8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month		
96918 NAVAJO PERMO-PENN																	
30-015-27592 WDW - 1	D 117,977	1,212	W														
30-015-20894 WDW - 2	D 88,217	1,211	W														
78890 ILLINOIS CAMP; MORROW NORTH																	
30-015-26575 WDW - 3	D 132,857	1,214	W														

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	11/9/16	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

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Z POOL NO. AND NAME Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER									
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month		
96918 NAVAJO PERMO-PENN 30-015-27592 WDW - 1 <u>30-015-20894 WDW - 2</u>	D 115,049 D 82,295	1,222 1,201	W W														
78890 ILLINOIS CAMP; MORROW NORTH 30-015-26575 WDW - 3	D 114,007	1,177	W														

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	2/21/17	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

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Z <u>POOL NO. AND NAME</u> Property No. and Name Well No. & U-L-S-T-R API No.		INJECTION		PRODUCTION				DISPOSITION OF OIL, GAS, AND WATER									
8 C O D E 1	9 Volume	10 Pressure	11 C O D E 2	12 Barrels of Oil/conden- sate produced	13 Barrels of water produced	14 MCF Gas Produced	15 Days Prod- uced	16 C O D E 3	17 Point of Disposition	18 Gas BTU or Oil API Gravity	19 Oil on hand at beginning of month	20 Volume (Bbls/mcf)	21 Transporter Ogrid	22 C O D E 4	23 Oil on hand at end of month		
96918 NAVAJO PERMO-PENN																	
30-015-27592 WDW - 1	D 131,683	1,320 W															
30-015-20894 WDW - 2	D 122,241	1,308 W															
78890 ILLINOIS CAMP; MORROW NORTH																	
30-015-26575 WDW - 3	D 147,616	1,310 W															

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

24

Signature	L. R. DADE	ENVIR. SPEC.	Lewis.Dade@hollyfrontier.com	2/21/2017	575-746-5281
	Printed Name & Title		E-Mail Address	Date	Phone Number

APPENDIX B.2

Refinery Discharges – Treated Wastewater to Artesia POTW

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
1/1/16	18	0	18	2.8	20.8
1/2/16	37	0	37	1.5	38.5
1/3/16	48	0	48	0.0	48.0
1/4/16	57	0	57	0.0	57.0
1/5/16	51	33	84	0.6	84.6
1/6/16	51	32	83	2.0	85.0
1/7/16	53	32	85	0.0	85.0
1/8/16	52	30	82	0.0	82.0
1/9/16	57	26	83	2.3	85.3
1/10/16	56	23	79	0.5	79.5
1/11/16	57	23	80	0.0	80.0
1/12/16	54	22	76	0.0	76.0
1/13/16	55	22	77	0.0	77.0
1/14/16	56	22	78	0.0	78.0
1/15/16	53	21	74	0.0	74.0
1/16/16	57	20	77	0.3	77.3
1/17/16	56	20	76	0.0	76.0
1/18/16	58	19	77	0.0	77.0
1/19/16	56	19	75	0.0	75.0
1/20/16	54	16	70	0.0	70.0
1/21/16	56	16	72	0.0	72.0
1/22/16	56	15	71	0.0	71.0
1/23/16	57	15	72	0.0	72.0
1/24/16	51	15	66	0.0	66.0
1/25/16	55	14	69	0.0	69.0
1/26/16	55	14	69	0.0	69.0
1/27/16	56	13	69	0.0	69.0
1/28/16	57	12	69	0.0	69.0
1/29/16	52	12	64	0.0	64.0
1/30/16	60	11	71	0.0	71.0
1/31/16	53	10	63	0.0	63.0
2/1/16	31	13	44	0.0	44.0
2/2/16	0	20	20	0.0	20.0
2/3/16	0	18	18	0.0	18.0
2/4/16	0	18	18	0.0	18.0
2/5/16	0	18	18	0.0	18.0
2/6/16	0	18	18	0.0	18.0

Y1 blowdown meter repaired.

Y-11 blocked in due to leak on FFC OH water coolers @ 12 noon on 2/1/2016.

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
2/7/16	0	16	16	0.0	16.0
2/8/16	0	12	12	0.0	12.0
2/9/16	0	10	10	0.0	10.0
2/10/16	0	10	10	0.0	10.0
2/11/16	0	9	9	0.0	9.0
2/12/16	0	9	9	0.0	9.0
2/13/16	0	9	9	0.0	9.0
2/14/16	0	9	9	0.0	9.0
2/15/16	31	6	37	0.0	37.0
2/16/16	49	8	57	0.0	57.0
2/17/16	55	9	64	0.0	64.0
2/18/16	57	9	66	0.0	66.0
2/19/16	58	10	68	0.0	68.0
2/20/16	59	9	68	0.0	68.0
2/21/16	59	10	69	0.0	69.0
2/22/16	59	9	68	0.0	68.0
2/23/16	59	9	68	0.0	68.0
2/24/16	59	9	68	0.0	68.0
2/25/16	59	10	69	0.0	69.0
2/26/16	59	10	69	0.0	69.0
2/27/16	59	10	69	0.0	69.0
2/28/16	60	11	71	0.0	71.0
2/29/16	52	13	65	0.0	65.0
3/1/16	48	21	69	0.0	69.0
3/2/16	57	23	80	0.0	80.0
3/3/16	55	22	77	0.0	77.0
3/4/16	52	26	78	0.0	78.0
3/5/16	53	23	76	0.0	76.0
3/6/16	53	22	75	0.0	75.0
3/7/16	54	21	75	0.0	75.0
3/8/16	55	21	76	0.0	76.0
3/9/16	55	21	76	0.0	76.0
3/10/16	54	21	75	0.0	75.0
3/11/16	54	22	76	0.0	75.7
3/12/16	54	21	75	0.0	74.9
3/13/16	55	19	73	0.0	73.5
3/14/16	55	18	73	0.0	73.4
3/15/16	55	18	73	0.0	73.2

Y-11 opened back up after leaking exchanger was taken off line for repairs.

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
3/16/16	55	18	73	0.0	73.2
3/17/16	56	16	72	0.0	71.9
3/18/16	55	18	73	0.0	73.0
3/19/16	54	19	73	0.0	73.0
3/20/16	54	19	74	0.0	73.7
3/21/16	54	18	72	0.0	72.0
3/22/16	55	15	70	0.0	70.0
3/23/16	56	14	70	0.0	70.0
3/24/16	56	15	71	0.0	71.0
3/25/16	56	15	71	0.0	71.0
3/26/16	57	14	71	0.0	71.0
3/27/16	57	12	69	0.0	69.0
3/28/16	56	17	73	0.0	73.0
3/29/16	50	34	84	0.0	84.0
3/30/16	51	32	83	0.0	83.0
3/31/16	50	30	80	0.0	80.0
4/1/16	52	30	82	0.0	82.0
4/2/16	53	29	82	0.0	82.0
4/3/16	53	28	81	0.0	81.0
4/4/16	55	18	73	0.0	73.0
4/5/16	58	12	70	0.0	70.0
4/6/16	59	5	64	0.0	64.0
4/7/16	60	4	64	0.0	64.0
4/8/16	61	0	61	0.0	61.0
4/9/16	60	0	60	0.0	60.0
4/10/16	60	0	60	0.0	60.0
4/11/16	60	0	60	0.0	60.0
4/12/16	60	0	60	0.0	60.0
4/13/16	60	0	60	0.0	60.0
4/14/16	61	0	61	0.0	61.0
4/15/16	37	14	51	0.0	51.0
4/16/16	37	33	70	0.0	70.0
4/17/16	53	27	80	0.0	80.0
4/18/16	55	22	77	0.0	77.0
4/19/16	55	22	77	0.0	77.0
4/20/16	56	17	73	0.0	73.0
4/21/16	58	15	73	0.0	72.6
4/22/16	58	13	71	0.0	71.2

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
4/23/16	58	14	73	0.0	72.6
4/24/16	59	13	71	0.0	71.4
4/25/16	55	12	67	0.0	67.3
4/26/16	58	13	70	0.0	70.4
4/27/16	55	13	68	0.0	68.1
4/28/16	55	13	67	8.9	76.2
4/29/16	55	12	66	0.0	66.4
4/30/16	54	12	66	0.0	66.0
5/1/16	51	13	64	0.0	63.6
5/2/16	50	13	63	0.0	62.8
5/3/16	51	12	64	0.0	63.6
5/4/16	49	14	63	0.0	62.8
5/5/16	50	11	61	0.0	60.6
5/6/16	60	7	66	0.0	66.3
5/7/16	60	7	66	0.0	66.2
5/8/16	60	7	67	0.0	66.8
5/9/16	60	8	68	0.0	68.1
5/10/16	60	9	69	0.6	69.4
5/11/16	59	9	69	0.0	68.6
5/12/16	60	9	68	0.0	68.2
5/13/16	60	10	69	0.0	69.4
5/14/16	60	9	69	0.0	69.3
5/15/16	60	7	67	0.0	67.2
5/16/16	60	6	66	0.0	66.4
5/17/16	60	5	65	0.0	65.1
5/18/16	61	3	64	0.0	64.0
5/19/16	60	3	63	0.0	63.0
5/20/16	61	2	63	0.0	63.0
5/21/16	56	0	56	0.0	56.0
5/22/16	56	0	56	0.0	56.0
5/23/16	56	2	58	0.0	58.0
5/24/16	29	11	40	0.0	40.0
5/25/16	48	15	63	0.0	63.0
5/26/16	57	14	71	0.0	71.0
5/27/16	58	12	70	0.0	70.0
5/28/16	58	12	70	0.0	70.0
5/29/16	58	14	72	0.0	72.0
5/30/16	58	14	72	0.0	72.0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
5/31/16	61	14	75	0.0	75.0
6/1/16	58	13	71	0.0	71.0
6/2/16	18	16	34	0.0	34.0
6/3/16	27	11	38	0.0	38.0
6/4/16	61	7	68	0.0	68.0
6/5/16	61	7	68	0.0	68.0
6/6/16	61	8	69	0.0	69.0
6/7/16	60	12	72	0.0	72.0
6/8/16	57	18	75	0.0	75.0
6/9/16	56	17	73	0.0	73.0
6/10/16	47	7	54	0.0	54.0
6/11/16	49	0	49	0.0	49.0
6/12/16	56	0	56	0.0	56.0
6/13/16	61	0	61	0.0	61.0
6/14/16	61	0	61	0.0	61.0
6/15/16	61	0	61	0.0	61.0
6/16/16	57	15	72	0.0	72.0
6/17/16	56	18	75	0.0	74.6
6/18/16	56	18	74	0.0	74.3
6/19/16	56	20	76	0.0	76.4
6/20/16	57	19	76	0.0	75.8
6/21/16	57	17	74	0.0	74.3
6/22/16	57	17	74	0.0	73.8
6/23/16	57	17	73	0.0	73.4
6/24/16	57	17	73	0.0	73.4
6/25/16	57	17	74	0.0	73.9
6/26/16	57	18	74	0.0	74.5
6/27/16	57	17	74	0.0	73.7
6/28/16	56	17	73	0.0	73.2
6/29/16	56	17	73	0.0	73.0
6/30/16	54	18	71	0.0	71.5
7/1/16	52	18	70	0.0	70.1
7/2/16	49	17	67	0.0	67.0
7/3/16	52	19	72	0.0	71.6
7/4/16	56	22	78	0.0	77.7
7/5/16	56	21	77	0.0	76.9
7/6/16	56	21	77	0.0	76.6
7/7/16	56	21	76	0.0	76.3

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
7/8/16	56	21	76	0.0	76.2
7/9/16	55	21	76	0.0	76.4
7/10/16	56	21	78	0.0	77.6
7/11/16	56	21	77	0.0	77.0
7/12/16	58	14	72	0.0	72.0
7/13/16	60	7	67	0.0	67.0
7/14/16	60	4	64	0.0	64.0
7/15/16	60	1	61	0.0	61.0
7/16/16	60	3	63	0.0	63.0
7/17/16	61	3	64	0.0	64.0
7/18/16	59	4	63	0.0	63.0
7/19/16	56	20	76	0.0	76.0
7/20/16	49	42	91	0.0	91.0
7/21/16	46	38	84	0.0	84.0
7/22/16	36	32	68	0.0	68.0
7/23/16	30	29	59	0.0	59.0
7/24/16	27	27	54	0.0	54.0
7/25/16	42	26	68	0.0	68.0
7/26/16	54	27	81	0.0	81.0
7/27/16	54	26	80	0.0	80.0
7/28/16	56	20	76	0.0	76.0
7/29/16	54	26	80	0.0	80.0
7/30/16	55	24	79	0.0	79.0
7/31/16	55	21	76	0.0	76.0
8/1/16	57	15	72	0.3	72.3
8/2/16	57	16	73	0.0	73.0
8/3/16	58	13	71	0.0	71.0
8/4/16	60	9	69	0.0	69.0
8/5/16	60	9	69	0.0	69.0
8/6/16	60	9	69	0.0	69.0
8/7/16	60	9	69	1.4	70.4
8/8/16	57	17	74	2.4	76.4
8/9/16	54	22	76	1.6	77.6
8/10/16	49	38	87	0.0	87.0
8/11/16	49	38	87	2.5	89.5
8/12/16	50	38	88	2.9	90.9
8/13/16	50	37	87	2.8	89.8
8/14/16	49	37	86	3.0	89.0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
8/15/16	50	36	86	1.4	87.4
8/16/16	50	36	86	2.5	88.5
8/17/16	50	37	87	2.9	89.9
8/18/16	54	37	91	0.1	91.1
8/19/16	51	37	88	0.0	88.0
8/20/16	51	38	89	0.0	89.1
8/21/16	52	38	89	0.0	89.5
8/22/16	50	37	86	0.0	86.4
8/23/16	49	36	86	0.0	85.8
8/24/16	35	26	61	0.0	61.4
8/25/16	40	17	56	0.0	56.3
8/26/16	25	28	53	0.0	53.3
8/27/16	42	60	102	0.0	101.9
8/28/16	21	28	49	0.0	49.4
8/29/16	21	30	51	0.0	51.0
8/30/16	42	59	101	0.0	101.0
8/31/16	43	58	101	0.0	101.0
9/1/16	42	58	100	3.0	103.0
9/2/16	43	58	101	0.5	101.5
9/3/16	43	58	101	0.0	101.0
9/4/16	43	58	101	0.0	101.0
9/5/16	41	62	103	0.0	103.0
9/6/16	40	62	102	0.0	102.0
9/7/16	41	62	103	0.0	103.0
9/8/16	41	62	103	0.0	103.0
9/9/16	41	60	101	0.0	101.0
9/10/16	41	58	99	0.0	99.0
9/11/16	42	58	100	0.0	100.0
9/12/16	41	59	100	0.0	100.0
9/13/16	46	44	90	0.0	90.0
9/14/16	59	5	64	0.0	63.8
9/15/16	59	2	61	0.0	60.8
9/16/16	59	0	59	1.5	60.3
9/17/16	59	0	59	0.0	59.3
9/18/16	59	0	59	2.5	61.3
9/19/16	58	3	61	2.8	63.9
9/20/16	58	5	63	2.1	65.4
9/21/16	58	4	62	1.8	63.7

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
9/22/16	58	4	62	1.4	63.7
9/23/16	58	3	61	2.0	63.2
9/24/16	59	0	59	3.0	61.9
9/25/16	59	0	59	3.0	61.8
9/26/16	56	7	63	0.9	63.9
9/27/16	53	24	77	2.8	79.8
9/28/16	54	23	77	2.0	79.0
9/29/16	54	21	75	2.5	77.5
9/30/16	54	21	75	2.9	77.8
10/1/16	52	23	75	3.0	78.4
10/2/16	54	22	76	3.0	79.4
10/3/16	52	22	74	2.0	76.5
10/4/16	51	21	72	2.4	74.5
10/5/16	52	18	69	3.0	72.5
10/6/16	53	16	69	2.8	72.0
10/7/16	38	15	52	3.0	55.3
10/8/16	34	13	47	1.8	48.8
10/9/16	28	14	41	0.0	41.4
10/10/16	30	16	45	0.0	45.2
10/11/16	33	16	49	0.0	49.3
10/12/16	49	15	64	1.6	65.6
10/13/16	44	15	59	3.0	62.0
10/14/16	34	10	44	2.9	46.9
10/15/16	45	13	58	1.8	59.8
10/16/16	61	42	103	1.1	104.1
10/17/16	64	33	97	3.0	100.0
10/18/16	69	48	117	2.9	119.9
10/19/16	68	45	113	3.0	116.0
10/20/16	80	43	123	2.9	125.9
10/21/16	65	45	110	2.9	112.9
10/22/16	69	43	112	0.4	112.4
10/23/16	74	42	116	1.0	117.0
10/24/16	79	41	120	2.9	122.9
10/25/16	69	52	121	0.5	121.5
10/26/16	73	55	128	2.1	130.1
10/27/16	71	54	125	0.0	125.0
10/28/16	78	54	132	0.0	132.0
10/29/16	71	53	124	0.0	124.0

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
10/30/16	78	51	129	0.0	129.0
10/31/16	54	51	105	0.0	105.0
11/1/16	54	52	106	0.0	106.0
11/2/16	53	53	106	2.8	108.8
11/3/16	53	56	109	1.9	110.9
11/4/16	56	47	103	0.0	103.0
11/5/16	60	28	88	0.0	88.0
11/6/16	61	25	86	0.0	86.0
11/7/16	61	23	84	0.0	84.0
11/8/16	60	21	81	0.0	81.0
11/9/16	59	20	79	0.0	79.0
11/10/16	60	19	79	0.0	79.0
11/11/16	53	19	72	0.0	72.0
11/12/16	62	18	80	0.0	80.0
11/13/16	62	18	80	0.0	80.0
11/14/16	62	18	80	0.0	80.0
11/15/16	62	19	81	1.9	82.9
11/16/16	61	20	81	2.9	83.9
11/17/16	61	18	79	2.9	81.9
11/18/16	61	18	79	0.4	79.4
11/19/16	61	17	78	0.0	78.0
11/20/16	60	16	76	3.0	79.0
11/21/16	61	16	76	2.9	79.2
11/22/16	61	15	76	0.6	76.7
11/23/16	61	13	74	1.1	75.4
11/24/16	61	13	74	1.5	75.6
11/25/16	61	13	73	2.4	75.9
11/26/16	60	13	73	2.9	76.4
11/27/16	61	13	74	3.8	78.2
11/28/16	61	13	74	3.0	77.0
11/29/16	55	12	67	2.8	69.8
11/30/16	51	13	64	3.0	67.0
12/1/16	52	13	65	2.1	67.1
12/2/16	61	12	73	1.4	74.4
12/3/16	61	10	71	3.0	74.0
12/4/16	61	10	71	2.5	73.5
12/5/16	62	10	72	2.9	74.9
12/6/16	62	10	72	2.6	74.6

Both blowdown meters were calibrated yesterday

Cooling Tower Blowdown to City	Y-11 GPM	Y-1 GPM	Total GPM	WWT to POTW GPM	Total Discharge to COA GPM
12/7/16	62	9	71	3.0	74.0
12/8/16	62	9	71	0.4	71.4
12/9/16	61	8	69	2.9	71.9
12/10/16	61	9	70	1.6	71.6
12/11/16	62	9	71	2.3	73.3
12/12/16	61	9	70	2.5	72.5
12/13/16	62	1	63	2.9	65.9
12/14/16	61	0	61	2.8	63.8
12/15/16	62	0	62	2.5	64.5
12/16/16	62	0	62	1.6	63.6
12/17/16	63	7	70	2.8	72.8
12/18/16	57	39	96	0.6	96.6
12/19/16	62	22	84	2.9	86.9
12/20/16	62	0	62	3.0	65.0
12/21/16	62	0	62	3.0	65.0
12/22/16	63	0	63	2.1	65.1
12/23/16	63	0	63	1.4	64.4
12/24/16	64	0	64	1.9	65.9
12/25/16	64	0	64	3.0	67.0
12/26/16	62	0	62	2.5	64.5
12/27/16	62	0	62	1.4	63.4
12/28/16	62	1	63	2.5	65.5
12/29/16	60	0	60	3.0	63.0
12/30/16	50	0	50	3.0	53.0
12/31/16	41	0	41	1.7	42.7
Total gal			37,515,793	348,390	37,864,182
Total bbl			893,233	8,295	901,528

APPENDIX B.3

Refinery Discharges – RO Reject Water Discharge



February 11, 2016

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

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

RE: WQA-OCD-CO-2015-002
Monthly Report – January 2016 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) 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 January 2016 monthly report, for the period of January 1-31, 2016, under the Order.

Specifically, this report covers the January 2016 reporting period and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a – c:

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from January 1 through January 31.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from January 1 through January 31.

Navajo has calculated a penalty of \$2,700 for January 2016. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 27 days in January. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on January 5, 2016. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

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

On January 12, 2016, Navajo submitted formal comments to OCD regarding the draft modified conditions to Discharge Permit GW-028 that were posted for public comment. OCD issued the final modified permit conditions on February 4, 2016.

Navajo is currently preparing an early submittal of the Renewal Application for Discharge Permit GW-028. The Renewal Application will include a permit application for construction and operation of water management ponds for evaporation of RO reject fluid and additional potential fluid streams.

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

Sincerely,



Scott M. Denton
Environmental Manager

Enclosures:

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

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

Attachment 1
Daily Discharge Flow Rates

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

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		BBL
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	
	SOUTH	NORTH					
1/1/2016	124	107	231	7,920	100	3443	11,363
1/2/2016	132	106	238	8,160	100	3440	11,600
1/3/2016	133	108	241	8,263	103	3537	11,800
1/4/2016	136	106	242	8,297	108	3692	11,989
1/5/2016	128	106	234	8,023	105	3593	11,616
1/6/2016	128	105	233	7,989	105	3606	11,595
1/7/2016	129	99	228	7,817	108	3696	11,513
1/8/2016	130	81	211	7,234	113	3873	11,107
1/9/2016	132	72	204	6,994	118	4046	11,040
1/10/2016	129	75	204	6,994	121	4137	11,131
1/11/2016	129	79	208	7,131	117	4016	11,147
1/12/2016	131	83	214	7,337	117	3996	11,333
1/13/2016	131	87	218	7,474	118	4044	11,518
1/14/2016	131	80	211	7,234	121	4146	11,380
1/15/2016	130	75	205	7,029	121	4149	11,178
1/16/2016	130	85	215	7,371	117	4010	11,381
1/17/2016	129	89	218	7,474	117	4021	11,495
1/18/2016	128	81	209	7,166	114	3913	11,079
1/19/2016	131	86	217	7,440	125	4284	11,724
1/20/2016	129	82	211	7,234	119	4090	11,324
1/21/2016	129	85	214	7,337	100	3423	10,760
1/22/2016	127	75	202	6,926	124	4244	11,170
1/23/2016	130	83	213	7,303	125	4285	11,588
1/24/2016	89	82	171	5,863	107	3684	9,547
1/25/2016	95	86	181	6,206	126	4332	10,538
1/26/2016	90	82	172	5,897	129	4406	10,303
1/27/2016	91	79	170	5,829	100	3439	9,268
1/28/2016	90	83	173	5,931	96	3280	9,211
1/29/2016	92	78	170	5,829	79	2717	8,546
1/30/2016	88	92	180	6,171	130	4447	10,618
1/31/2016	94	85	179	6,137	137	4709	10,846

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties – January 2016

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	--	--	--
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	27	\$2,700
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
Total Amount:				\$2,700

Attachment 3
Analytical Lab Report



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

January 28, 2016

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

RE: Monthly RO Reject

OrderNo.: 1601099

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/6/2016 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 1601099

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 1/5/2016 9:30:00 AM

Lab ID: 1601099-001

Matrix: AQUEOUS

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	1/6/2016 1:32:23 PM	A31277
Lead	ND	0.0025		mg/L	5	1/6/2016 1:32:23 PM	A31277
Selenium	0.010	0.0050		mg/L	5	1/6/2016 1:32:23 PM	A31277
Uranium	0.0060	0.0025		mg/L	5	1/6/2016 1:32:23 PM	A31277
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.66	0.702		pCi/L	1	1/18/2016	R31549
Radium-226 ±	0.756	0.702		pCi/L	1	1/18/2016	R31549
Radium-228	0.359	0.727		pCi/L	1	1/18/2016	R31549
Radium-228 ±	0.347	0.727		pCi/L	1	1/18/2016	R31549
EPA METHOD 300.0: ANIONS							Analyst: SRM
Fluoride	3.5	2.0		mg/L	20	1/6/2016 7:19:06 PM	R31305
Chloride	490	50		mg/L	100	1/8/2016 2:52:36 PM	R31350
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	1/6/2016 7:19:06 PM	R31305
Nitrogen, Nitrate (As N)	2.0	0.10		mg/L	1	1/6/2016 7:06:41 PM	R31305
Sulfate	2100	50		mg/L	100	1/8/2016 2:52:36 PM	R31350
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	4000	200	*D	mg/L	1	1/9/2016 1:12:00 PM	23119
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	1/12/2016	R31534
SM4500-H+B: PH							Analyst: JRR
pH	7.90	1.68	H	pH units	1	1/8/2016 6:09:48 PM	R31363
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Barium	0.062	0.0020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Boron	0.11	0.040		mg/L	1	1/7/2016 2:02:10 PM	B31306
Cadmium	ND	0.0020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Chromium	ND	0.0060		mg/L	1	1/7/2016 2:02:10 PM	B31306
Cobalt	0.0081	0.0060		mg/L	1	1/7/2016 2:02:10 PM	B31306
Copper	ND	0.0060		mg/L	1	1/7/2016 2:02:10 PM	B31306
Iron	ND	0.020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Manganese	ND	0.0020		mg/L	1	1/7/2016 2:02:10 PM	B31306
Molybdenum	ND	0.0080		mg/L	1	1/7/2016 2:02:10 PM	B31306
Nickel	ND	0.010		mg/L	1	1/7/2016 2:02:10 PM	B31306
Silver	ND	0.0050		mg/L	1	1/7/2016 2:02:10 PM	B31306
Zinc	0.028	0.010		mg/L	1	1/7/2016 2:02:10 PM	B31306
EPA METHOD 245.1: MERCURY							Analyst: pmf

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601099

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 1/5/2016 9:30:00 AM

Lab ID: 1601099-001

Matrix: AQUEOUS

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	1/7/2016 5:06:46 PM	23109
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	1/11/2016 1:44:54 PM	23126
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1221	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1232	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1242	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1248	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1254	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Aroclor 1260	ND	1.0		µg/L	1	1/18/2016 1:31:00 PM	23160
Surr: Decachlorobiphenyl	84.0	17.7-151		%REC	1	1/18/2016 1:31:00 PM	23160
Surr: Tetrachloro-m-xylene	53.2	20.6-151		%REC	1	1/18/2016 1:31:00 PM	23160
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/11/2016 11:03:11 AM	23110
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/11/2016 11:03:11 AM	23110
Surr: DNOP	104	70-141		%REC	1	1/11/2016 11:03:11 AM	23110
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/7/2016 11:23:15 AM	A31304
Surr: BFB	89.1	49.5-130		%REC	1	1/7/2016 11:23:15 AM	A31304
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	1/27/2016 7:55:12 PM	23161
1-Methylnaphthalene	ND	2.0		µg/L	1	1/27/2016 7:55:12 PM	23161
2-Methylnaphthalene	ND	2.0		µg/L	1	1/27/2016 7:55:12 PM	23161
Benzo(a)pyrene	ND	0.070		µg/L	1	1/27/2016 7:55:12 PM	23161
Surr: Benzo(e)pyrene	63.4	33.4-129		%REC	1	1/27/2016 7:55:12 PM	23161
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Toluene	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Ethylbenzene	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Chloroform	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601099

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly RO Reject

Collection Date: 1/5/2016 9:30:00 AM

Lab ID: 1601099-001

Matrix: AQUEOUS

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: AG			
Methylene Chloride	ND	3.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Vinyl chloride	ND	1.0		µg/L	1	1/7/2016 12:30:43 PM	R31318
Xylenes, Total	ND	1.5		µg/L	1	1/7/2016 12:30:43 PM	R31318
Surr: 1,2-Dichloroethane-d4	98.5	70-130		%REC	1	1/7/2016 12:30:43 PM	R31318
Surr: 4-Bromofluorobenzene	95.5	70-130		%REC	1	1/7/2016 12:30:43 PM	R31318
Surr: Dibromofluoromethane	94.9	70-130		%REC	1	1/7/2016 12:30:43 PM	R31318
Surr: Toluene-d8	97.7	70-130		%REC	1	1/7/2016 12:30:43 PM	R31318
TOTAL PHENOLICS BY SW-846 9067				Analyst: SCC			
Phenolics, Total Recoverable	ND	2.5		µg/L	1	1/14/2016	23205

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601099

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1601099-002

Matrix: TRIP BLANK

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	1/11/2016 2:05:35 PM	23126
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/7/2016 12:06:11 PM	A31304
Surr: BFB	92.8	49.5-130		%REC	1	1/7/2016 12:06:11 PM	A31304
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Toluene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Ethylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Naphthalene	ND	2.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Acetone	ND	10		µg/L	1	1/7/2016 12:59:40 PM	R31318
Bromobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Bromoform	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Bromomethane	ND	3.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
2-Butanone	ND	10		µg/L	1	1/7/2016 12:59:40 PM	R31318
Carbon disulfide	ND	10		µg/L	1	1/7/2016 12:59:40 PM	R31318
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Chlorobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Chloroethane	ND	2.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Chloroform	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Chloromethane	ND	3.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Dibromomethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601099

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject

Collection Date:

Lab ID: 1601099-002

Matrix: TRIP BLANK

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
2-Hexanone	ND	10		µg/L	1	1/7/2016 12:59:40 PM	R31318
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2016 12:59:40 PM	R31318
Methylene Chloride	ND	3.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
n-Butylbenzene	ND	3.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Styrene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Vinyl chloride	ND	1.0		µg/L	1	1/7/2016 12:59:40 PM	R31318
Xylenes, Total	ND	1.5		µg/L	1	1/7/2016 12:59:40 PM	R31318
Surr: 1,2-Dichloroethane-d4	96.2	70-130		%REC	1	1/7/2016 12:59:40 PM	R31318
Surr: 4-Bromofluorobenzene	97.1	70-130		%REC	1	1/7/2016 12:59:40 PM	R31318
Surr: Dibromofluoromethane	95.3	70-130		%REC	1	1/7/2016 12:59:40 PM	R31318
Surr: Toluene-d8	97.0	70-130		%REC	1	1/7/2016 12:59:40 PM	R31318

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958208		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-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958209		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	109	85	115			
Barium	0.50	0.0020	0.5000	0	99.6	85	115			
Boron	0.50	0.040	0.5000	0	99.3	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.3	85	115			
Chromium	0.49	0.0060	0.5000	0	97.8	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115			
Copper	0.48	0.0060	0.5000	0	97.0	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.48	0.0020	0.5000	0	96.3	85	115			
Molybdenum	0.50	0.0080	0.5000	0	101	85	115			
Nickel	0.48	0.010	0.5000	0	95.0	85	115			
Silver	0.092	0.0050	0.1000	0	91.8	85	115			
Zinc	0.48	0.010	0.5000	0	95.5	85	115			

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958210		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	0.0020	0.0020	0.002000	0	101	50	150			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LLLCS-B		SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID: B31306			RunNo: 31306				
Prep Date:			Analysis Date: 1/7/2016			SeqNo: 958210		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	99.6	50	150			
Cadmium	0.0021	0.0020	0.002000	0	103	50	150			
Chromium	0.0067	0.0060	0.006000	0	112	50	150			
Cobalt	ND	0.0060	0.006000	0	94.7	50	150			
Copper	0.0062	0.0060	0.006000	0	103	50	150			
Manganese	0.0020	0.0020	0.002000	0	100	50	150			
Molybdenum	ND	0.0080	0.008000	0	78.8	50	150			
Nickel	ND	0.010	0.005000	0	143	50	150			
Silver	ND	0.0050	0.005000	0	67.4	50	150			
Zinc	ND	0.010	0.005000	0	144	50	150			

Sample ID	LLLCS-B		SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	BatchQC		Batch ID: B31306			RunNo: 31306				
Prep Date:			Analysis Date: 1/7/2016			SeqNo: 958215		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.023	0.020	0.02000	0	114	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A31277		RunNo: 31277					
Prep Date:			Analysis Date: 1/6/2016		SeqNo: 957740		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0	104	85	115			
Lead	0.012	0.00050	0.01250	0	97.9	85	115			
Selenium	0.028	0.0010	0.02500	0	112	85	115			
Uranium	0.012	0.00050	0.01250	0	97.7	85	115			

Sample ID	LLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A31277		RunNo: 31277					
Prep Date:			Analysis Date: 1/6/2016		SeqNo: 957742		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	103	50	150			
Lead	ND	0.00050	0.0005000	0	99.1	50	150			
Selenium	0.0011	0.0010	0.001000	0	114	50	150			
Uranium	ND	0.00050	0.0005000	0	98.0	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A31277			RunNo: 31277					
Prep Date:		Analysis Date: 1/6/2016			SeqNo: 957743		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23109		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	23109		RunNo:	31316				
Prep Date:	1/7/2016		Analysis Date:	1/7/2016		SeqNo:	958535		Units:		mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-23109		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 23109		RunNo: 31316					
Prep Date:	1/7/2016		Analysis Date: 1/7/2016		SeqNo: 958536		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R31305	RunNo:	31305					
Prep Date:		Analysis Date:	1/6/2016	SeqNo:	958138	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID	LCS	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R31305	RunNo:	31305					
Prep Date:		Analysis Date:	1/6/2016	SeqNo:	958139	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.5	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.4	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:	R31350	RunNo:	31350					
Prep Date:		Analysis Date:	1/8/2016	SeqNo:	959773	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R31350	RunNo:	31350					
Prep Date:		Analysis Date:	1/8/2016	SeqNo:	959774	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	96.6	90	110			
Sulfate	9.8	0.50	10.00	0	98.2	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23126		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	23126		RunNo:	31378				
Prep Date:	1/8/2016		Analysis Date:	1/12/2016		SeqNo:	960604		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-23126			SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB			
Client ID:	LCSW			Batch ID:	23126		RunNo:	31378			
Prep Date:	1/8/2016			Analysis Date:	1/12/2016		SeqNo:	960605		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.096	0.010	0.1000	0	95.6	70	130				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23110	SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range				
Client ID:	PBW	Batch ID:	23110		RunNo:	31293				
Prep Date:	1/7/2016	Analysis Date:	1/7/2016		SeqNo:	958706		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		100	70	141			

Sample ID	LCS-23110		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 23110		RunNo: 31354					
Prep Date:	1/7/2016		Analysis Date: 1/11/2016		SeqNo: 959930		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	119	52.4	154			
Surr: DNOP	0.60		0.5000		119	70	141			

Sample ID	LCSD-23110		SampType: LCSD		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSS02		Batch ID: 23110		RunNo: 31354					
Prep Date:	1/7/2016		Analysis Date: 1/11/2016		SeqNo: 960009		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.9	52.4	154	17.6	28.3	
Surr: DNOP	0.47		0.5000		93.8	70	141	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	5ML RB	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID: A31304			RunNo: 31304					
Prep Date:		Analysis Date: 1/7/2016			SeqNo: 958494		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.6	49.5	130			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: A31304		RunNo: 31304					
Prep Date:			Analysis Date: 1/7/2016		SeqNo: 958495		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.1	80	120			
Surr: BFB	20		20.00		97.7	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23160	SampType:	MBLK		TestCode:	EPA Method 8082: PCB's				
Client ID:	PBW	Batch ID:	23160		RunNo:	31486				
Prep Date:	1/12/2016	Analysis Date:	1/18/2016		SeqNo:	963636		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	2.8		2.500		112	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		83.2	20.6	151			

Sample ID	LCS-23160		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 23160		RunNo: 31486					
Prep Date:	1/12/2016		Analysis Date: 1/18/2016		SeqNo: 963637		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	43.7	15	131			
Aroclor 1260	4.3	1.0	5.000	0	85.8	15	162			
Surr: Decachlorobiphenyl	2.6		2.500		104	17.7	151			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.8	20.6	151			

Sample ID	LCSD-23160		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 23160		RunNo: 31486					
Prep Date:	1/12/2016		Analysis Date: 1/18/2016		SeqNo: 963638		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.4	1.0	5.000	0	47.5	15	131	8.33	24.4	
Aroclor 1260	4.4	1.0	5.000	0	87.9	15	162	2.49	28	
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	20.6	151	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R31318			RunNo: 31318					
Prep Date:		Analysis Date: 1/7/2016			SeqNo: 958568		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.3	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	95.6	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R31318			RunNo: 31318					
Prep Date:		Analysis Date: 1/7/2016			SeqNo: 958569		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R31318	RunNo:	31318					
Prep Date:		Analysis Date:	1/7/2016	SeqNo:	958569	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R31318	RunNo:	31318					
Prep Date:		Analysis Date:	1/7/2016	SeqNo:	958569	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.3	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.6		10.00		96.1	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23161		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	23161		RunNo:	31727			
Prep Date:	1/12/2016		Analysis Date:	1/27/2016		SeqNo:	970959	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	13		20.00		65.7	33.4	129			

Sample ID	LCS-23161		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	23161		RunNo:	31727			
Prep Date:	1/12/2016		Analysis Date:	1/27/2016		SeqNo:	970960	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	29	2.0	40.00	0	72.2	54.6	110			
1-Methylnaphthalene	29	2.0	40.10	0	72.1	49.1	116			
2-Methylnaphthalene	29	2.0	40.00	0	73.0	52.5	111			
Benzo(a)pyrene	0.18	0.070	0.2510	0	71.7	62	107			
Surr: Benzo(e)pyrene	14		20.00		71.0	33.4	129			

Sample ID	LCSD-23161		SampType:	LCSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSS02		Batch ID:	23161		RunNo:	31727			
Prep Date:	1/12/2016		Analysis Date:	1/27/2016		SeqNo:	970961	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	31	2.0	40.00	0	77.0	54.6	110	6.37	20	
1-Methylnaphthalene	31	2.0	40.10	0	77.0	49.1	116	6.56	20	
2-Methylnaphthalene	31	2.0	40.00	0	77.4	52.5	111	5.85	20	
Benzo(a)pyrene	0.19	0.070	0.2510	0	75.7	62	107	5.41	20	
Surr: Benzo(e)pyrene	14		20.00		71.4	33.4	129	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23205		SampType: MBLK		TestCode: Total Phenolics by SW-846 9067					
Client ID:	PBW		Batch ID: 23205		RunNo: 31418					
Prep Date:	1/14/2016		Analysis Date: 1/14/2016		SeqNo: 961552		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-23205		SampType:	LCS		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	LCSW		Batch ID:	23205		RunNo:	31418				
Prep Date:	1/14/2016		Analysis Date:	1/14/2016		SeqNo:	961553		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	24	2.5	20.00	0	119	64.4	135				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R31534		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R31534		RunNo:	31534				
Prep Date:			Analysis Date:	1/12/2016		SeqNo:	965188		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R31534		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R31534		RunNo: 31534					
Prep Date:			Analysis Date: 1/12/2016		SeqNo: 965189		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.515		0.5000	0	103	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-R31549		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R31549		RunNo:	31549			
Prep Date:			Analysis Date:	1/18/2016		SeqNo:	965696	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.468	0.573								
Radium-226 ±	0.435	0.573								
Radium-228	0.175	0.698								
Radium-228 ±	0.319	0.698								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601099

28-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	MB-23119		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	23119		RunNo:	31342				
Prep Date:	1/7/2016		Analysis Date:	1/9/2016		SeqNo:	959480		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-23119		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	23119		RunNo:	31342				
Prep Date:	1/7/2016		Analysis Date:	1/9/2016		SeqNo:	959481		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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1601099

RcptNo: 1

Received by/date:

Logged By: Lindsay Mangin

1/6/2016 9:56:00 AM

Completed By: Lindsay Mangin

1/6/2016 9:56:20 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☒

No ☐

Not Present ☐

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

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

Adjusted?

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

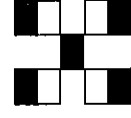
Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Project Manager:	
Robert Combs	
Sampler:	Elizabeth Salsberry
On Ice:	☒ Yes ☐ No
Sample Temperature:	3.1

email or Fax#: 575-746-5451

QA/QC Package:

☒ X Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
1/5/15	9:30	liquid	R.O. Reject	2 - 500ml P	1-unpres H2SO4	1601099
1/5/15	9:30	liquid	R.O. Reject	3-40ml VOA	HCL	-001
1/5/15	9:30	liquid	R.O. Reject	1-500ml P	HNO3	-001
1/5/15	9:30	liquid	R.O. Reject	1-125ml P	HNO3	-001
1/5/15	9:30	liquid	R.O. Reject	1-500ml P	NaOH	-001
1/5/15	9:30	liquid	R.O. Reject	2- 1L P	HNO3	-001
1/5/15	9:30	liquid	R.O. Reject	3-40ml VOA	Na2S2O3	-001
1/5/15	9:30	liquid	R.O. Reject	2 - 1L Glass	unpres	-001
1/5/15	9:30	liquid	R.O. Reject	1 - 1L Glass	unpres	-001
1/5/15	9:30	liquid	R.O. Reject	3-40ml VOA	HCL	-001
1/5/15	9:30	liquid	R.O. Reject	1-250ml Glass	unpres	-001
1/5/15	9:30	liquid	R.O. Reject	1 - 1L Glass	H2SO4	-001
1/5/15	9:30	liquid	Trio Blank	2-40ml VOA	HCL	-002

[illegible]

Remarks:

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



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

Monthly RO Reject Sample Details Attachment



Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	1/5/2016 @ 9:25 a.m.
End Date and Time	1/5/2016 @ 9:40 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	# of Containers	Preservatives							Other	Analysis and/or Method Requested pH, Cl, F, SO ₄ , NO ₂ /NO ₃ , TDS
					Neat (None)	HCL	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	NaHSO ₄		
1	500ml	Plastic		2	X			X					8015 GRO
2	40ml	VOA		3		X							6020 total metals, 7470 Hg
3	500ml	Plastic		1			X						6020 Dissolved Metals
4	125ml	Plastic		1			X						Cyanide
5	500ml	Plastic		2					X				Radium 226/228
6	1L	Plastic		3			X						8260 see attached list
7	40ml	VOA		2	X								8270 see attached list
8	1L	Glass		1	X								8082 PCBs
9	1L	Glass		2	X								8015 DRO
10	40ml	VOA		2	X								Radium 226/228
11	40ml	VOA		2		X							

Field Data (Weather, Observations, Etc):	1/5/2016 Tmp. 33.8 °F, Humidity 100%, Wind Dir. Calm, Wind Speed Calm, Conditions Overcast
Date and Time:	
Field Temp. 19.5C	Field pH 7.23

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

January 28, 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.: 1601101

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/6/2016 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601101

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 1/5/2016 10:10:00 AM

Lab ID: 1601101-001

Matrix: AQUEOUS

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	1/6/2016 1:42:40 PM	A31277
Lead	ND	0.00050		mg/L	1	1/6/2016 1:37:32 PM	A31277
Selenium	0.0083	0.0050		mg/L	5	1/6/2016 1:42:40 PM	A31277
Uranium	0.0055	0.00050		mg/L	1	1/6/2016 1:37:32 PM	A31277
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.58	0.850		pCi/L	1	1/18/2016	R31549
Radium-226 ±	0.79	0.850		pCi/L	1	1/18/2016	R31549
Radium-228	0.546	0.826		pCi/L	1	1/18/2016	R31549
Radium-228 ±	0.407	0.826		pCi/L	1	1/18/2016	R31549
EPA METHOD 300.0: ANIONS							Analyst: SRM
Fluoride	2.3	0.10		mg/L	1	1/6/2016 7:31:30 PM	R31305
Chloride	400	10		mg/L	20	1/6/2016 7:43:54 PM	R31305
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	1/6/2016 7:43:54 PM	R31305
Nitrogen, Nitrate (As N)	1.6	0.10		mg/L	1	1/6/2016 7:31:30 PM	R31305
Sulfate	1600	25		mg/L	50	1/8/2016 3:05:00 PM	R31350
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3470	20.0	*	mg/L	1	1/7/2016 7:22:00 PM	23090
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	1/12/2016	R31534
SM4500-H+B: PH							Analyst: JRR
pH	8.04	1.68	H	pH units	1	1/8/2016 6:14:20 PM	R31363
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	1/7/2016 2:04:13 PM	B31306
Barium	0.051	0.0020		mg/L	1	1/7/2016 2:04:13 PM	B31306
Boron	0.090	0.040		mg/L	1	1/7/2016 2:04:13 PM	B31306
Cadmium	ND	0.0020		mg/L	1	1/7/2016 2:04:13 PM	B31306
Chromium	ND	0.0060		mg/L	1	1/7/2016 2:04:13 PM	B31306
Cobalt	0.0085	0.0060		mg/L	1	1/7/2016 2:04:13 PM	B31306
Copper	ND	0.0060		mg/L	1	1/7/2016 2:04:13 PM	B31306
Iron	ND	0.020		mg/L	1	1/7/2016 2:04:13 PM	B31306
Manganese	ND	0.0020		mg/L	1	1/7/2016 2:04:13 PM	B31306
Molybdenum	ND	0.0080		mg/L	1	1/7/2016 2:04:13 PM	B31306
Nickel	ND	0.010		mg/L	1	1/7/2016 2:04:13 PM	B31306
Silver	ND	0.0050		mg/L	1	1/7/2016 2:04:13 PM	B31306
Zinc	0.031	0.010		mg/L	1	1/7/2016 2:04:13 PM	B31306
EPA METHOD 245.1: MERCURY							Analyst: pmf

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601101

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 1/5/2016 10:10:00 AM

Lab ID: 1601101-001

Matrix: AQUEOUS

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 245.1: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	1/7/2016 5:08:51 PM	23109
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	1/11/2016 2:26:15 PM	23126
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1221	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1232	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1242	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1248	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1254	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Aroclor 1260	ND	1.0		µg/L	1	1/18/2016 2:07:07 PM	23160
Surr: Decachlorobiphenyl	96.0	17.7-151		%REC	1	1/18/2016 2:07:07 PM	23160
Surr: Tetrachloro-m-xylene	64.8	20.6-151		%REC	1	1/18/2016 2:07:07 PM	23160
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/11/2016 11:24:38 AM	23110
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/11/2016 11:24:38 AM	23110
Surr: DNOP	102	70-141		%REC	1	1/11/2016 11:24:38 AM	23110
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/7/2016 12:29:54 PM	A31304
Surr: BFB	90.3	49.5-130		%REC	1	1/7/2016 12:29:54 PM	A31304
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	1/27/2016 8:24:29 PM	23161
1-Methylnaphthalene	ND	2.0		µg/L	1	1/27/2016 8:24:29 PM	23161
2-Methylnaphthalene	ND	2.0		µg/L	1	1/27/2016 8:24:29 PM	23161
Benzo(a)pyrene	ND	0.070		µg/L	1	1/27/2016 8:24:29 PM	23161
Surr: Benzo(e)pyrene	61.0	33.4-129		%REC	1	1/27/2016 8:24:29 PM	23161
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Toluene	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Ethylbenzene	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Chloroform	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601101

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 1/5/2016 10:10:00 AM

Lab ID: 1601101-001

Matrix: AQUEOUS

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: AG	
Methylene Chloride	ND	3.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Vinyl chloride	ND	1.0		µg/L	1	1/7/2016 1:28:37 PM	R31318
Xylenes, Total	ND	1.5		µg/L	1	1/7/2016 1:28:37 PM	R31318
Surr: 1,2-Dichloroethane-d4	95.1	70-130		%REC	1	1/7/2016 1:28:37 PM	R31318
Surr: 4-Bromofluorobenzene	97.4	70-130		%REC	1	1/7/2016 1:28:37 PM	R31318
Surr: Dibromofluoromethane	101	70-130		%REC	1	1/7/2016 1:28:37 PM	R31318
Surr: Toluene-d8	94.3	70-130		%REC	1	1/7/2016 1:28:37 PM	R31318
TOTAL PHENOLICS BY SW-846 9067						Analyst: SCC	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	1/14/2016	23205

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601101

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1601101-002

Matrix: TRIP BLANK

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	1/11/2016 3:27:54 PM	23126
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/7/2016 12:53:36 PM	A31304
Surr: BFB	91.9	49.5-130		%REC	1	1/7/2016 12:53:36 PM	A31304
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Toluene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Ethylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Naphthalene	ND	2.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
2-Methylnaphthalene	ND	4.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Acetone	ND	10		µg/L	1	1/7/2016 1:57:34 PM	R31318
Bromobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Bromodichloromethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Bromoform	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Bromomethane	ND	3.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
2-Butanone	ND	10		µg/L	1	1/7/2016 1:57:34 PM	R31318
Carbon disulfide	ND	10		µg/L	1	1/7/2016 1:57:34 PM	R31318
Carbon Tetrachloride	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Chlorobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Chloroethane	ND	2.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Chloroform	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Chloromethane	ND	3.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
2-Chlorotoluene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
4-Chlorotoluene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
cis-1,2-DCE	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Dibromochloromethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Dibromomethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1601101

Date Reported: 1/28/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1601101-002

Matrix: TRIP BLANK

Received Date: 1/6/2016 9:56:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1-Dichloroethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1-Dichloroethene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2-Dichloropropane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,3-Dichloropropane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
2,2-Dichloropropane	ND	2.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1-Dichloropropene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Hexachlorobutadiene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
2-Hexanone	ND	10		µg/L	1	1/7/2016 1:57:34 PM	R31318
Isopropylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
4-Isopropyltoluene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
4-Methyl-2-pentanone	ND	10		µg/L	1	1/7/2016 1:57:34 PM	R31318
Methylene Chloride	ND	3.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
n-Butylbenzene	ND	3.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
n-Propylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
sec-Butylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Styrene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
tert-Butylbenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
trans-1,2-DCE	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Trichlorofluoromethane	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Vinyl chloride	ND	1.0		µg/L	1	1/7/2016 1:57:34 PM	R31318
Xylenes, Total	ND	1.5		µg/L	1	1/7/2016 1:57:34 PM	R31318
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%REC	1	1/7/2016 1:57:34 PM	R31318
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	1/7/2016 1:57:34 PM	R31318
Surr: Dibromofluoromethane	98.8	70-130		%REC	1	1/7/2016 1:57:34 PM	R31318
Surr: Toluene-d8	93.1	70-130		%REC	1	1/7/2016 1:57:34 PM	R31318

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

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

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958208		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-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958209		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.55	0.020	0.5000	0	109	85	115			
Barium	0.50	0.0020	0.5000	0	99.6	85	115			
Boron	0.50	0.040	0.5000	0	99.3	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.3	85	115			
Chromium	0.49	0.0060	0.5000	0	97.8	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115			
Copper	0.48	0.0060	0.5000	0	97.0	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.48	0.0020	0.5000	0	96.3	85	115			
Molybdenum	0.50	0.0080	0.5000	0	101	85	115			
Nickel	0.48	0.010	0.5000	0	95.0	85	115			
Silver	0.092	0.0050	0.1000	0	91.8	85	115			
Zinc	0.48	0.010	0.5000	0	95.5	85	115			

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958210		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	0.0020	0.0020	0.002000	0	101	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

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

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958210		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	99.6	50	150			
Cadmium	0.0021	0.0020	0.002000	0	103	50	150			
Chromium	0.0067	0.0060	0.006000	0	112	50	150			
Cobalt	ND	0.0060	0.006000	0	94.7	50	150			
Copper	0.0062	0.0060	0.006000	0	103	50	150			
Manganese	0.0020	0.0020	0.002000	0	100	50	150			
Molybdenum	ND	0.0080	0.008000	0	78.8	50	150			
Nickel	ND	0.010	0.005000	0	143	50	150			
Silver	ND	0.0050	0.005000	0	67.4	50	150			
Zinc	ND	0.010	0.005000	0	144	50	150			

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958215		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.023	0.020	0.02000	0	114	50	150			

Sample ID 1601101-001IMS	SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: Temporary R.O. Rej	Batch ID: B31306		RunNo: 31306							
Prep Date:	Analysis Date: 1/7/2016		SeqNo: 958432		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.60	0.020	0.5000	0.009780	118	70	130			
Barium	0.52	0.0020	0.5000	0.05058	93.3	70	130			
Boron	0.62	0.040	0.5000	0.08985	106	70	130			
Cadmium	0.48	0.0020	0.5000	0	95.8	70	130			
Chromium	0.47	0.0060	0.5000	0.005280	93.6	70	130			
Cobalt	0.44	0.0060	0.5000	0.008500	86.5	70	130			
Copper	0.51	0.0060	0.5000	0	101	70	130			
Iron	0.40	0.020	0.5000	0.01090	78.1	70	130			
Manganese	0.46	0.0020	0.5000	0.0005000	91.8	70	130			
Molybdenum	0.44	0.0080	0.5000	0	88.8	70	130			
Nickel	0.44	0.010	0.5000	0	88.0	70	130			
Silver	0.074	0.0050	0.1000	0	73.7	70	130			
Zinc	0.47	0.010	0.5000	0.03096	87.6	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	1601101-001IMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B31306		RunNo:	31306			
Prep Date:			Analysis Date:	1/7/2016		SeqNo:	958433		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.60	0.020	0.5000	0.009780	118	70	130	0.352	20	
Barium	0.53	0.0020	0.5000	0.05058	95.1	70	130	1.73	20	
Boron	0.63	0.040	0.5000	0.08985	108	70	130	1.23	20	
Cadmium	0.49	0.0020	0.5000	0	97.4	70	130	1.66	20	
Chromium	0.48	0.0060	0.5000	0.005280	94.4	70	130	0.791	20	
Cobalt	0.45	0.0060	0.5000	0.008500	88.0	70	130	1.66	20	
Copper	0.51	0.0060	0.5000	0	102	70	130	0.313	20	
Iron	0.44	0.020	0.5000	0.01090	86.1	70	130	9.50	20	
Manganese	0.47	0.0020	0.5000	0.0005000	93.0	70	130	1.28	20	
Molybdenum	0.46	0.0080	0.5000	0	92.8	70	130	4.42	20	
Nickel	0.45	0.010	0.5000	0	89.7	70	130	2.02	20	
Silver	0.074	0.0050	0.1000	0	73.9	70	130	0.298	20	
Zinc	0.48	0.010	0.5000	0.03096	90.2	70	130	2.75	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-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: A31277		RunNo: 31277					
Prep Date:			Analysis Date: 1/6/2016		SeqNo: 957740		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0	104	85	115			
Lead	0.012	0.00050	0.01250	0	97.9	85	115			
Selenium	0.028	0.0010	0.02500	0	112	85	115			
Uranium	0.012	0.00050	0.01250	0	97.7	85	115			

Sample ID	LLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A31277		RunNo: 31277					
Prep Date:			Analysis Date: 1/6/2016		SeqNo: 957742		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	103	50	150			
Lead	ND	0.00050	0.0005000	0	99.1	50	150			
Selenium	0.0011	0.0010	0.001000	0	114	50	150			
Uranium	ND	0.00050	0.0005000	0	98.0	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A31277			RunNo: 31277					
Prep Date:		Analysis Date: 1/6/2016			SeqNo: 957743		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23109		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	23109		RunNo:	31316				
Prep Date:	1/7/2016		Analysis Date:	1/7/2016		SeqNo:	958535		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-23109		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 23109		RunNo: 31316					
Prep Date:	1/7/2016		Analysis Date: 1/7/2016		SeqNo: 958536		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-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: R31305		RunNo: 31305							
Prep Date:	Analysis Date: 1/6/2016		SeqNo: 958138		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, 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: R31305		RunNo: 31305							
Prep Date:	Analysis Date: 1/6/2016		SeqNo: 958139		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	96.5	90	110			
Chloride	4.9	0.50	5.000	0	97.8	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.4	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: R31350		RunNo: 31350							
Prep Date:	Analysis Date: 1/8/2016		SeqNo: 959773		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: R31350		RunNo: 31350							
Prep Date:	Analysis Date: 1/8/2016		SeqNo: 959774		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.2	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

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

Sample ID	1601101-001DMS	SampType:	MS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	Temporary R.O. Rej	Batch ID:	23126	RunNo:	31371					
Prep Date:	1/8/2016	Analysis Date:	1/11/2016	SeqNo:	960526	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.086	0.010	0.1000	0	85.8	40.3	153			

Sample ID	1601101-001DMSD	SampType:	MSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	Temporary R.O. Rej	Batch ID:	23126	RunNo:	31371					
Prep Date:	1/8/2016	Analysis Date:	1/11/2016	SeqNo:	960527	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.086	0.010	0.1000	0	86.2	40.3	153	0.568	29.5	

Sample ID	MB-23126	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	23126	RunNo:	31378					
Prep Date:	1/8/2016	Analysis Date:	1/12/2016	SeqNo:	960604	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-23126	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	23126	RunNo:	31378					
Prep Date:	1/8/2016	Analysis Date:	1/12/2016	SeqNo:	960605	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.096	0.010	0.1000	0	95.6	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23110		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 23110		RunNo: 31293					
Prep Date:	1/7/2016		Analysis Date: 1/7/2016		SeqNo: 958706		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		100	70	141			

Sample ID	LCS-23110		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 23110		RunNo: 31354					
Prep Date:	1/7/2016		Analysis Date: 1/11/2016		SeqNo: 959930		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.0	1.0	5.000	0	119	52.4	154			
Surr: DNOP	0.60		0.5000		119	70	141			

Sample ID	LCSD-23110		SampType: LCSD		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSS02		Batch ID: 23110		RunNo: 31354					
Prep Date:	1/7/2016		Analysis Date: 1/11/2016		SeqNo: 960009		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.9	52.4	154	17.6	28.3	
Surr: DNOP	0.47		0.5000		93.8	70	141	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-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: A31304		RunNo: 31304					
Prep Date:			Analysis Date: 1/7/2016		SeqNo: 958494		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.6	49.5	130			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: A31304		RunNo: 31304					
Prep Date:			Analysis Date: 1/7/2016		SeqNo: 958495		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.1	80	120			
Surr: BFB	20		20.00		97.7	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23160	SampType:	MBLK		TestCode:	EPA Method 8082: PCB's				
Client ID:	PBW	Batch ID:	23160		RunNo:	31486				
Prep Date:	1/12/2016	Analysis Date:	1/18/2016		SeqNo:	963636		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	2.8		2.500		112	17.7	151			
Surr: Tetrachloro-m-xylene	2.1		2.500		83.2	20.6	151			

Sample ID	LCS-23160		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 23160		RunNo: 31486					
Prep Date:	1/12/2016		Analysis Date: 1/18/2016		SeqNo: 963637		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	43.7	15	131			
Aroclor 1260	4.3	1.0	5.000	0	85.8	15	162			
Surr: Decachlorobiphenyl	2.6		2.500		104	17.7	151			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.8	20.6	151			

Sample ID	LCSD-23160		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 23160		RunNo: 31486					
Prep Date:	1/12/2016		Analysis Date: 1/18/2016		SeqNo: 963638		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.4	1.0	5.000	0	47.5	15	131	8.33	24.4	
Aroclor 1260	4.4	1.0	5.000	0	87.9	15	162	2.49	28	
Surr: Decachlorobiphenyl	2.4		2.500		97.6	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	20.6	151	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-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: R31318			RunNo: 31318					
Prep Date:		Analysis Date: 1/7/2016			SeqNo: 958568		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.3	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	95.6	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R31318			RunNo: 31318					
Prep Date:		Analysis Date: 1/7/2016			SeqNo: 958569		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-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: R31318			RunNo: 31318						
Prep Date:	Analysis Date: 1/7/2016			SeqNo: 958569		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-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:	R31318	RunNo:	31318					
Prep Date:		Analysis Date:	1/7/2016	SeqNo:	958569	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.3	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.6		10.00		96.1	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23161		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	23161		RunNo:	31727			
Prep Date:	1/12/2016		Analysis Date:	1/27/2016		SeqNo:	970959		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	13		20.00		65.7	33.4	129			

Sample ID	LCS-23161		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	23161		RunNo:	31727			
Prep Date:	1/12/2016		Analysis Date:	1/27/2016		SeqNo:	970960		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	29	2.0	40.00	0	72.2	54.6	110			
1-Methylnaphthalene	29	2.0	40.10	0	72.1	49.1	116			
2-Methylnaphthalene	29	2.0	40.00	0	73.0	52.5	111			
Benzo(a)pyrene	0.18	0.070	0.2510	0	71.7	62	107			
Surr: Benzo(e)pyrene	14		20.00		71.0	33.4	129			

Sample ID	LCSD-23161		SampType:	LCSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSS02		Batch ID:	23161		RunNo:	31727			
Prep Date:	1/12/2016		Analysis Date:	1/27/2016		SeqNo:	970961		Units: µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	31	2.0	40.00	0	77.0	54.6	110	6.37	20	
1-Methylnaphthalene	31	2.0	40.10	0	77.0	49.1	116	6.56	20	
2-Methylnaphthalene	31	2.0	40.00	0	77.4	52.5	111	5.85	20	
Benzo(a)pyrene	0.19	0.070	0.2510	0	75.7	62	107	5.41	20	
Surr: Benzo(e)pyrene	14		20.00		71.4	33.4	129	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23205		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	23205		RunNo:	31418				
Prep Date:	1/14/2016		Analysis Date:	1/14/2016		SeqNo:	961552		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-23205		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 23205		RunNo: 31418					
Prep Date:	1/14/2016		Analysis Date: 1/14/2016		SeqNo: 961553		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	24	2.5	20.00	0	119	64.4	135			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R31534		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R31534		RunNo:	31534				
Prep Date:			Analysis Date:	1/12/2016		SeqNo:	965188		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R31534		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R31534		RunNo: 31534					
Prep Date:			Analysis Date: 1/12/2016		SeqNo: 965189		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.515		0.5000	0	103	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R31549		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R31549		RunNo:	31549			
Prep Date:			Analysis Date:	1/18/2016		SeqNo:	965696	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.468	0.573								
Radium-226 ±	0.435	0.573								
Radium-228	0.175	0.698								
Radium-228 ±	0.319	0.698								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1601101

28-Jan-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23090		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	23090		RunNo:	31315				
Prep Date:	1/6/2016		Analysis Date:	1/7/2016		SeqNo:	958376		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	ND	20.0									

Sample ID	LCS-23090		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	23090		RunNo:	31315				
Prep Date:	1/6/2016		Analysis Date:	1/7/2016		SeqNo:	958377		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1020	20.0	1000	0	102	80	120				

Qualifiers:

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

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

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO**

Work Order Number: **1601101**

RcptNo: **1**

Received by/date:

Logged By: **Lindsay Mangin**

1/6/2016 9:56:00 AM

Completed By: **Lindsay Mangin**

1/6/2016 9:58:40 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☒

No ☐

Not Present ☐

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

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

7,1
(<2 or >12 unless noted)
Adjusted? NO

Checked by:

Special Handling (if applicable)

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

Yes ☐

No ☐

NA ☒

Person Notified:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Yes			



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

Monthly Temporary RO Reject Sample Details



HOLLYFRONTIER

The HollyFrontier Companies

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

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

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

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

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

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

Preservatives												Analysis and/or Method Requested pH, Cl, F, SO ₄ , NO ₂ /NO ₃ , TDS 8015 GRO 6020 total metals, 7470 Hg 6020 Dissolved Metals Cyanide Radium 226/228 8260 see attached list 8270 see attached list 8082 PCBs 8015 DRO Radium 226/228
Container	Size	Material	# of Containers	Neat (None)	HCL	HNO ₃	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	NaHSO ₄	Other	
1	500ml	Plastic	2	X			X					
2	40ml	VOA	3		X							
3	500ml	Plastic	1			X						
4	125ml	Plastic	1			X						
5	500ml	Plastic	2					X				
6	1L	Plastic	3			X						
7	40ml	VOA	2		X							
8	1L	Glass	1	X								
9	1L	Glass	2	X								
10	40ml	VOA	2	X								
11	40ml	VOA	2		X							

Field Data (Weather, Observations, Etc):	1/5/2015 Tmp 33.8 °F, Humidity 100%, Wind Dir. Calm, Wind Speed Calm, Conditions Overcast
Date and Time:	
Field Temp.	19.8
Field pH	7.79

Storage Method	
Ice	☒
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☒
Other	☐



March 15, 2016

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

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

RE: WQA-OCD-CO-2015-002
Monthly Report – February 1 to February 4, 2016 Reporting Period

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD) on the 15th day of the month following each monthly reporting period. OCD issued modifications to Discharge Permit GW-028 with an effective date of February 4, 2016, and as a result, the Agreed Order has been terminated as of that date. However, to meet the requirements of the Order through February 4, 2016, Navajo hereby submits this letter and all attachments constituting Navajo's February 2016 monthly report. This monthly report covers the period of February 1 through February 4, 2016, and is the final report to satisfy requirements under the Order. Monthly reporting required by the modified Discharge Permit GW-028, Condition 4.B.7, will commence in March 2016.

Specifically, this report covers the February 1 through February 4, 2016 reporting period, and includes the following data and information as required by Exhibit A, Paragraph 2 and Paragraph 5.a – c:

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted the GW-028 discharge permit modification request on May 22, 2015, prior to 30 days from April 27, 2015, the date of the Order. Therefore, for the period of February 1 through February 4, 2016, reporting period, Paragraph III.2.b.i.2 of the Order is applicable. Stipulated penalties were calculated for each day following Navajo's submittal of the permit modification request, and prior to OCD action on that request, as follows:

- \$100 per day for each daily RO reject fluid discharge volume between 10,000 and 15,000 barrels from February 1 through February 4.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from February 1 through February 4.

Navajo has calculated a penalty of \$300 for the reporting period from February 1 through February 4, 2016. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit in effect during the reporting period, but was under 15,000 barrels total, on 3 days from February 1 to February 4, 2016. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on February 4, 2016. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

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

produced. Navajo is also evaluating options for the underground injection, and other options for discharge, of RO reject fluid.

OCD issued the final modified permit conditions on February 4, 2016. In accordance with the modified Condition 4.B.4, Navajo is maintaining daily records of the flow rate and volumes from each RO unit, as well as the discharge locations. No exceedances of the 15,000 bpd limit have occurred since the permit modifications took effect on February 4, 2016. In accordance with the modified Condition 4.B.7, Navajo will submit under separate cover a monthly report to include the daily discharge flow measurements and analytical sample results for the February reporting period by March 15, 2016.

Navajo is currently preparing an early submittal of the Renewal Application for Discharge Permit GW-028. The Renewal Application will include a permit application for construction and operation of water management ponds for evaporation of RO reject fluid and possibly additional fluid streams.

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

Sincerely,



Scott M. Denton
Environmental Manager

Enclosures:

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

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

Attachment 1
Daily Discharge Flow Rates

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

	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	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
2/1/2016	91	81	172	5,897	145	4957	10,854
2/2/2016	89	88	177	6,069	154	5271	11,340
2/3/2016	89	88	177	6,069	98	3365	9,434
2/4/2016	94	83	177	6,069	122	4167	10,236

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties – February 1 – February 4, 2016

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	--	--	--
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	3	\$300
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
Total Amount:				\$300

Attachment 3
Analytical Lab Report



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

February 24, 2016

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

RE: Monthly R.O. Reject

OrderNo.: 1602206

Dear Robert Combs:

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

This report is a revised report and it replaces the original report issued February 22, 2016.

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

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

Sincerely,

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 1602206

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 2/4/2016 9:35:00 AM

Lab ID: 1602206-001

Matrix: AQUEOUS

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	2/9/2016 4:03:42 PM	A32026
Lead	ND	0.00050		mg/L	1	2/8/2016 7:55:24 PM	B31999
Selenium	0.0086	0.0010		mg/L	1	2/8/2016 7:55:24 PM	B31999
Uranium	0.0049	0.00050		mg/L	1	2/8/2016 7:55:24 PM	B31999
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.537	0.826		pCi/L	1	2/16/2016	R32295
Radium-226 ±	0.546	0.826		pCi/L	1	2/16/2016	R32295
Radium-228	0.595	0.672		pCi/L	1	2/16/2016	R32295
Radium-228 ±	0.361	0.672		pCi/L	1	2/16/2016	R32295
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.2	0.10		mg/L	1	2/6/2016 12:10:43 AM	R31977
Chloride	71	10		mg/L	20	2/6/2016 12:23:08 AM	R31977
Nitrogen, Nitrate (As N)	1.3	0.10		mg/L	1	2/6/2016 12:10:43 AM	R31977
Sulfate	900	25		mg/L	50	2/18/2016 7:37:57 PM	R32274
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1940	20.0	*	mg/L	1	2/10/2016 3:47:00 PM	23638
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH							Analyst: MRA
pH	7.94	1.68	H	pH units	1	2/8/2016 3:55:25 PM	R32011
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Barium	0.059	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Boron	0.094	0.040		mg/L	1	2/24/2016 11:17:05 AM	B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:17:05 AM	B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:17:05 AM	B32368
Molybdenum	0.0094	0.0080		mg/L	1	2/24/2016 11:17:05 AM	B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:17:05 AM	B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:17:05 AM	B32368
Zinc	0.023	0.010		mg/L	1	2/24/2016 11:17:05 AM	B32368
EPA METHOD 245.1: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:05:40 PM	23640

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 1602206

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 2/4/2016 9:35:00 AM

Lab ID: 1602206-001

Matrix: AQUEOUS

Received Date: 2/5/2016 10:05:00 AM

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

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

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 1602206

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 2/4/2016 9:35:00 AM

Lab ID: 1602206-001

Matrix: AQUEOUS

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 5:47:24 AM	B31998
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 5:47:24 AM	B31998
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2016 5:47:24 AM	B31998
Vinyl chloride	ND	1.0		µg/L	1	2/9/2016 5:47:24 AM	B31998
Xylenes, Total	ND	1.5		µg/L	1	2/9/2016 5:47:24 AM	B31998
Surr: 1,2-Dichloroethane-d4	93.8	70-130		%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: Dibromofluoromethane	100	70-130		%Rec	1	2/9/2016 5:47:24 AM	B31998
Surr: Toluene-d8	103	70-130		%Rec	1	2/9/2016 5:47:24 AM	B31998
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	2/18/2016	23801

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 1602206

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1602206-002

Matrix: TRIP BLANK

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	2/8/2016 1:10:09 PM	23604
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/5/2016 5:17:25 PM	R31967
Surr: BFB	82.9	49.5-130		%Rec	1	2/5/2016 5:17:25 PM	R31967
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Toluene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Ethylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Naphthalene	ND	2.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Acetone	ND	10		µg/L	1	2/9/2016 6:15:43 AM	B31998
Bromobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Bromoform	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Bromomethane	ND	3.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
2-Butanone	ND	10		µg/L	1	2/9/2016 6:15:43 AM	B31998
Carbon disulfide	ND	10		µg/L	1	2/9/2016 6:15:43 AM	B31998
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Chlorobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Chloroethane	ND	2.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Chloroform	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Chloromethane	ND	3.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Dibromomethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	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 1602206

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1602206-002

Matrix: TRIP BLANK

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: DJF			
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
2-Hexanone	ND	10		µg/L	1	2/9/2016 6:15:43 AM	B31998
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2016 6:15:43 AM	B31998
Methylene Chloride	ND	3.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Styrene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Vinyl chloride	ND	1.0		µg/L	1	2/9/2016 6:15:43 AM	B31998
Xylenes, Total	ND	1.5		µg/L	1	2/9/2016 6:15:43 AM	B31998
Surr: 1,2-Dichloroethane-d4	94.4	70-130		%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: Dibromofluoromethane	101	70-130		%Rec	1	2/9/2016 6:15:43 AM	B31998
Surr: Toluene-d8	101	70-130		%Rec	1	2/9/2016 6:15:43 AM	B31998

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B32368		RunNo: 32368							
Prep Date:	Analysis Date: 2/24/2016		SeqNo: 989628		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
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-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B32368		RunNo: 32368							
Prep Date:	Analysis Date: 2/24/2016		SeqNo: 989629		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	105	85	115			
Barium	0.48	0.0020	0.5000	0	96.9	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.6	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.3	85	115			
Copper	0.49	0.0060	0.5000	0	98.6	85	115			
Iron	0.49	0.020	0.5000	0	97.7	85	115			
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			
Nickel	0.47	0.010	0.5000	0	94.0	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.9	85	115			

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B32368		RunNo: 32368							
Prep Date:	Analysis Date: 2/24/2016		SeqNo: 989630		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	95.9	50	150			
Barium	0.0021	0.0020	0.002000	0	105	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS-B		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	B32368		RunNo:	32368			
Prep Date:			Analysis Date:	2/24/2016		SeqNo:	989630		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	100	50	150			
Cadmium	ND	0.0020	0.002000	0	85.0	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	0.0064	0.0060	0.006000	0	107	50	150			
Iron	ND	0.020	0.02000	0	90.8	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			
Molybdenum	0.010	0.0080	0.008000	0	130	50	150			
Nickel	ND	0.010	0.005000	0	101	50	150			
Silver	ND	0.0050	0.005000	0	95.0	50	150			
Zinc	ND	0.010	0.005000	0	90.2	50	150			

Qualifiers:

* 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#: 1602206

24-Feb-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: B31999			RunNo: 31999						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978440		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	102	85	115			
Selenium	0.026	0.0010	0.02500	0	106	85	115			
Uranium	0.013	0.00050	0.01250	0	101	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: B31999			RunNo: 31999						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978441		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050	0.0005000	0	99.7	50	150			
Selenium	ND	0.0010	0.001000	0	88.9	50	150			
Uranium	ND	0.00050	0.0005000	0	98.6	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: B31999			RunNo: 31999						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978442		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: A32026			RunNo: 32026						
Prep Date:	Analysis Date: 2/9/2016			SeqNo: 979375		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	101	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: A32026			RunNo: 32026						
Prep Date:	Analysis Date: 2/9/2016			SeqNo: 979377		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	100	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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	A32026	RunNo:	32026					
Prep Date:		Analysis Date:	2/9/2016	SeqNo:	979379	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23640		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	23640		RunNo:	32041				
Prep Date:	2/9/2016		Analysis Date:	2/10/2016		SeqNo:	979810		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercurv	ND	0.00020									

Sample ID	LCS-23640		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 23640		RunNo: 32041					
Prep Date:	2/9/2016		Analysis Date: 2/10/2016		SeqNo: 979811		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
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#: 1602206

24-Feb-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:	R31977	RunNo:	31977					
Prep Date:		Analysis Date:	2/5/2016	SeqNo:	977910	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:	R31977	RunNo:	31977					
Prep Date:		Analysis Date:	2/5/2016	SeqNo:	977911	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	109	90	110			
Chloride	4.9	0.50	5.000	0	98.1	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	104	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R32274	RunNo:	32274					
Prep Date:		Analysis Date:	2/18/2016	SeqNo:	986553	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:	R32274	RunNo:	32274					
Prep Date:		Analysis Date:	2/18/2016	SeqNo:	986554	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10	0.50	10.00	0	99.6	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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23604		SampType:	MBLK		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	PBW		Batch ID:	23604		RunNo:	31988				
Prep Date:	2/8/2016		Analysis Date:	2/8/2016		SeqNo:	978001		Units:		µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	ND	0.010									

Sample ID	LCS-23604		SampType: LCS		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSW		Batch ID: 23604		RunNo: 31988					
Prep Date:	2/8/2016		Analysis Date: 2/8/2016		SeqNo: 978002		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.13	0.010	0.1000	0	129	70	130			

Sample ID	LCSD-23604		SampType: LCSD		TestCode: EPA Method 8011/504.1: EDB					
Client ID:	LCSS02		Batch ID: 23604		RunNo: 31988					
Prep Date:	2/8/2016		Analysis Date: 2/8/2016		SeqNo: 978003		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.12	0.010	0.1000	0	123	70	130	4.17	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23596		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 23596		RunNo: 31978					
Prep Date:	2/5/2016		Analysis Date: 2/8/2016		SeqNo: 977994		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		100	70	141			

Sample ID	LCS-23596		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 23596		RunNo: 31978					
Prep Date:	2/5/2016		Analysis Date: 2/8/2016		SeqNo: 977995		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154			
Surr: DNOP	0.49		0.5000		97.8	70	141			

Sample ID	1602206-001AMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	R.O. Reject		Batch ID: 23596		RunNo: 31978					
Prep Date:	2/8/2016		Analysis Date: 2/8/2016		SeqNo: 978052		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	109	41.3	177			
Surr: DNOP	0.52		0.5000		104	70	141			

Sample ID	1602206-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015M/D: Diesel Range				
Client ID:	R.O. Reject		Batch ID:	23596		RunNo:	31978				
Prep Date:	2/8/2016		Analysis Date:	2/8/2016		SeqNo:	978077		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	105	-94.6	317	3.46	22.1		
Surr: DNOP	0.50		0.5000		99.3	70	141	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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R31967		RunNo: 31967					
Prep Date:			Analysis Date: 2/5/2016		SeqNo: 977541		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	90.6	80	120			
Surr: BFB	20		20.00		97.9	49.5	130			

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: R31967		RunNo: 31967					
Prep Date:			Analysis Date: 2/5/2016		SeqNo: 977542		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		83.7	49.5	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23676		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 23676		RunNo: 32193					
Prep Date:	2/11/2016		Analysis Date: 2/17/2016		SeqNo: 984090		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	3.3		2.500		132	26.1	140			
Surr: Tetrachloro-m-xylene	2.6		2.500		104	15	123			

Sample ID	LCS-23676		SampType: LCS		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSW		Batch ID: 23676		RunNo: 32193					
Prep Date:	2/11/2016		Analysis Date: 2/17/2016		SeqNo: 984091		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	57.3	15	131			
Aroclor 1260	4.7	1.0	5.000	0	94.0	15	162			
Surr: Decachlorobiphenyl	2.3		2.500		92.0	26.1	140			
Surr: Tetrachloro-m-xylene	1.6		2.500		65.2	15	123			

Sample ID	LCSD-23676		SampType: LCSD		TestCode: EPA Method 8082: PCB's					
Client ID:	LCSS02		Batch ID: 23676		RunNo: 32193					
Prep Date:	2/11/2016		Analysis Date: 2/17/2016		SeqNo: 984092		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.8	1.0	5.000	0	56.4	15	131	1.55	24.4	
Aroclor 1260	4.5	1.0	5.000	0	90.4	15	162	3.99	28	
Surr: Decachlorobiphenyl	2.2		2.500		87.2	26.1	140	0	0	
Surr: Tetrachloro-m-xylene	1.7		2.500		67.2	15	123	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	B31998	RunNo:	31998					
Prep Date:		Analysis Date:	2/9/2016	SeqNo:	978345	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: B31998			RunNo: 31998						
Prep Date:	Analysis Date: 2/9/2016			SeqNo: 978345		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: B31998			RunNo: 31998						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978346		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	22	1.0	20.00	0	109	70	130			
Chlorobenzene	22	1.0	20.00	0	110	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	100ng lcs2	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: B31998			RunNo: 31998					
Prep Date:		Analysis Date: 2/8/2016			SeqNo: 978346		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23677		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs			
Client ID:	PBW		Batch ID:	23677		RunNo:	32189			
Prep Date:	2/11/2016		Analysis Date:	2/17/2016		SeqNo:	984104	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	9.8		20.00		48.8	33.4	129			

Sample ID	LCS-23677		SampType:	LCS		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSW		Batch ID:	23677		RunNo:	32189			
Prep Date:	2/11/2016		Analysis Date:	2/17/2016		SeqNo:	984239	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	78	2.0	80.00	0	97.6	54.6	110			
1-Methylnaphthalene	79	2.0	80.20	0	98.2	49.1	116			
2-Methylnaphthalene	79	2.0	80.00	0	98.8	52.5	111			
Benzo(a)pyrene	0.51	0.070	0.5020	0	102	62	107			
Surr: Benzo(e)pyrene	10		20.00		50.0	33.4	129			

Sample ID	LCSD-23677		SampType:	LCSD		TestCode:	EPA Method 8310: PAHs			
Client ID:	LCSS02		Batch ID:	23677		RunNo:	32189			
Prep Date:	2/11/2016		Analysis Date:	2/17/2016		SeqNo:	984240	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	81	2.0	80.00	0	101	54.6	110	3.55	20	
1-Methylnaphthalene	82	2.0	80.20	0	102	49.1	116	3.43	20	
2-Methylnaphthalene	82	2.0	80.00	0	102	52.5	111	3.47	20	
Benzo(a)pyrene	0.53	0.070	0.5020	0	106	62	107	3.85	20	
Surr: Benzo(e)pyrene	10		20.00		51.4	33.4	129	0		

Qualifiers:

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

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23801		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	23801		RunNo:	32220				
Prep Date:	2/18/2016		Analysis Date:	2/18/2016		SeqNo:	984921		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	ND	2.5									

Sample ID	LCS-23801		SampType: LCS		TestCode: Total Phenolics by SW-846 9067					
Client ID:	LCSW		Batch ID: 23801		RunNo: 32220					
Prep Date:	2/18/2016		Analysis Date: 2/18/2016		SeqNo: 984922		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	113	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#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R32129		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R32129		RunNo:	32129				
Prep Date:			Analysis Date:	2/11/2016		SeqNo:	982291		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R32129		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R32129		RunNo: 32129					
Prep Date:			Analysis Date: 2/11/2016		SeqNo: 982292		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.485		0.5000	0	97.0	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R32295		SampType:	MBLK		TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed			
Client ID:	PBW		Batch ID:	R32295		RunNo:	32295			
Prep Date:			Analysis Date:	2/16/2016		SeqNo:	987217	Units:	pCi/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	-0.078	0.841								
Radium-226 ±	0.357	0.841								
Radium-228	0.165	0.797								
Radium-228 ±	0.36	0.797								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602206

24-Feb-16

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-23638		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	23638		RunNo:	32048				
Prep Date:	2/9/2016		Analysis Date:	2/10/2016		SeqNo:	979976		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	ND	20.0									

Sample ID	LCS-23638		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	23638		RunNo:	32048				
Prep Date:	2/9/2016		Analysis Date:	2/10/2016		SeqNo:	979977		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1030	20.0	1000	0	103	80	120				

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1602206

RcptNo: 1

Received by/date: JA 02/05/16

Logged By: Ashley Gallegos 2/5/2016 10:05:00 AM AG

Completed By: Ashley Gallegos 2/5/2016 11:05:04 AM AG

Reviewed By: JA 02/05/16

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

of preserved bottles checked for pH: 6
(2 or 12 unless noted)
Adjusted? NO
Checked by: JA

Special Handling (if applicable)

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

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

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			



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

Monthly RO Reject Sample Details Attachment



The HollyFrontier Companies

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

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

Physical Property	
Solid	☐
Liquid	☒
Sludge	☐

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

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

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

Containers	Size	Material	No. of Containers	Preservatives							Analysis and/or Method Requested
				NaOH	H2SO4	HNO3	HCl	None	NaOH	H2SO4	
1	500ml	Plastic	2		X			X			pH, Cl, F, S04, NO2/NO3, TDS
2	40ml	VOA	3				X				8015 GRO
3	500ml	Plastic	1			X					6020 total metals, 7470 Hg
4	125ml	Plastic	1			X					6020 Dissolved Metals
5	500ml	Plastic	2						X		Cyanide
6	1L	Plastic	3			X					Radium 226/228
7	40ml	VOA	2				X				8260 see attached list
8	1L	Glass	1					X			8270 see attached list
9	1L	Glass	2					X			8082 PCBs
10	40ml	VOA	2					X			8015 DRO
11	40ml	VOA	2				X				Radium 226/228

Storage Method	☒ Ice ☐ Refrigerated ☐ Other
----------------	--

Shipping Media	☒ Ice ☐ Other
----------------	--

Field Date/Weather/Observations, Etc.	2/4/2016 Temp. 32.0 °F, Humidity 51%, Wind Dir. Calm, Wind Speed Calm, Conditions Clear
Date and Time	
Field Temp.	19.7C
Field pH	7.34



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

February 24, 2016

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

RE: Monthly Temporary R.O. Reject

OrderNo.: 1602208

Dear Robert Combs:

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

This report is a revised report and it replaces the original report issued February 22, 2016.

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

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

Sincerely,

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 1602208

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 2/4/2016 9:20:00 AM

Lab ID: 1602208-001

Matrix: AQUEOUS

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: JLF
Arsenic	ND	0.0050		mg/L	5	2/9/2016 7:05:53 PM	C32026
Lead	ND	0.00050		mg/L	1	2/8/2016 8:10:53 PM	B31999
Selenium	0.0055	0.0010		mg/L	1	2/8/2016 8:10:53 PM	B31999
Uranium	0.0031	0.00050		mg/L	1	2/8/2016 8:10:53 PM	B31999
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.755	0.989		pCi/L	1	2/16/2016	R32295
Radium-226 ±	0.667	0.989		pCi/L	1	2/16/2016	R32295
Radium-228	0.583	0.726		pCi/L	1	2/16/2016	R32295
Radium-228 ±	0.38	0.726		pCi/L	1	2/16/2016	R32295
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.3	0.10		mg/L	1	2/16/2016 9:14:11 PM	R32210
Chloride	62	10		mg/L	20	2/16/2016 9:26:36 PM	R32210
Sulfate	1000	25		mg/L	50	2/16/2016 11:12:24 AM	R32200
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/16/2016 8:49:22 PM	R32210
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2040	20.0	*	mg/L	1	2/10/2016 3:47:00 PM	23638
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	2/11/2016	R32129
SM4500-H+B: PH							Analyst: MRA
pH	8.05	1.68	H	pH units	1	2/8/2016 3:59:56 PM	R32011
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Barium	0.039	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Boron	0.064	0.040		mg/L	1	2/24/2016 11:26:24 AM	B32368
Cadmium	ND	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Chromium	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Cobalt	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Copper	ND	0.0060		mg/L	1	2/24/2016 11:26:24 AM	B32368
Iron	ND	0.020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Manganese	ND	0.0020		mg/L	1	2/24/2016 11:26:24 AM	B32368
Molybdenum	ND	0.0080		mg/L	1	2/24/2016 11:26:24 AM	B32368
Nickel	ND	0.010		mg/L	1	2/24/2016 11:26:24 AM	B32368
Silver	ND	0.0050		mg/L	1	2/24/2016 11:26:24 AM	B32368
Zinc	0.036	0.010		mg/L	1	2/24/2016 11:26:24 AM	B32368
EPA METHOD 245.1: MERCURY							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	2/10/2016 12:07:57 PM	23640

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 1602208

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 2/4/2016 9:20:00 AM

Lab ID: 1602208-001

Matrix: AQUEOUS

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	2/8/2016 1:25:12 PM	23604
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1221	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1232	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1242	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1248	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1254	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Aroclor 1260	ND	1.0		µg/L	1	2/17/2016 7:54:09 AM	23676
Surr: Decachlorobiphenyl	54.8	26.1-140		%Rec	1	2/17/2016 7:54:09 AM	23676
Surr: Tetrachloro-m-xylene	33.2	15-123		%Rec	1	2/17/2016 7:54:09 AM	23676
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/8/2016 2:56:32 PM	23596
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/8/2016 2:56:32 PM	23596
Surr: DNOP	104	70-141		%Rec	1	2/8/2016 2:56:32 PM	23596
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/5/2016 5:42:13 PM	R31967
Surr: BFB	85.4	49.5-130		%Rec	1	2/5/2016 5:42:13 PM	R31967
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	2/17/2016 10:20:33 AM	23677
1-Methylnaphthalene	ND	2.0		µg/L	1	2/17/2016 10:20:33 AM	23677
2-Methylnaphthalene	ND	2.0		µg/L	1	2/17/2016 10:20:33 AM	23677
Benzo(a)pyrene	ND	0.070		µg/L	1	2/17/2016 10:20:33 AM	23677
Surr: Benzo(e)pyrene	51.0	33.4-129		%Rec	1	2/17/2016 10:20:33 AM	23677
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Toluene	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Ethylbenzene	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Chloroform	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Methylene Chloride	ND	3.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 1602208

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 2/4/2016 9:20:00 AM

Lab ID: 1602208-001

Matrix: AQUEOUS

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Vinyl chloride	ND	1.0		µg/L	1	2/9/2016 6:44:04 AM	B31998
Xylenes, Total	ND	1.5		µg/L	1	2/9/2016 6:44:04 AM	B31998
Surr: 1,2-Dichloroethane-d4	90.4	70-130		%Rec	1	2/9/2016 6:44:04 AM	B31998
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/9/2016 6:44:04 AM	B31998
Surr: Dibromofluoromethane	97.5	70-130		%Rec	1	2/9/2016 6:44:04 AM	B31998
Surr: Toluene-d8	102	70-130		%Rec	1	2/9/2016 6:44:04 AM	B31998
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	2/18/2016	23801

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 1602208

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1602208-002

Matrix: TRIP BLANK

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	2/8/2016 1:40:14 PM	23604
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/5/2016 6:06:58 PM	R31967
Surr: BFB	88.4	49.5-130		%Rec	1	2/5/2016 6:06:58 PM	R31967
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Toluene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Ethylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Naphthalene	ND	2.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Acetone	ND	10		µg/L	1	2/9/2016 7:12:24 AM	B31998
Bromobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Bromoform	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Bromomethane	ND	3.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
2-Butanone	ND	10		µg/L	1	2/9/2016 7:12:24 AM	B31998
Carbon disulfide	ND	10		µg/L	1	2/9/2016 7:12:24 AM	B31998
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Chlorobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Chloroethane	ND	2.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Chloroform	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Chloromethane	ND	3.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Dibromomethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998

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

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 1602208

Date Reported: 2/24/2016

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1602208-002

Matrix: TRIP BLANK

Received Date: 2/5/2016 10:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
2-Hexanone	ND	10		µg/L	1	2/9/2016 7:12:24 AM	B31998
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2016 7:12:24 AM	B31998
Methylene Chloride	ND	3.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Styrene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Vinyl chloride	ND	1.0		µg/L	1	2/9/2016 7:12:24 AM	B31998
Xylenes, Total	ND	1.5		µg/L	1	2/9/2016 7:12:24 AM	B31998
Surr: 1,2-Dichloroethane-d4	92.6	70-130		%Rec	1	2/9/2016 7:12:24 AM	B31998
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/9/2016 7:12:24 AM	B31998
Surr: Dibromofluoromethane	99.5	70-130		%Rec	1	2/9/2016 7:12:24 AM	B31998
Surr: Toluene-d8	101	70-130		%Rec	1	2/9/2016 7:12:24 AM	B31998

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

Qualifiers:	* Value exceeds Maximum Contaminant Level.	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#: 1602208

24-Feb-16

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

Sample ID MB-B	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B32368		RunNo: 32368							
Prep Date:	Analysis Date: 2/24/2016		SeqNo: 989628		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
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-B	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: B32368		RunNo: 32368							
Prep Date:	Analysis Date: 2/24/2016		SeqNo: 989629		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	105	85	115			
Barium	0.48	0.0020	0.5000	0	96.9	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.6	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.3	85	115			
Copper	0.49	0.0060	0.5000	0	98.6	85	115			
Iron	0.49	0.020	0.5000	0	97.7	85	115			
Manganese	0.48	0.0020	0.5000	0	95.9	85	115			
Molybdenum	0.51	0.0080	0.5000	0	101	85	115			
Nickel	0.47	0.010	0.5000	0	94.0	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.9	85	115			

Sample ID LLCS-B	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B32368		RunNo: 32368							
Prep Date:	Analysis Date: 2/24/2016		SeqNo: 989630		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	95.9	50	150			
Barium	0.0021	0.0020	0.002000	0	105	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	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#: 1602208

24-Feb-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	LLLCS-B		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	B32368		RunNo:	32368			
Prep Date:			Analysis Date:	2/24/2016		SeqNo:	989630		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	100	50	150			
Cadmium	ND	0.0020	0.002000	0	85.0	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	0.0064	0.0060	0.006000	0	107	50	150			
Iron	ND	0.020	0.02000	0	90.8	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			
Molybdenum	0.010	0.0080	0.008000	0	130	50	150			
Nickel	ND	0.010	0.005000	0	101	50	150			
Silver	ND	0.0050	0.005000	0	95.0	50	150			
Zinc	ND	0.010	0.005000	0	90.2	50	150			

Qualifiers:

* 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#: 1602208

24-Feb-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: B31999			RunNo: 31999						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978440		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	102	85	115			
Selenium	0.026	0.0010	0.02500	0	106	85	115			
Uranium	0.013	0.00050	0.01250	0	101	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: B31999			RunNo: 31999						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978441		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050	0.0005000	0	99.7	50	150			
Selenium	ND	0.0010	0.001000	0	88.9	50	150			
Uranium	ND	0.00050	0.0005000	0	98.6	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: B31999			RunNo: 31999						
Prep Date:	Analysis Date: 2/8/2016			SeqNo: 978442		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: C32026			RunNo: 32026						
Prep Date:	Analysis Date: 2/9/2016			SeqNo: 979376		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.5	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: C32026			RunNo: 32026						
Prep Date:	Analysis Date: 2/9/2016			SeqNo: 979378		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	90.1	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#: 1602208

24-Feb-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	C32026	RunNo:	32026					
Prep Date:		Analysis Date:	2/9/2016	SeqNo:	979380	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1602208

24-Feb-16

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-23640		SampType:	MBLK		TestCode:	EPA Method 245.1: Mercury				
Client ID:	PBW		Batch ID:	23640		RunNo:	32041				
Prep Date:	2/9/2016		Analysis Date:	2/10/2016		SeqNo:	979810		Units:		mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	ND	0.00020									

Sample ID	LCS-23640		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 23640		RunNo: 32041					
Prep Date:	2/9/2016		Analysis Date: 2/10/2016		SeqNo: 979811		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified