GW – 028

Annual DP Report (Part 8 of 16)

2015

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**MB-20149**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**20149**	RunNo:	**27467**					
Prep Date:	**7/8/2015**	Analysis Date:	**7/14/2015**	SeqNo:	**824114**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.5		2.500		60.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.8	31.8	95.7			

Sample ID	**LCS-20149**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSW**	Batch ID:	**20149**	RunNo:	**27467**					
Prep Date:	**7/8/2015**	Analysis Date:	**7/14/2015**	SeqNo:	**824697**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.6	1.0	5.000	0	72.5	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	84.4	25.6	164			
Surr: Decachlorobiphenyl	1.7		2.500		68.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.9		2.500		76.8	31.8	95.7			

Sample ID	**1507157-001DMS**	SampType:	**MS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**R.O. Reject**	Batch ID:	**20149**	RunNo:	**27467**					
Prep Date:	**7/8/2015**	Analysis Date:	**7/14/2015**	SeqNo:	**824698**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.2	14.5	105			
Aroclor 1260	3.7	1.0	5.000	0	74.5	21.4	125			
Surr: Decachlorobiphenyl	1.5		2.500		58.4	44.5	110			
Surr: Tetrachloro-m-xylene	1.4		2.500		56.8	31.8	95.7			

Sample ID	**1507157-001DMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**R.O. Reject**	Batch ID:	**20149**	RunNo:	**27467**					
Prep Date:	**7/8/2015**	Analysis Date:	**7/14/2015**	SeqNo:	**824699**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.2	1.0	5.000	0	64.0	14.5	105	2.85	20	
Aroclor 1260	3.8	1.0	5.000	0	76.2	21.4	125	2.23	27.6	
Surr: Decachlorobiphenyl	1.5		2.500		60.8	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		58.4	31.8	95.7	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821898** 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.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821898** 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	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821903** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821903** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **rb7**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821963** 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								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **rb7**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821963** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb7**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821963** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821965** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB-20150**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **PBW**	Batch ID: **20150**	RunNo: **27333**							
Prep Date: **7/8/2015**	Analysis Date: **7/8/2015**	SeqNo: **820082**	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	17		20.00		82.6	37.2	136			

Sample ID **LCS-20150**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**							
Client ID: **LCSW**	Batch ID: **20150**	RunNo: **27333**							
Prep Date: **7/8/2015**	Analysis Date: **7/8/2015**	SeqNo: **820084**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.3	57.8	83.9			S
1-Methylnaphthalene	75	2.0	80.20	0	93.1	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	90.5	34.2	94.5			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.7	37.2	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**MB-20119**	SampType:	**MBLK**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**PBW**	Batch ID:	**20119**	RunNo:	**27307**					
Prep Date:	**7/7/2015**	Analysis Date:	**7/7/2015**	SeqNo:	**818519**	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-20119**	SampType:	**LCS**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**LCSW**	Batch ID:	**20119**	RunNo:	**27307**					
Prep Date:	**7/7/2015**	Analysis Date:	**7/7/2015**	SeqNo:	**818520**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	92.4	64.4	135			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**MB-R27657**	SampType:	**MBLK**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**PBW**	Batch ID:	**R27657**	RunNo:	**27657**					
Prep Date:		Analysis Date:	**7/13/2015**	SeqNo:	**830507**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		ND	0.0100								

Sample ID	**LCS-R27657**	SampType:	**LCS**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**LCSW**	Batch ID:	**R27657**	RunNo:	**27657**					
Prep Date:		Analysis Date:	**7/13/2015**	SeqNo:	**830508**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		0.512		0.5000	0	102	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R27657**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R27657**	RunNo:	**27657**
Prep Date:		Analysis Date:	**7/16/2015**	SeqNo:	**830510** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.294	0.541								
Radium-226 ±	0.354	0.541								
Radium-228	0.097	0.682								
Radium-228 ±	0.303	0.682								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-20140**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**20140**	RunNo:	**27385**					
Prep Date:	**7/7/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**821530**	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-20140**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**20140**	RunNo:	**27385**					
Prep Date:	**7/7/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**821531**	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.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507157 RcptNo: 1

Received by/date: 07/03/15

Logged By: Lindsay Mangin 7/3/2015 9:45:00 AM

Completed By: Lindsay Mangin 7/6/2015 8:30:01 AM

Reviewed By: 07/06/15

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 6 (1) (<2 or >12 unless noted)

Adjusted? —

Checked by: JM

Special Handling (if applicable)

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

Person Notified: ____ Date: ____

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

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

Chain-of-Custody Record

Client: Navajo Refinery

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

Phone #: 575-748-3311

email or Fax#: 575-746-5451

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

Turn-Around Time:
X Standard ☐ Rush _____

Project Name:
Monthly R.O. Reject

Project #: P.O. # 167796

Project Manager:
Robert Combs

Sampler: Elizabeth Salsberry
On Ice: X Yes ☐ No
Sample Temperature: ~~25.9 C~~ 2.1

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	Analysis Request: 8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate	Chloride	Fluoride	Nitrate/Nitrite	Total Dissolved Solids		
7-1-15	2:50pm	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	1507157-001	X	X	X	X	X	X	X	X	X	X	X	X	X		
7-1-15	2:50pm			3-40ml VOA	HCL																
7-1-15	2:50pm			1-500ml P	HNO3																
7-1-15	2:50pm			1-125ml P	HNO3																
7-1-15	2:50pm			1-500ml P	NaOH																
7-1-15	2:50pm			2- 1L P	HNO3																
7-1-15	2:50pm			3-40ml VOA	HCL																
7-1-15	2:50pm			2 - 1L Glass	unpres																
7-1-15	2:50pm			1 - 1L Glass	unpres																
7-1-15	2:50pm			2-40ml VOA	unpres																
7-1-15	2:50pm		Trip Blank	2-40ml VOA	HCL																

Date	Time	Relinquished by:	Received by:	Date	Time
7-2-15	11am	Elizabeth Salsberry		07/03/15	0945
Date:	Time:	Relinquished by:	Received by:	Date	Time

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

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

Biannual RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/1/2015 @ 2:43 pm
End Date and Time	7/1/2015 @ 2:54 pm

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

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

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

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

Field Data (Weather, Observations, Etc): 7/1/2014 2:43 pm Tmp. 91.4 °F, Humidity 29%, Wind Dir. East, Wind Speed 10.4 mph, Conditions Clear

Date and Time:

Field Temp. 25.9 C Field pH 7.83

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 22, 2015

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

RE: Monthly RO Reject OrderNo.: 1507158

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/3/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1507158**
Date Reported: **7/22/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly RO Reject
Lab ID: 1507158-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O.
Collection Date: 7/1/2015 3:02:00 PM
Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Arsenic	ND	0.0050		mg/L	5	7/14/2015 1:51:42 PM	R27505
Lead	ND	0.00050		mg/L	1	7/14/2015 1:14:57 PM	R27505
Selenium	0.0082	0.0010		mg/L	1	7/14/2015 1:14:57 PM	R27505
Uranium	0.0055	0.00050		mg/L	1	7/14/2015 1:14:57 PM	R27505
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.05	0.202		pCi/L	1	7/16/2015	R27658
Radium-226 ±	0.561	0.202		pCi/L	1	7/16/2015	R27658
Radium-228	0.158	0.824		pCi/L	1	7/16/2015	R27658
Radium-228 ±	0.38	0.824		pCi/L	1	7/16/2015	R27658
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	3.4	2.0		mg/L	20	7/6/2015 10:42:35 PM	R27319
Chloride	130	10		mg/L	20	7/6/2015 10:42:35 PM	R27319
Sulfate	1500	50		mg/L	100	7/15/2015 4:21:52 PM	R27535
Nitrate+Nitrite as N	1.8	1.0		mg/L	5	7/6/2015 11:44:37 PM	R27319
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3100	20.0	*	mg/L	1	7/9/2015 2:45:00 PM	20140
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	7/13/2015	R27658
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.06	1.68	H	pH units	1	7/9/2015 10:09:14 PM	R27410
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	7/7/2015 3:26:45 PM	R27323
Barium	0.063	0.0020		mg/L	1	7/7/2015 3:26:45 PM	R27323
Boron	0.076	0.040		mg/L	1	7/7/2015 3:26:45 PM	R27323
Cadmium	ND	0.0020		mg/L	1	7/7/2015 3:26:45 PM	R27323
Chromium	ND	0.0060		mg/L	1	7/7/2015 3:26:45 PM	R27323
Cobalt	ND	0.0060		mg/L	1	7/7/2015 3:26:45 PM	R27323
Copper	ND	0.0060		mg/L	1	7/7/2015 3:26:45 PM	R27323
Iron	ND	0.020		mg/L	1	7/7/2015 3:26:45 PM	R27323
Manganese	0.010	0.0020		mg/L	1	7/7/2015 3:26:45 PM	R27323
Molybdenum	ND	0.0080		mg/L	1	7/7/2015 3:26:45 PM	R27323
Nickel	ND	0.010		mg/L	1	7/7/2015 3:26:45 PM	R27323
Silver	ND	0.0050		mg/L	1	7/7/2015 3:26:45 PM	R27323
Zinc	0.065	0.010		mg/L	1	7/7/2015 3:26:45 PM	R27323
EPA METHOD 245.1: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	7/8/2015 4:37:50 PM	20160

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly RO Reject
Lab ID: 1507158-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O.
Collection Date: 7/1/2015 3:02:00 PM
Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **KJH**	
1,2-Dibromoethane	ND	0.010		µg/L	1	7/9/2015 5:30:06 PM	20171
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1221	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1232	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1242	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1248	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1254	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1260	ND	1.0		µg/L	1	7/14/2015 10:41:50 AM	20149
Surr: Decachlorobiphenyl	70.8	44.5-110		%REC	1	7/14/2015 10:41:50 AM	20149
Surr: Tetrachloro-m-xylene	58.8	31.8-95.7		%REC	1	7/14/2015 10:41:50 AM	20149
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/6/2015 8:59:32 PM	20109
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/6/2015 8:59:32 PM	20109
Surr: DNOP	100	76.5-150		%REC	1	7/6/2015 8:59:32 PM	20109
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/7/2015 5:26:23 PM	R27335
Surr: BFB	86.8	57.8-137		%REC	1	7/7/2015 5:26:23 PM	R27335
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	7/8/2015 3:41:21 PM	20150
1-Methylnaphthalene	ND	2.0		µg/L	1	7/8/2015 3:41:21 PM	20150
2-Methylnaphthalene	ND	2.0		µg/L	1	7/8/2015 3:41:21 PM	20150
Benzo(a)pyrene	ND	0.070		µg/L	1	7/8/2015 3:41:21 PM	20150
Surr: Benzo(e)pyrene	81.0	37.2-136		%REC	1	7/8/2015 3:41:21 PM	20150
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Toluene	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Ethylbenzene	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Carbon Tetrachloride	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Chloroform	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
1,1-Dichloroethane	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
1,1-Dichloroethene	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Methylene Chloride	ND	3.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Temporary R.O.
Project: Monthly RO Reject
Collection Date: 7/1/2015 3:02:00 PM
Lab ID: 1507158-001 **Matrix:** AQUEOUS **Received Date:** 7/3/2015 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Vinyl chloride	ND	1.0		µg/L	1	7/10/2015 5:46:58 AM	R27395
Xylenes, Total	ND	1.5		µg/L	1	7/10/2015 5:46:58 AM	R27395
Surr: 1,2-Dichloroethane-d4	93.4	70-130		%REC	1	7/10/2015 5:46:58 AM	R27395
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	7/10/2015 5:46:58 AM	R27395
Surr: Dibromofluoromethane	88.7	70-130		%REC	1	7/10/2015 5:46:58 AM	R27395
Surr: Toluene-d8	105	70-130		%REC	1	7/10/2015 5:46:58 AM	R27395
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	7/7/2015	20119

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly RO Reject
Collection Date:
Lab ID: 1507158-002
Matrix: TRIP BLANK
Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **KJH**	
1,2-Dibromoethane	ND	0.010		µg/L	1	7/9/2015 5:43:48 PM	20171
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/8/2015 2:03:47 AM	R27335
Surr: BFB	86.3	57.8-137		%REC	1	7/8/2015 2:03:47 AM	R27335
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Toluene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Ethylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Naphthalene	ND	2.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1-Methylnaphthalene	ND	4.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
2-Methylnaphthalene	ND	4.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Acetone	ND	10		µg/L	1	7/10/2015 6:15:42 AM	R27395
Bromobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Bromodichloromethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Bromoform	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Bromomethane	ND	3.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
2-Butanone	ND	10		µg/L	1	7/10/2015 6:15:42 AM	R27395
Carbon disulfide	ND	10		µg/L	1	7/10/2015 6:15:42 AM	R27395
Carbon Tetrachloride	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Chlorobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Chloroethane	ND	2.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Chloroform	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Chloromethane	ND	3.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
2-Chlorotoluene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
4-Chlorotoluene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
cis-1,2-DCE	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Dibromochloromethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Dibromomethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichlorobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,3-Dichlorobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,4-Dichlorobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly RO Reject
Collection Date:
Lab ID: 1507158-002
Matrix: TRIP BLANK
Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Dichlorodifluoromethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1-Dichloroethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1-Dichloroethene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichloropropane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,3-Dichloropropane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
2,2-Dichloropropane	ND	2.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1-Dichloropropene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Hexachlorobutadiene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
2-Hexanone	ND	10		µg/L	1	7/10/2015 6:15:42 AM	R27395
Isopropylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
4-Isopropyltoluene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
4-Methyl-2-pentanone	ND	10		µg/L	1	7/10/2015 6:15:42 AM	R27395
Methylene Chloride	ND	3.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
n-Butylbenzene	ND	3.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
n-Propylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
sec-Butylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Styrene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
tert-Butylbenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
trans-1,2-DCE	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,1-Trichloroethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,1,2-Trichloroethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Trichloroethene (TCE)	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Trichlorofluoromethane	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
1,2,3-Trichloropropane	ND	2.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Vinyl chloride	ND	1.0		µg/L	1	7/10/2015 6:15:42 AM	R27395
Xylenes, Total	ND	1.5		µg/L	1	7/10/2015 6:15:42 AM	R27395
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	7/10/2015 6:15:42 AM	R27395
Surr: 4-Bromofluorobenzene	103	70-130		%REC	1	7/10/2015 6:15:42 AM	R27395
Surr: Dibromofluoromethane	97.8	70-130		%REC	1	7/10/2015 6:15:42 AM	R27395
Surr: Toluene-d8	104	70-130		%REC	1	7/10/2015 6:15:42 AM	R27395

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818884** 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**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818885** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0	106	85	115			
Barium	0.47	0.0020	0.5000	0	94.9	85	115			
Boron	0.50	0.040	0.5000	0	100	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.9	85	115			
Copper	0.47	0.0060	0.5000	0	95.0	85	115			
Iron	0.47	0.020	0.5000	0	93.1	85	115			
Manganese	0.48	0.0020	0.5000	0	96.9	85	115			
Molybdenum	0.49	0.0080	0.5000	0	98.0	85	115			
Nickel	0.48	0.010	0.5000	0	95.7	85	115			
Silver	0.099	0.0050	0.1000	0	99.3	85	115			
Zinc	0.47	0.010	0.5000	0	94.4	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818886** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	147	50	150			
Barium	0.0022	0.0020	0.002000	0	112	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818886** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Boron	ND	0.040	0.04000	0	89.4	50	150			
Cadmium	0.0020	0.0020	0.002000	0	101	50	150			
Chromium	ND	0.0060	0.006000	0	89.8	50	150			
Cobalt	ND	0.0060	0.006000	0	97.2	50	150			
Copper	ND	0.0060	0.006000	0	99.2	50	150			
Iron	0.022	0.020	0.02000	0	112	50	150			
Manganese	ND	0.0020	0.002000	0	98.0	50	150			
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150			
Nickel	ND	0.010	0.005000	0	92.4	50	150			
Silver	0.0055	0.0050	0.005000	0	109	50	150			
Zinc	ND	0.010	0.005000	0	90.4	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818887** 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**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818888** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.54	0.020	0.5000	0	108	85	115			
Barium	0.48	0.0020	0.5000	0	95.6	85	115			
Boron	0.51	0.040	0.5000	0	101	85	115			
Cadmium	0.51	0.0020	0.5000	0	103	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818888** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.48	0.0060	0.5000	0	96.3	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.5	85	115			
Copper	0.48	0.0060	0.5000	0	96.1	85	115			
Iron	0.49	0.020	0.5000	0	97.1	85	115			
Manganese	0.49	0.0020	0.5000	0	97.6	85	115			
Molybdenum	0.49	0.0080	0.5000	0	98.1	85	115			
Nickel	0.48	0.010	0.5000	0	96.1	85	115			
Silver	0.10	0.0050	0.1000	0	99.9	85	115			
Zinc	0.48	0.010	0.5000	0	95.0	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27323**	RunNo: **27323**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **818889** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	133	50	150			
Barium	0.0024	0.0020	0.002000	0	118	50	150			
Boron	ND	0.040	0.04000	0	89.1	50	150			
Cadmium	ND	0.0020	0.002000	0	89.0	50	150			
Chromium	ND	0.0060	0.006000	0	75.2	50	150			
Cobalt	0.0065	0.0060	0.006000	0	108	50	150			
Copper	0.0066	0.0060	0.006000	0	110	50	150			
Iron	0.021	0.020	0.02000	0	106	50	150			
Manganese	0.0020	0.0020	0.002000	0	103	50	150			
Molybdenum	0.011	0.0080	0.008000	0	140	50	150			
Nickel	ND	0.010	0.005000	0	104	50	150			
Silver	ND	0.0050	0.005000	0	72.0	50	150			
Zinc	ND	0.010	0.005000	0	88.8	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825388** 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			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.025	0.0010	0.02500	0	100	85	115			
Uranium	0.013	0.00050	0.01250	0	100	85	115			

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825389** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.013	0.00050	0.01250	0	102	85	115			
Selenium	0.026	0.0010	0.02500	0	104	85	115			
Uranium	0.013	0.00050	0.01250	0	102	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825390** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	94.0	50	150			
Lead	0.00052	0.00050	0.0005000	0	103	50	150			
Selenium	ND	0.0010	0.001000	0	98.3	50	150			
Uranium	0.00050	0.00050	0.0005000	0	100	50	150			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825391** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	102	50	150			
Lead	0.00052	0.00050	0.0005000	0	104	50	150			
Selenium	0.0011	0.0010	0.001000	0	108	50	150			
Uranium	0.00050	0.00050	0.0005000	0	101	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825392** Units: **mg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825392** 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								

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27505**	RunNo: **27505**
Prep Date:	Analysis Date: **7/14/2015**	SeqNo: **825393** Units: **mg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-20160**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**PBW**	Batch ID:	**20160**	RunNo:	**27365**				
Prep Date:	**7/8/2015**	Analysis Date:	**7/8/2015**	SeqNo:	**820623**	Units:	**mg/L**		

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

Sample ID	**LCS-20160**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**LCSW**	Batch ID:	**20160**	RunNo:	**27365**				
Prep Date:	**7/8/2015**	Analysis Date:	**7/8/2015**	SeqNo:	**820626**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.8	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27319**	RunNo: **27319**
Prep Date:	Analysis Date: **7/6/2015**	SeqNo: **818775** 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								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R27319**	RunNo: **27319**
Prep Date:	Analysis Date: **7/6/2015**	SeqNo: **818776** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.2	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R27535**	RunNo: **27535**
Prep Date:	Analysis Date: **7/15/2015**	SeqNo: **826667** 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: **R27535**	RunNo: **27535**
Prep Date:	Analysis Date: **7/15/2015**	SeqNo: **826668** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10	0.50	10.00	0	100	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-20171**	SampType:	**MBLK**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**PBW**	Batch ID:	**20171**	RunNo:	**27393**					
Prep Date:	**7/9/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**821853**	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-20171**	SampType:	**LCS**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**LCSW**	Batch ID:	**20171**	RunNo:	**27393**					
Prep Date:	**7/9/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**821854**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	107	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB-20109**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **20109**	RunNo: **27291**
Prep Date: **7/6/2015**	Analysis Date: **7/6/2015**	SeqNo: **818285** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.88		1.000		88.5	76.5	150			

Sample ID **LCS-20109**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **20109**	RunNo: **27291**
Prep Date: **7/6/2015**	Analysis Date: **7/6/2015**	SeqNo: **818286** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.1	1.0	5.000	0	81.8	60.1	156			
Surr: DNOP	0.49		0.5000		97.8	76.5	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R27335**	RunNo: **27335**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **819311** 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		89.3	57.8	137			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R27335**	RunNo: **27335**
Prep Date:	Analysis Date: **7/7/2015**	SeqNo: **819312** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.0	80	120			
Surr: BFB	19		20.00		94.6	57.8	137			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB-20149**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **PBW**	Batch ID: **20149**	RunNo: **27467**							
Prep Date: **7/8/2015**	Analysis Date: **7/14/2015**	SeqNo: **824114**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.5		2.500		60.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.8	31.8	95.7			

Sample ID **LCS-20149**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**							
Client ID: **LCSW**	Batch ID: **20149**	RunNo: **27467**							
Prep Date: **7/8/2015**	Analysis Date: **7/14/2015**	SeqNo: **824697**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.6	1.0	5.000	0	72.5	9.01	142			
Aroclor 1260	4.2	1.0	5.000	0	84.4	25.6	164			
Surr: Decachlorobiphenyl	1.7		2.500		68.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.9		2.500		76.8	31.8	95.7			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821898** 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.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821898** 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	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821903** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821903** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **rb7**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821963** 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								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb7**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821963** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb7**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821963** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27395**	RunNo: **27395**
Prep Date:	Analysis Date: **7/9/2015**	SeqNo: **821965** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB-20150**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **20150**	RunNo: **27333**
Prep Date: **7/8/2015**	Analysis Date: **7/8/2015**	SeqNo: **820082** 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	17		20.00		82.6	37.2	136			

Sample ID **LCS-20150**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **20150**	RunNo: **27333**
Prep Date: **7/8/2015**	Analysis Date: **7/8/2015**	SeqNo: **820084** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.3	57.8	83.9			S
1-Methylnaphthalene	75	2.0	80.20	0	93.1	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	90.5	34.2	94.5			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.7	37.2	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB-20119**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **PBW**	Batch ID: **20119**	RunNo: **27307**
Prep Date: **7/7/2015**	Analysis Date: **7/7/2015**	SeqNo: **818519** 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-20119**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **LCSW**	Batch ID: **20119**	RunNo: **27307**
Prep Date: **7/7/2015**	Analysis Date: **7/7/2015**	SeqNo: **818520** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	92.4	64.4	135			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R27658**	SampType:	**MBLK**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**PBW**	Batch ID:	**R27658**	RunNo:	**27658**					
Prep Date:		Analysis Date:	**7/13/2015**	SeqNo:	**830512**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		ND	0.0100								

Sample ID	**LCS-R27658**	SampType:	**LCS**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**LCSW**	Batch ID:	**R27658**	RunNo:	**27658**					
Prep Date:		Analysis Date:	**7/13/2015**	SeqNo:	**830513**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		0.512		0.5000	0	102	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R27658**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R27658**	RunNo:	**27658**
Prep Date:		Analysis Date:	**7/16/2015**	SeqNo:	**830515** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.294	0.541								
Radium-226 ±	0.354	0.541								
Radium-228	0.523	0.758								
Radium-228 ±	0.388	0.758								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-20140**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**20140**	RunNo:	**27385**					
Prep Date:	**7/7/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**821530**	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-20140**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**20140**	RunNo:	**27385**					
Prep Date:	**7/7/2015**	Analysis Date:	**7/9/2015**	SeqNo:	**821531**	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.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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: 1507158 RcptNo: 1

Received by/date: 07/03/15
Logged By: Lindsay Mangin 7/3/2015 9:45:00 AM
Completed By: Lindsay Mangin 7/6/2015 8:34:53 AM
Reviewed By: MS 07/06/15

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 8 (<2 or >12 unless noted)
Adjusted? 0
Checked by: JM

Special Handling (if applicable)

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

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

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

Chain-of-Custody Record

Client: Navajo Refinery

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

X Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

X Standard ☐ Rush_____

Project Name:

Monthly R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Elizabeth Salsberry

On Ice: X Yes ☐ No

Sample Temperature ~~29.1 C~~ 2.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1507158	Analysis Request: 8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate	Chloride	Fluoride	Nitrate/Nitrite	Total Dissolved Solids		
7-1-15	3:02pm	liquid	TEMPORARY P.O.	2 - 500ml P	1-unpres 1-H2SO4	-001	X	X	X	X	X	X	X	X	X	X	X	X	X		
7-1-15	3:02pm			3-40ml VOA	HCL																
7-1-15	3:02pm			1-500ml P	HNO3																
7-1-15	3:02pm			1-125ml P	HNO3																
7-1-15	3:02pm			1-500ml P	NaOH																
7-1-15	3:02pm			2- 1L P	HNO3																
7-1-15	3:02pm			3-40ml VOA	HCL																
7-1-15	3:02pm			2 - 1L Glass	unpres																
7-1-15	3:02pm			1 - 1L Glass	unpres																
7-1-15	3:02pm			2-40ml VOA	unpres																
7-1-15	3:02pm		Trip Blank	2-40ml VOA	HCL	-002															

Date	Time	Relinquished by	Received by	Date	Time
7-2-15	11am	Elizabeth Salsberry		07/03/15	0945
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks:

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

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

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

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

Biannual RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	7/1/2015 @ 3:02 pm
End Date and Time	7/1/2015 @ 3:11 pm

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

Parts / Sample Intervals	One

Physical Property	
Solid	☐
Liquid	☑
Sludge	☐

Type of Sampler	Directly to sample jars

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

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

Field Data (Weather, Observations, Etc): 7/1/2014 3:02 pm Tmp. 93.2 °F , Humidity26%, Wind Dir. SE, Wind Speed 9.2 mph, Conditions Clear

Date and Time:

Field Temp. 29.1 C Field pH 7.65

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

September 15, 2015

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

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

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

Dear Sirs:

In accordance with Exhibit A, paragraph 5, to Agreed Compliance Order No. WQA-OCD-CO-2015-002 (the Order), the Navajo Refining Company, L.L.C. (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's September 2015 monthly report, for the period of August 1-31, under the Order.

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted the GW-028 discharge permit modification request on May 22, 2015, prior to 30 days from April 27, 2015, the date of the Order. Therefore, for the entire August 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 August 1 through August 31.
- $500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from August 1 through August 31.

Navajo has calculated a penalty of $3,100 for August 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 31 days in August. 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 August 3, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Options under consideration include the installation of a third permanent 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 of RO reject fluid. In addition, Navajo has conducted a study of background groundwater concentrations of key chemical constituents of the RO reject fluid discharged under its groundwater discharge permit to determine whether concentrations of these constituents exceed background levels. Navajo submitted the associated background groundwater concentration report to OCD on September 2, 2015.

In accordance with Exhibit A, Paragraph 1 of the Order, Navajo submitted a GW-028 discharge permit modification request on May 22, 2015. The requested modifications include operating a temporary RO unit at the Navajo Refinery and increasing the total maximum volume of RO reject fluids that can be applied to the surface of Navajo's discharge fields from approximately 10,000 bbl/day to approximately 20,000 bbl/day calculated on a rolling 12-month average. OCD notified Navajo that the application for the requested permit modification is administratively complete by letter dated July 1, 2015.

Navajo has completed the public notice requirements set forth in 20.6.2.3108B New Mexico Administrative Code (NMAC) regarding public notice of the permit modification request. Mailings were sent to adjacent landowners within a 1/3 mile radius of the property, signs have been posted near the discharge location (Richey Avenue) and at the Refinery offices, and the notice has been published in the *Artesia Daily Press*. Navajo submitted proof of completion of the public notice, including an affidavit of mailing and the list of property owners, proof of publication, and an affidavit of posting, to the OCD on September 3, 2015.

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

Sincerely,

Scott M. Denton
Environmental Manager

Enclosures:

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

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

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM SOUTH	GPM NORTH	GPM	BBL/DAY	GPM	BBL/DAY	BBL
8/1/2015	129	132	261	8,949	62	2,131	11,080
8/2/2015	132	107	239	8,194	63	2,160	10,354
8/3/2015	136	126	262	8,983	63	2,166	11,149
8/4/2015	134	127	261	8,949	62	2,134	11,083
8/5/2015	135	129	264	9,051	60	2,061	11,112
8/6/2015	136	126	262	8,983	59	2,033	11,016
8/7/2015	138	121	259	8,880	56	1,904	10,784
8/8/2015	137	133	270	9,257	45	1,539	10,796
8/9/2015	134	126	260	8,914	48	1,641	10,555
8/10/2015	137	133	270	9,257	57	1,961	11,218
8/11/2015	135	126	261	8,949	58	2,001	10,950
8/12/2015	132	121	253	8,674	49	1,680	10,354
8/13/2015	143	128	271	9,291	56	1,906	11,197
8/14/2015	135	120	255	8,743	58	1,993	10,736
8/15/2015	143	131	274	9,394	48	1,659	11,053
8/16/2015	134	130	264	9,051	44	1,509	10,560
8/17/2015	131	130	261	8,949	47	1,601	10,550
8/18/2015	129	124	253	8,674	57	1,960	10,634
8/19/2015	134	129	263	9,017	56	1,928	10,945
8/20/2015	134	129	263	9,017	56	1,935	10,952
8/21/2015	134	121	255	8,743	56	1,928	10,671
8/22/2015	132	131	263	9,017	57	1,948	10,965
8/23/2015	135	129	264	9,051	57	1,966	11,017
8/24/2015	136	131	267	9,154	58	1,979	11,133
8/25/2015	131	124	255	8,743	57	1,939	10,682
8/26/2015	130	128	258	8,846	56	1,924	10,770
8/27/2015	128	118	246	8,434	57	1,941	10,375
8/28/2015	129	128	257	8,811	52	1,775	10,586
8/29/2015	118	127	245	8,400	47	1,624	10,024
8/30/2015	132	129	261	8,949	48	1,648	10,597
8/31/2015	131	125	256	8,777	55	1,885	10,662

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - August 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:	--	--	--
2.b.i.1	- **Prior** to Navajo submitting a discharge permit modification application	$1,000		$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels **after** Navajo submits discharge permit modification application	$100	31	$3,100
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:		**$3,100**

Attachment 3
Analytical Lab Report

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

August 26, 2015

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.: 1508063

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 8/4/2015 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1508063**
Date Reported: **8/26/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary R.O. Reject
Lab ID: 1508063-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 8/3/2015 9:30:00 AM
Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBD**	
Arsenic	ND	0.0050		mg/L	5	8/12/2015 8:39:59 PM	D28151
Copper	0.0037	0.0010		mg/L	1	8/19/2015 1:30:00 PM	B28323
Lead	ND	0.00050		mg/L	1	8/12/2015 8:19:49 PM	D28151
Selenium	0.0086	0.0050		mg/L	5	8/12/2015 8:39:59 PM	D28151
Uranium	0.0070	0.00050		mg/L	1	8/12/2015 8:19:49 PM	D28151
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.27	0.620		pCi/L	1	8/18/2015	R28452
Radium-226 ±	0.644	0.620		pCi/L	1	8/18/2015	R28452
Radium-228	0.571	0.712		pCi/L	1	8/18/2015	R28452
Radium-228 ±	0.375	0.712		pCi/L	1	8/18/2015	R28452
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	3.6	0.10		mg/L	1	8/4/2015 2:39:23 PM	R27968
Chloride	320	10		mg/L	20	8/4/2015 3:16:37 PM	R27968
Sulfate	1900	50		mg/L	100	8/14/2015 3:34:40 AM	R28192
Nitrate+Nitrite as N	1.7	1.0		mg/L	5	8/14/2015 4:24:18 AM	R28192
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4000	20.0	*	mg/L	1	8/6/2015 5:55:00 PM	20614
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	8/12/2015	R28452
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.04	1.68	H	pH units	1	8/6/2015 8:07:28 PM	R28029
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Barium	0.076	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Boron	0.093	0.040		mg/L	1	8/5/2015 9:48:22 PM	R27986
Cadmium	ND	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Chromium	ND	0.0060		mg/L	1	8/5/2015 9:48:22 PM	R27986
Cobalt	ND	0.0060		mg/L	1	8/5/2015 9:48:22 PM	R27986
Iron	ND	0.020		mg/L	1	8/7/2015 2:05:37 PM	R28044
Manganese	0.0094	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Molybdenum	0.0082	0.0080		mg/L	1	8/5/2015 9:48:22 PM	R27986
Nickel	ND	0.010		mg/L	1	8/5/2015 9:48:22 PM	R27986
Silver	ND	0.0050		mg/L	1	8/5/2015 9:48:22 PM	R27986
Zinc	0.053	0.010		mg/L	1	8/6/2015 3:42:35 PM	C28013
EPA METHOD 245.1: MERCURY						Analyst: **JLF**	
Mercury	ND	0.00020		mg/L	1	8/7/2015 2:01:54 PM	20665

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Qualifiers:

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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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary R.O. Reject
Lab ID: 1508063-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 8/3/2015 9:30:00 AM
Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/4/2015 8:14:29 PM	R27954
Surr: BFB	99.9	70-130		%REC	1	8/4/2015 8:14:29 PM	R27954
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	8/7/2015 12:08:21 PM	20627
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1221	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1232	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1242	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1248	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1254	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1260	ND	1.0		µg/L	1	8/10/2015 9:50:46 AM	20661
Surr: Decachlorobiphenyl	92.0	44.5-110		%REC	1	8/10/2015 9:50:46 AM	20661
Surr: Tetrachloro-m-xylene	113	31.8-95.7	S	%REC	1	8/10/2015 9:50:46 AM	20661
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/5/2015 10:39:12 PM	20617
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/5/2015 10:39:12 PM	20617
Surr: DNOP	98.5	72-136		%REC	1	8/5/2015 10:39:12 PM	20617
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	8/10/2015 9:22:01 AM	20677
1-Methylnaphthalene	ND	2.0		µg/L	1	8/10/2015 9:22:01 AM	20677
2-Methylnaphthalene	ND	2.0		µg/L	1	8/10/2015 9:22:01 AM	20677
Benzo(a)pyrene	ND	0.070		µg/L	1	8/10/2015 9:22:01 AM	20677
Surr: Benzo(e)pyrene	48.7	37.2-136		%REC	1	8/10/2015 9:22:01 AM	20677
EPA METHOD 8260B: VOLATILES						Analyst: **BCN**	
Benzene	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Toluene	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Ethylbenzene	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Carbon Tetrachloride	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Chloroform	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
1,1-Dichloroethane	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
1,1-Dichloroethene	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Methylene Chloride	ND	3.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary R.O. Reject
Lab ID: 1508063-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 8/3/2015 9:30:00 AM
Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **BCN**	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Vinyl chloride	ND	1.0		µg/L	1	8/4/2015 5:33:38 PM	R27952
Xylenes, Total	ND	1.5		µg/L	1	8/4/2015 5:33:38 PM	R27952
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	8/4/2015 5:33:38 PM	R27952
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	8/4/2015 5:33:38 PM	R27952
Surr: Dibromofluoromethane	98.4	70-130		%REC	1	8/4/2015 5:33:38 PM	R27952
Surr: Toluene-d8	90.6	70-130		%REC	1	8/4/2015 5:33:38 PM	R27952
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	8/6/2015	20629

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary R.O. Reject
Lab ID: 1508063-002

Client Sample ID: Trip Blank
Collection Date:
Matrix: TRIP BLANK
Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/4/2015 8:42:06 PM	R27954
Surr: BFB	99.0	70-130		%REC	1	8/4/2015 8:42:06 PM	R27954
EPA METHOD 8260B: VOLATILES						Analyst: **BCN**	
Benzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Toluene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Ethylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Naphthalene	ND	2.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1-Methylnaphthalene	ND	4.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
2-Methylnaphthalene	ND	4.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Acetone	ND	10		µg/L	1	8/4/2015 6:02:20 PM	R27952
Bromobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Bromodichloromethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Bromoform	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Bromomethane	ND	3.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
2-Butanone	ND	10		µg/L	1	8/4/2015 6:02:20 PM	R27952
Carbon disulfide	ND	10		µg/L	1	8/4/2015 6:02:20 PM	R27952
Carbon Tetrachloride	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Chlorobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Chloroethane	ND	2.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Chloroform	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Chloromethane	ND	3.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
2-Chlorotoluene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
4-Chlorotoluene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
cis-1,2-DCE	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Dibromochloromethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Dibromomethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1-Dichloroethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1-Dichloroethene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly Temporary R.O. Reject
Collection Date:
Lab ID: 1508063-002
Matrix: TRIP BLANK
Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **BCN**	
1,2-Dichloropropane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,3-Dichloropropane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
2,2-Dichloropropane	ND	2.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1-Dichloropropene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Hexachlorobutadiene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
2-Hexanone	ND	10		µg/L	1	8/4/2015 6:02:20 PM	R27952
Isopropylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
4-Isopropyltoluene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
4-Methyl-2-pentanone	ND	10		µg/L	1	8/4/2015 6:02:20 PM	R27952
Methylene Chloride	ND	3.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
n-Butylbenzene	ND	3.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
n-Propylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
sec-Butylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Styrene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
tert-Butylbenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
trans-1,2-DCE	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Trichlorofluoromethane	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Vinyl chloride	ND	1.0		µg/L	1	8/4/2015 6:02:20 PM	R27952
Xylenes, Total	ND	1.5		µg/L	1	8/4/2015 6:02:20 PM	R27952
Surr: 1,2-Dichloroethane-d4	97.6	70-130		%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: 4-Bromofluorobenzene	98.2	70-130		%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: Dibromofluoromethane	95.9	70-130		%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: Toluene-d8	89.0	70-130		%REC	1	8/4/2015 6:02:20 PM	R27952

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Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842241** 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								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842242** 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	104	85	115			
Barium	0.49	0.0020	0.5000	0	98.4	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.2	85	115			
Chromium	0.49	0.0060	0.5000	0	98.1	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.6	85	115			
Manganese	0.48	0.0020	0.5000	0	95.6	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Silver	0.10	0.0050	0.1000	0	99.7	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	115	50	150			
Barium	ND	0.0020	0.002000	0	85.0	50	150			
Boron	ND	0.040	0.04000	0	97.3	50	150			
Cadmium	ND	0.0020	0.002000	0	95.5	50	150			
Chromium	0.0062	0.0060	0.006000	0	104	50	150			
Cobalt	ND	0.0060	0.006000	0	99.3	50	150			
Manganese	0.0026	0.0020	0.002000	0	131	50	150			
Molybdenum	0.0087	0.0080	0.008000	0	109	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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842243** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	93.4	50	150			
Silver	ND	0.0050	0.005000	0	93.8	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842244** 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								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842245** 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	103	85	115			
Barium	0.50	0.0020	0.5000	0	99.0	85	115			
Boron	0.51	0.040	0.5000	0	103	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.2	85	115			
Chromium	0.49	0.0060	0.5000	0	98.2	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.6	85	115			
Manganese	0.48	0.0020	0.5000	0	96.3	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842246** Units: **mg/L**

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

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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R27986**	RunNo: **27986**
Prep Date:	Analysis Date: **8/5/2015**	SeqNo: **842246** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	112	50	150			
Barium	ND	0.0020	0.002000	0	98.5	50	150			
Boron	ND	0.040	0.04000	0	99.7	50	150			
Cadmium	ND	0.0020	0.002000	0	77.5	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	99.8	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum	0.0093	0.0080	0.008000	0	116	50	150			
Nickel	ND	0.010	0.005000	0	97.4	50	150			
Silver	ND	0.0050	0.005000	0	95.4	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **C28013**	RunNo: **28013**
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843253** Units: **mg/L**

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

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **C28013**	RunNo: **28013**
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843254** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.50	0.010	0.5000	0	101	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **C28013**	RunNo: **28013**
Prep Date:	Analysis Date: **8/6/2015**	SeqNo: **843255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	0.010	0.005000	0	128	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R28044**	RunNo: **28044**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **844435** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R28044**	RunNo: **28044**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **844436** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.51	0.020	0.5000	0	102	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R28044**	RunNo: **28044**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **844437** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.026	0.020	0.02000	0	131	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **R28044**	RunNo: **28044**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **844438** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **R28044**	RunNo: **28044**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **844439** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	99.0	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **R28044**	RunNo: **28044**
Prep Date:	Analysis Date: **8/7/2015**	SeqNo: **844440** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.020	0.020	0.02000	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#: **1508063**

26-Aug-15

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: **D28151**	RunNo: **28151**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **848117** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.0	85	115			
Lead	0.012	0.00050	0.01250	0	99.4	85	115			
Selenium	0.025	0.0010	0.02500	0	99.7	85	115			
Uranium	0.012	0.00050	0.01250	0	98.6	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **D28151**	RunNo: **28151**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **848119** 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	104	50	150			
Lead	0.00052	0.00050	0.0005000	0	105	50	150			
Selenium	0.0010	0.0010	0.001000	0	105	50	150			
Uranium	0.00053	0.00050	0.0005000	0	105	50	150			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **D28151**	RunNo: **28151**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **848122** 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								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B28323**	RunNo: **28323**
Prep Date:	Analysis Date: **8/19/2015**	SeqNo: **855090** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.024	0.0010	0.02500	0	95.4	85	115			

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B28323**	RunNo: **28323**
Prep Date:	Analysis Date: **8/19/2015**	SeqNo: **855092** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0010	0.001000	0	91.5	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#: **1508063**

26-Aug-15

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: **B28323**	RunNo: **28323**
Prep Date:	Analysis Date: **8/19/2015**	SeqNo: **855094** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-20665**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **20665**	RunNo: **28038**
Prep Date: **8/7/2015**	Analysis Date: **8/7/2015**	SeqNo: **844199** Units: **mg/L**

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

Sample ID **LCS-20665**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **20665**	RunNo: **28038**
Prep Date: **8/7/2015**	Analysis Date: **8/7/2015**	SeqNo: **844200** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.8	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	**1508063-001EMS**	SampType: **MS**		TestCode: **EPA Method 300.0: Anions**						
Client ID:	**Temporary R.O. Rej**	Batch ID: **R27968**		RunNo: **27968**						
Prep Date:		Analysis Date: **8/4/2015**		SeqNo: **841509**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.9	0.10	0.5000	3.578	64.8	75.3	111			S

Sample ID	**1508063-001EMSD**	SampType: **MSD**		TestCode: **EPA Method 300.0: Anions**						
Client ID:	**Temporary R.O. Rej**	Batch ID: **R27968**		RunNo: **27968**						
Prep Date:		Analysis Date: **8/4/2015**		SeqNo: **841510**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.8	0.10	0.5000	3.578	47.8	75.3	111	2.20	20	S

Sample ID	**MB**	SampType: **MBLK**		TestCode: **EPA Method 300.0: Anions**						
Client ID:	**PBW**	Batch ID: **R27968**		RunNo: **27968**						
Prep Date:		Analysis Date: **8/5/2015**		SeqNo: **841566**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								

Sample ID	**LCS**	SampType: **LCS**		TestCode: **EPA Method 300.0: Anions**						
Client ID:	**LCSW**	Batch ID: **R27968**		RunNo: **27968**						
Prep Date:		Analysis Date: **8/5/2015**		SeqNo: **841567**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			

Sample ID	**MB**	SampType: **MBLK**		TestCode: **EPA Method 300.0: Anions**						
Client ID:	**PBW**	Batch ID: **R28192**		RunNo: **28192**						
Prep Date:		Analysis Date: **8/13/2015**		SeqNo: **849498**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	**LCS**	SampType: **LCS**		TestCode: **EPA Method 300.0: Anions**						
Client ID:	**LCSW**	Batch ID: **R28192**		RunNo: **28192**						
Prep Date:		Analysis Date: **8/13/2015**		SeqNo: **849499**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	99.0	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-20627**	SampType: **MBLK**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **PBW**	Batch ID: **20627**	RunNo: **28045**
Prep Date: **8/6/2015**	Analysis Date: **8/7/2015**	SeqNo: **844775** 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-20627**	SampType: **LCS**	TestCode: **EPA Method 8011/504.1: EDB**
Client ID: **LCSW**	Batch ID: **20627**	RunNo: **28045**
Prep Date: **8/6/2015**	Analysis Date: **8/7/2015**	SeqNo: **844776** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **LCS-20617**	SampType: **LCS**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **LCSW**	Batch ID: **20617**			RunNo: **27957**					
Prep Date: **8/5/2015**	Analysis Date: **8/5/2015**			SeqNo: **842448**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	60.1	156			
Surr: DNOP	0.52		0.5000		104	72	136			

Sample ID **1508063-001KMS**	SampType: **MS**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **Temporary R.O. Rej**	Batch ID: **20617**			RunNo: **27957**					
Prep Date: **8/5/2015**	Analysis Date: **8/5/2015**			SeqNo: **842451**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	116	75.9	164			
Surr: DNOP	0.51		0.5000		103	72	136			

Sample ID **1508063-001KMSD**	SampType: **MSD**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **Temporary R.O. Rej**	Batch ID: **20617**			RunNo: **27957**					
Prep Date: **8/5/2015**	Analysis Date: **8/5/2015**			SeqNo: **842452**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	75.9	164	3.46	22.1	
Surr: DNOP	0.51		0.5000		101	72	136	0	0	

Sample ID **MB-20617**	SampType: **MBLK**			TestCode: **EPA Method 8015M/D: Diesel Range**					
Client ID: **PBW**	Batch ID: **20617**			RunNo: **27957**					
Prep Date: **8/5/2015**	Analysis Date: **8/5/2015**			SeqNo: **842468**		Units: **mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.95		1.000		95.5	72	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-20661**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBW**	Batch ID: **20661**	RunNo: **28049**
Prep Date: **8/7/2015**	Analysis Date: **8/10/2015**	SeqNo: **845110** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		73.6	44.5	110			
Surr: Tetrachloro-m-xylene	2.3		2.500		90.4	31.8	95.7			

Sample ID **LCS-20661**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSW**	Batch ID: **20661**	RunNo: **28049**
Prep Date: **8/7/2015**	Analysis Date: **8/10/2015**	SeqNo: **845133** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.9	1.0	5.000	0	117	9.01	142			
Aroclor 1260	6.0	1.0	5.000	0	119	25.6	164			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.7		2.500		107	31.8	95.7			S

Sample ID **1508063-001DMS**	SampType: **MS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **Temporary R.O. Rej**	Batch ID: **20661**	RunNo: **28049**
Prep Date: **8/7/2015**	Analysis Date: **8/10/2015**	SeqNo: **845724** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.7	1.0	5.000	0	94.4	14.5	105			
Aroclor 1260	5.7	1.0	5.000	0	113	21.4	125			
Surr: Decachlorobiphenyl	2.4		2.500		96.4	44.5	110			
Surr: Tetrachloro-m-xylene	2.8		2.500		112	31.8	95.7			S

Sample ID **1508063-001DMSD**	SampType: **MSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **Temporary R.O. Rej**	Batch ID: **20661**	RunNo: **28049**
Prep Date: **8/7/2015**	Analysis Date: **8/10/2015**	SeqNo: **845725** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.3	1.0	5.000	0	86.6	14.5	105	8.66	20	
Aroclor 1260	5.2	1.0	5.000	0	104	21.4	125	8.17	27.6	
Surr: Decachlorobiphenyl	2.2		2.500		88.8	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	2.5		2.500		100	31.8	95.7	0	0	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

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: **R27954**	RunNo: **27954**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841101** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27954**	RunNo: **27954**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841102** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		99.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	9.5		10.00		95.2	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R27952**	RunNo: **27952**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841117** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	111	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	93.8	70	130			
1,1-Dichloroethene	25	1.0	20.00	0	127	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		97.9	70	130			

Sample ID **VSB deli**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27952**	RunNo: **27952**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841118** 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								

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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **VSB deli**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27952**	RunNo: **27952**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841118** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **VSB deli**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R27952**	RunNo: **27952**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841118** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-20677**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **20677**	RunNo: **28051**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **844835** 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	14		20.00		68.8	37.2	136			

Sample ID **LCS-20677**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **20677**	RunNo: **28051**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845107** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.4	57.8	83.9			S
1-Methylnaphthalene	74	2.0	80.20	0	91.8	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	89.4	34.2	94.5			
Benzo(a)pyrene	0.44	0.070	0.5020	0	87.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.8	37.2	136			

Sample ID **1508063-001DMS**	SampType: **MS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **Temporary R.O. Rej**	Batch ID: **20677**	RunNo: **28051**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845141** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	63	2.0	80.00	0	78.8	21.6	109			
1-Methylnaphthalene	64	2.0	80.20	0	79.7	15.8	102			
2-Methylnaphthalene	62	2.0	80.00	0	78.0	11.4	99			
Benzo(a)pyrene	0.40	0.070	0.5020	0	79.7	25	123			
Surr: Benzo(e)pyrene	13		20.00		67.3	37.2	136			

Sample ID **1508063-001DMSD**	SampType: **MSD**	TestCode: **EPA Method 8310: PAHs**
Client ID: **Temporary R.O. Rej**	Batch ID: **20677**	RunNo: **28051**
Prep Date: **8/10/2015**	Analysis Date: **8/10/2015**	SeqNo: **845142** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	54	2.0	80.00	0	67.5	21.6	109	15.5	20	
1-Methylnaphthalene	55	2.0	80.20	0	68.8	15.8	102	14.7	20	
2-Methylnaphthalene	54	2.0	80.00	0	67.6	11.4	99	14.3	20	
Benzo(a)pyrene	0.34	0.070	0.5020	0	67.7	25	123	16.2	20	
Surr: Benzo(e)pyrene	12		20.00		58.0	37.2	136	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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-20629**	SampType: **MBLK**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **PBW**	Batch ID: **20629**	RunNo: **27992**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **842690** 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-20629**	SampType: **LCS**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **LCSW**	Batch ID: **20629**	RunNo: **27992**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **842691** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	21	2.5	20.00	0	104	64.4	135			

Sample ID **LCSD-20629**	SampType: **LCSD**	TestCode: **Total Phenolics by SW-846 9067**
Client ID: **LCSS02**	Batch ID: **20629**	RunNo: **27992**
Prep Date: **8/6/2015**	Analysis Date: **8/6/2015**	SeqNo: **842692** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	91.6	64.4	135	12.7	21.4	

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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-R28452**	SampType: **MBLK**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **PBW**	Batch ID: **R28452**	RunNo: **28452**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **859841** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID **LCS-R28452**	SampType: **LCS**	TestCode: **EPA 335.4: Total Cyanide Subbed**
Client ID: **LCSW**	Batch ID: **R28452**	RunNo: **28452**
Prep Date:	Analysis Date: **8/12/2015**	SeqNo: **859842** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.521		0.5000	0	104	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R27954**	RunNo: **27954**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841369** 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	10		10.00		101	70	130			

Sample ID **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R27954**	RunNo: **27954**
Prep Date:	Analysis Date: **8/4/2015**	SeqNo: **841371** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	100	80.6	122			
Surr: BFB	9.9		10.00		99.4	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-R28452**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R28452**	RunNo: **28452**
Prep Date:	Analysis Date: **8/18/2015**	SeqNo: **859845** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	ND	0.551								
Radium-226 ±	0.342	0.551								
Radium-228	0.014	0.860								
Radium-228 ±	0.371	0.860								

Sample ID **MB-R28452**	SampType: **MBLK**	TestCode: **EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID: **PBW**	Batch ID: **R28452**	RunNo: **28452**
Prep Date:	Analysis Date: **8/18/2015**	SeqNo: **859847** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.556	0.599								
Radium-226 ±	0.441	0.599								
Radium-228	0.314	0.882								
Radium-228 ±	0.412	0.882								

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#: **1508063**

26-Aug-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID **MB-20614**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **20614**	RunNo: **28014**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **843310** 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-20614**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **20614**	RunNo: **28014**
Prep Date: **8/5/2015**	Analysis Date: **8/6/2015**	SeqNo: **843311** 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.	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		

ENVIRONMENTAL ANALYSIS LABORATORY

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Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: NAVAJO REFINING CO | Work Order Number: 1508063 | RcptNo: 1

Received by/date: CS 08/04/15

Logged By: Ashley Gallegos 8/4/2015 9:13:00 AM

Completed By: Ashley Gallegos 8/4/2015 9:27:44 AM

Reviewed By: CS 08/04/15

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified: ____ Date: ____

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

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good	Not Present			