GW – 028

Annual DP Report (Part 12 of 16)

2015

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **100ng lcs3**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916525** 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	21	1.0	20.00	0	107	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	109	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID **rb3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916527** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **rb3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916527** Units: **µg/L**

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

Qualifiers:

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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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **rb3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916527** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID **1511135-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **R.O. Reject**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916530** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.3	70	130			
Chlorobenzene	23	1.0	20.00	0	114	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	112	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	109	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.5	70	130			
Surr: Dibromofluoromethane	10		10.00		99.9	70	130			
Surr: Toluene-d8	8.9		10.00		89.4	70	130			

Sample ID **1511135-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **R.O. Reject**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916531** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130	7.96	20	
Toluene	21	1.0	20.00	0	105	70	130	5.76	20	
Chlorobenzene	21	1.0	20.00	0	106	70	130	6.75	20	
1,1-Dichloroethene	20	1.0	20.00	0	100	70	130	11.1	20	
Trichloroethene (TCE)	20	1.0	20.00	0	99.6	70	130	8.76	20	
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		101	70	130	0	0	
Surr: Toluene-d8	11		10.00		105	70	130	0	0	

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**MB-22195**	SampType:	**MBLK**	TestCode:	**EPA Method 8310: PAHs**					
Client ID:	**PBW**	Batch ID:	**22195**	RunNo:	**30048**					
Prep Date:	**11/5/2015**	Analysis Date:	**11/6/2015**	SeqNo:	**916008**	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	15		20.00		74.1	37.2	136			

Sample ID	**LCS-22195**	SampType:	**LCS**	TestCode:	**EPA Method 8310: PAHs**					
Client ID:	**LCSW**	Batch ID:	**22195**	RunNo:	**30048**					
Prep Date:	**11/5/2015**	Analysis Date:	**11/6/2015**	SeqNo:	**916020**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	61	2.0	80.00	0	76.4	57.8	83.9			
1-Methylnaphthalene	64	2.0	80.20	0	80.0	43.5	88.5			
2-Methylnaphthalene	62	2.0	80.00	0	76.9	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		67.6	37.2	136			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-22262**	SampType:	**MBLK**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**PBW**	Batch ID:	**22262**	RunNo:	**30113**					
Prep Date:	**11/10/2015**	Analysis Date:	**11/10/2015**	SeqNo:	**917445**	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-22262**	SampType:	**LCS**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**LCSW**	Batch ID:	**22262**	RunNo:	**30113**					
Prep Date:	**11/10/2015**	Analysis Date:	**11/10/2015**	SeqNo:	**917446**	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	91.2	64.4	135			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R30469**	SampType:	**MBLK**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**PBW**	Batch ID:	**R30469**	RunNo:	**30469**					
Prep Date:		Analysis Date:	**11/16/2015**	SeqNo:	**930041**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		ND	0.0100								

Sample ID	**LCS-R30469**	SampType:	**LCS**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**LCSW**	Batch ID:	**R30469**	RunNo:	**30469**					
Prep Date:		Analysis Date:	**11/16/2015**	SeqNo:	**930042**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		0.508		0.5000	0	102	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-R30469**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R30469**	RunNo:	**30469**
Prep Date:		Analysis Date:	**11/16/2015**	SeqNo:	**930044** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	ND	0.977								
Radium-226 ±	ND	0.977								
Radium-228	ND	0.693								
Radium-228 ±	ND	0.693								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511135**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-22194**	SampType:	**MBLK**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**22194**	RunNo:	**30073**					
Prep Date:	**11/5/2015**	Analysis Date:	**11/7/2015**	SeqNo:	**916141**	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-22194**	SampType:	**LCS**	TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**22194**	RunNo:	**30073**					
Prep Date:	**11/5/2015**	Analysis Date:	**11/7/2015**	SeqNo:	**916142**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **NAVAJO REFINING COM** Work Order Number: **1511135** RcptNo: **1**

Received by/date: 11/04/15

Logged By: **Lindsay Mangin** **11/4/2015 9:05:00 AM**

Completed By: **Lindsay Mangin** **11/4/2015 10:47:07 AM**

Reviewed By: 11/05/15

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: 8 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: 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	1.1	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: 1.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1511135	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB
11/3/15	9:00	liquid	R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X	
11/3/15	9:00	liquid	R.O. Reject	3-40ml VOA	HCL	-001	X														
11/3/15	9:00	liquid	R.O. Reject	1-500ml P	HNO3	-001					X										
11/3/15	9:00	liquid	R.O. Reject	1-125ml P	HNO3	-001			X												
11/3/15	9:00	liquid	R.O. Reject	1-500ml P	NaOH	-001				X											
11/3/15	9:00	liquid	R.O. Reject	2- 1L P	HNO3	-001								X							
11/3/15	9:00	liquid	R.O. Reject	3-40ml VOA	Na2S2O3	-001															X
11/3/15	9:00	liquid	R.O. Reject	2 - 1L Glass	unpres	-001							X								
11/3/15	9:00	liquid	R.O. Reject	1 - 1L Glass	unpres	-001		X													
11/3/15	9:00	liquid	R.O. Reject	3-40ml VOA	HCl	-001						X									
11/3/15	9:00	liquid	R.O. Reject	1-250mlGlas	unpres	-001						X									
11/3/15	9:00	liquid	R.O. Reject	1 - 1L Glass	H2SO4	-001										X					
11/3/15	9:00	liquid	Trip Blank	2-40ml VOA	HCL	-002															

Date	Time	Relinquished by	Received by	Date	Time
11/3/15	11:00	Elizabeth Salsberry			
				11/04/15	0905
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

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

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

Monthly RO Reject Sample Details Attachment

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/3/2015 @ 8:56am
End Date and Time	11/3/2015 @ 9:10am

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): 11/3/2015 Tmp. 57.2, Humidity 67% , Wind Dir. SSE, Wind Speed 5.8 mph, Conditions Clear

Date and Time:

Field Temp. 22.1C Field pH 7.85

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

November 25, 2015

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

RE: Monthly Temporary RO Reject OrderNo.: 1511141

Dear Robert Combs:

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

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1511141**
Date Reported: **11/25/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary RO Reject
Lab ID: 1511141-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 11/3/2015 9:20:00 AM
Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	11/18/2015 12:50:57 PM	B30317
Lead	ND	0.00050		mg/L	1	11/18/2015 12:30:23 PM	B30317
Selenium	0.0098	0.0010		mg/L	1	11/18/2015 12:30:23 PM	B30317
Uranium	0.0051	0.00050		mg/L	1	11/18/2015 12:30:23 PM	B30317
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	1.2	0.952		pCi/L	1	11/16/2015	R30473
Radium-226 ±	0.761	0.952		pCi/L	1	11/16/2015	R30473
Radium-228	0.0442	0.929		pCi/L	1	11/16/2015	R30473
Radium-228 ±	0.403	0.929		pCi/L	1	11/16/2015	R30473
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	3.2	0.10		mg/L	1	11/4/2015 7:41:19 PM	R30015
Chloride	42	10		mg/L	20	11/4/2015 7:53:44 PM	R30015
Nitrogen, Nitrate (As N)	1.8	0.10		mg/L	1	11/4/2015 7:41:19 PM	R30015
Sulfate	1500	25		mg/L	50	11/18/2015 8:38:32 PM	R30349
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3050	20.0	*	mg/L	1	11/7/2015 10:19:00 AM	22194
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	11/18/2015	R30473
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.87	1.68	H	pH units	1	11/5/2015 4:52:07 PM	R30047
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **MED**	
Aluminum	ND	0.020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Barium	0.060	0.0020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Boron	0.086	0.040		mg/L	1	11/13/2015 4:23:54 PM	B30225
Cadmium	ND	0.0020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Chromium	ND	0.0060		mg/L	1	11/13/2015 4:23:54 PM	B30225
Cobalt	ND	0.0060		mg/L	1	11/13/2015 4:23:54 PM	B30225
Copper	ND	0.0060		mg/L	1	11/13/2015 4:23:54 PM	B30225
Iron	ND	0.020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Manganese	ND	0.0020		mg/L	1	11/13/2015 4:23:54 PM	B30225
Molybdenum	ND	0.0080		mg/L	1	11/13/2015 4:23:54 PM	B30225
Nickel	ND	0.010		mg/L	1	11/13/2015 4:23:54 PM	B30225
Silver	ND	0.0050		mg/L	1	11/13/2015 4:23:54 PM	B30225
Zinc	0.17	0.010		mg/L	1	11/13/2015 4:23:54 PM	B30225
EPA METHOD 245.1: MERCURY						Analyst: **DBD**	
Mercury	ND	0.00020		mg/L	1	11/13/2015 6:17:36 PM	22341

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Project: Monthly Temporary RO Reject
Lab ID: 1511141-001 **Matrix:** AQUEOUS

Client Sample ID: Temporary R.O. Reject
Collection Date: 11/3/2015 9:20:00 AM
Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	11/6/2015 3:15:26 PM	22172
EPA METHOD 8082: PCB'S						Analyst: **JDC**	
Aroclor 1016	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1221	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1232	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1242	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1248	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1254	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Aroclor 1260	ND	1.0		µg/L	1	11/6/2015 7:11:33 PM	22197
Surr: Decachlorobiphenyl	108	17.7-151		%REC	1	11/6/2015 7:11:33 PM	22197
Surr: Tetrachloro-m-xylene	85.6	20.6-151		%REC	1	11/6/2015 7:11:33 PM	22197
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2015 3:59:05 PM	22175
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2015 3:59:05 PM	22175
Surr: DNOP	127	72-136		%REC	1	11/6/2015 3:59:05 PM	22175
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/5/2015 11:21:46 AM	R30036
Surr: BFB	79.3	57.8-137		%REC	1	11/5/2015 11:21:46 AM	R30036
EPA METHOD 8310: PAHS						Analyst: **JDC**	
Naphthalene	ND	2.0		µg/L	1	11/6/2015 6:15:12 PM	22195
1-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 6:15:12 PM	22195
2-Methylnaphthalene	ND	2.0		µg/L	1	11/6/2015 6:15:12 PM	22195
Benzo(a)pyrene	ND	0.070		µg/L	1	11/6/2015 6:15:12 PM	22195
Surr: Benzo(e)pyrene	77.6	37.2-136		%REC	1	11/6/2015 6:15:12 PM	22195
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Temporary R.O. Reject
Project: Monthly Temporary RO Reject
Collection Date: 11/3/2015 9:20:00 AM
Lab ID: 1511141-001 **Matrix:** AQUEOUS **Received Date:** 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Vinyl chloride	ND	1.0		µg/L	1	11/6/2015 4:32:31 PM	R30086
Xylenes, Total	ND	1.5		µg/L	1	11/6/2015 4:32:31 PM	R30086
Surr: 1,2-Dichloroethane-d4	92.3	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
Surr: 4-Bromofluorobenzene	95.4	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
Surr: Dibromofluoromethane	103	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
Surr: Toluene-d8	96.1	70-130		%REC	1	11/6/2015 4:32:31 PM	R30086
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	11/10/2015	22262

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

Qualifiers:

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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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly Temporary RO Reject
Collection Date:
Lab ID: 1511141-002
Matrix: TRIP BLANK
Received Date: 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	11/6/2015 3:29:07 PM	22172
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
Benzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Toluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Ethylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Naphthalene	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Methylnaphthalene	ND	4.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Acetone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromodichloromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromoform	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Bromomethane	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Butanone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Carbon disulfide	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Carbon Tetrachloride	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chloroethane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chloroform	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Chloromethane	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
4-Chlorotoluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
cis-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Dibromochloromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Dibromomethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1-Dichloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1-Dichloroethene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: Trip Blank
Project: Monthly Temporary RO Reject
Collection Date:
Lab ID: 1511141-002 **Matrix:** TRIP BLANK **Received Date:** 11/4/2015 9:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **AG**	
1,3-Dichloropropane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2,2-Dichloropropane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Hexachlorobutadiene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
2-Hexanone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Isopropylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
4-Isopropyltoluene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
4-Methyl-2-pentanone	ND	10		µg/L	1	11/6/2015 5:01:09 PM	R30086
Methylene Chloride	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
n-Butylbenzene	ND	3.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
n-Propylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
sec-Butylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Styrene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
tert-Butylbenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
trans-1,2-DCE	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Trichlorofluoromethane	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Vinyl chloride	ND	1.0		µg/L	1	11/6/2015 5:01:09 PM	R30086
Xylenes, Total	ND	1.5		µg/L	1	11/6/2015 5:01:09 PM	R30086
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086
Surr: 4-Bromofluorobenzene	99.2	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086
Surr: Dibromofluoromethane	98.8	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086
Surr: Toluene-d8	100	70-130		%REC	1	11/6/2015 5:01:09 PM	R30086

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

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

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

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

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

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

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-22341**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**22341**	RunNo:	**30233**					
Prep Date:	**11/13/2015**	Analysis Date:	**11/13/2015**	SeqNo:	**921328**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-22341**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**22341**	RunNo:	**30233**					
Prep Date:	**11/13/2015**	Analysis Date:	**11/13/2015**	SeqNo:	**921336**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0061	0.00020	0.005000	0	121	80	120			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

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

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

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R30349**	RunNo: **30349**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **926243** 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: **R30349**	RunNo: **30349**
Prep Date:	Analysis Date: **11/18/2015**	SeqNo: **926244** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.6	0.50	10.00	0	95.7	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#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

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

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

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#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

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

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

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **100ng lcs3**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916525** 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	21	1.0	20.00	0	107	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	109	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	107	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.7	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID **rb3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916527** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **rb3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916527** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **rb3**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R30086**	RunNo: **30086**
Prep Date:	Analysis Date: **11/6/2015**	SeqNo: **916527** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.1	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		104	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#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-22195**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **22195**	RunNo: **30048**
Prep Date: **11/5/2015**	Analysis Date: **11/6/2015**	SeqNo: **916008** 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	15		20.00		74.1	37.2	136			

Sample ID **LCS-22195**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **22195**	RunNo: **30048**
Prep Date: **11/5/2015**	Analysis Date: **11/6/2015**	SeqNo: **916020** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	61	2.0	80.00	0	76.4	57.8	83.9			
1-Methylnaphthalene	64	2.0	80.20	0	80.0	43.5	88.5			
2-Methylnaphthalene	62	2.0	80.00	0	76.9	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		67.6	37.2	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-22262**	SampType:	**MBLK**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**PBW**	Batch ID:	**22262**	RunNo:	**30113**					
Prep Date:	**11/10/2015**	Analysis Date:	**11/10/2015**	SeqNo:	**917445**	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-22262**	SampType:	**LCS**	TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**LCSW**	Batch ID:	**22262**	RunNo:	**30113**					
Prep Date:	**11/10/2015**	Analysis Date:	**11/10/2015**	SeqNo:	**917446**	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	91.2	64.4	135			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-R30473**	SampType:	**MBLK**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**PBW**	Batch ID:	**R30473**	RunNo:	**30473**					
Prep Date:		Analysis Date:	**11/18/2015**	SeqNo:	**930194**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		ND	0.0100								

Sample ID	**LCS-R30473**	SampType:	**LCS**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**LCSW**	Batch ID:	**R30473**	RunNo:	**30473**					
Prep Date:		Analysis Date:	**11/18/2015**	SeqNo:	**930195**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide		0.508		0.5000	0	102	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID	**MB-R30473**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R30473**	RunNo:	**30473**
Prep Date:		Analysis Date:	**11/16/2015**	SeqNo:	**930255** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.343	0.968								
Radium-226 ±	0.575	0.968								
Radium-228	-0.119	0.821								
Radium-228 ±	0.339	0.821								

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#: **1511141**

25-Nov-15

Client: Navajo Refining Company

Project: Monthly Temporary RO Reject

Sample ID **MB-22194**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **22194**	RunNo: **30073**
Prep Date: **11/5/2015**	Analysis Date: **11/7/2015**	SeqNo: **916141** 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-22194**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **22194**	RunNo: **30073**
Prep Date: **11/5/2015**	Analysis Date: **11/7/2015**	SeqNo: **916142** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **NAVAJO REFINING COM** Work Order Number: **1511141** RcptNo: **1**

Received by/date: DSA 11/04/15

Logged By: **Lindsay Mangin** **11/4/2015 9:05:00 AM**

Completed By: **Lindsay Mangin** **11/4/2015 12:07:55 PM**

Reviewed By: 11/05/15

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: 7 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? NO
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	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 Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Elizabeth Salsberry

On Ice: X Yes ☐ No

Sample Temperature: 1.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1511241	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radioactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB	Air Bubbles (Y or N)
11/3/15	9:20	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres 1-H2SO4	-001									X		X	X	X	X		Y
11/3/15	9:20	liquid	Temporary R.O. Reject	3-40ml VOA	HCL	-001	X															
11/3/15	9:20	liquid	Temporary R.O. Reject	1-500ml P	HNO3	-001					X											
11/3/15	9:20	liquid	Temporary R.O. Reject	1-125ml P	HNO3	-001			X													
11/3/15	9:20	liquid	Temporary R.O. Reject	1-500ml P	NaOH	-001				X												
11/3/15	9:20	liquid	Temporary R.O. Reject	2- 1L P	HNO3	-001								X								
11/3/15	9:20	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3	-001															X	
11/3/15	9:20	liquid	Temporary R.O. Reject	2 - 1L Glass	unpres	-001							X									
11/3/15	9:20	liquid	Temporary R.O. Reject	1 - 1L Glass	unpres	-001		X														
11/3/15	9:20	liquid	Temporary R.O. Reject	3-40ml VOA	HCl	-001						X										
11/3/15	9:20	liquid	Temporary R.O. Reject	1-250mlGlass	unpres	-001						X										
11/3/15	9:20	liquid	Temporary R.O. Reject	1 - 1L Glass	H2SO4	-001										X						
11/3/15	9:20	liquid	Trip Blank	2-40ml VOA	HCL	-001																

Date:	Time:	Relinquished by:	Received by:	Date Time
11/3/15	11:50	Elizabeth Salsberry		
				11/04/15 0905
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

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

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

Monthly Temporary RO Reject Sample Details

HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	11/3/2015 @ 9:15am
End Date and Time	11/3/2015 @ 9:30am

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): 11/3/2015 Tmp.59.0°F, Humidity 63% , Wind Dir. SSE, Wind Speed 6.9mph, Conditions Clear

Date and Time:

Field Temp. 22.1C Field pH 7.84

Storage Method	
Ice	☑
Refrigerated	☐
Other	☐

Shipping Media	
Ice	☑
Other	☐

HOLLYFRONTIER.

January 15, 2016

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

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

RE: WQA-OCD-CO-2015-002
Monthly Report – December 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 HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's January 2016 monthly report, for the period of December 1-31, 2015, under the Order.

Specifically, this report covers the December 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 December 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 December 1 through December 31.
- $500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from December 1 through December 31.

Navajo has calculated a penalty of $3,100 for December 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 December. 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 December 3, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

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

In December, Navajo and OCD continued discussion of the conditions of the May 2015 permit modification request to increase the discharge volume. Navajo provided informal comments to draft permit conditions in anticipation of OCD's publication of formal public notice of the proposed permit modification and conditions and opportunity to comment, which was issued in mid-December.

On December 17, Navajo met with OCD to discuss the possible construction of water management ponds for evaporation, to include RO reject fluids and other waters. Permitting approaches were also discussed, and Navajo is in the process of preparing a permit renewal application for GW-028, of which, evaporation pond construction details will be included per OCD guidance.

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	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
12/1/2015	137	146	283	9,703	61	2106	11,809
12/2/2015	140	151	291	9,977	62	2119	12,096
12/3/2015	135	150	285	9,771	68	2316	12,087
12/4/2015	138	150	288	9,874	70	2384	12,258
12/5/2015	137	147	284	9,737	70	2386	12,123
12/6/2015	139	155	294	10,080	70	2400	12,480
12/7/2015	136	148	284	9,737	70	2400	12,137
12/8/2015	140	152	292	10,011	70	2390	12,401
12/9/2015	134	107	241	8,263	71	2422	10,685
12/10/2015	138	112	250	8,571	90	3086	11,657
12/11/2015	127	120	247	8,469	66	2264	10,733
12/12/2015	126	122	248	8,503	66	2256	10,759
12/13/2015	126	121	247	8,469	66	2274	10,743
12/14/2015	129	131	260	8,914	69	2372	11,286
12/15/2015	129	129	258	8,846	79	2724	11,570
12/16/2015	133	133	266	9,120	72	2453	11,573
12/17/2015	131	129	260	8,914	54	1848	10,762
12/18/2015	130	130	260	8,914	57	1939	10,853
12/19/2015	129	127	256	8,777	59	2021	10,798
12/20/2015	127	127	254	8,709	61	2090	10,799
12/21/2015	134	130	264	9,051	62	2126	11,177
12/22/2015	126	126	252	8,640	95	3244	11,884
12/23/2015	135	129	264	9,051	66	2251	11,302
12/24/2015	128	104	232	7,954	65	2217	10,171
12/25/2015	130	102	232	7,954	66	2253	10,207
12/26/2015	126	105	231	7,920	76	2590	10,510
12/27/2015	126	105	231	7,920	118	4033	11,953
12/28/2015	130	108	238	8,160	117	4020	12,180
12/29/2015	129	108	237	8,126	100	3440	11,566
12/30/2015	134	98	232	7,954	105	3617	11,571
12/31/2015	136	105	241	8,263	103	3536	11,799

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - December 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

January 06, 2016

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

RE: Monthly RO Reject OrderNo.: 1512236

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/4/2015 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 **1512236**
Date Reported: **1/6/2016**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: R.O. Reject
Project: Monthly RO Reject
Collection Date: 12/3/2015 9:00:00 AM
Lab ID: 1512236-001 **Matrix:** AQUEOUS **Received Date:** 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **JLF**	
Arsenic	ND	0.0050		mg/L	5	12/11/2015 2:30:12 PM	A30798
Lead	ND	0.00050		mg/L	1	12/9/2015 9:48:48 PM	B30746
Selenium	0.0054	0.0010		mg/L	1	12/9/2015 9:48:48 PM	B30746
Uranium	0.0032	0.00050		mg/L	1	12/9/2015 9:48:48 PM	B30746
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst: **SUB**	
Radium-226	0.207	0.980		pCi/L	1	12/17/2016	R31278
Radium-226 ±	0.543	0.980		pCi/L	1	12/17/2016	R31278
Radium-228	0.194	0.680		pCi/L	1	12/17/2016	R31278
Radium-228 ±	0.311	0.680		pCi/L	1	12/17/2016	R31278
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	2.2	2.0		mg/L	20	12/5/2015 3:40:40 AM	A30652
Chloride	110	25		mg/L	50	12/23/2015 3:12:14 AM	A31049
Sulfate	980	25		mg/L	50	12/23/2015 3:12:14 AM	A31049
Nitrate+Nitrite as N	1.2	1.0		mg/L	5	12/23/2015 3:37:03 AM	R31049
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	1970	20.0	*	mg/L	1	12/13/2015 1:47:00 PM	22696
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst: **SUB**	
Cyanide	ND	0.0100		mg/L	1	12/9/2015	R31007
SM4500-H+B: PH						Analyst: **MRA**	
pH	7.86	1.68	H	pH units	1	12/7/2015 1:38:04 PM	R30658
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **ELS**	
Aluminum	ND	0.020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Barium	0.035	0.0020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Boron	0.094	0.040		mg/L	1	12/8/2015 8:30:22 PM	B30690
Cadmium	ND	0.0020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Chromium	ND	0.0060		mg/L	1	12/14/2015 2:34:53 PM	B30821
Cobalt	ND	0.0060		mg/L	1	12/8/2015 8:30:22 PM	B30690
Copper	ND	0.0060		mg/L	1	12/8/2015 8:30:22 PM	B30690
Iron	ND	0.020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Manganese	ND	0.0020		mg/L	1	12/8/2015 8:30:22 PM	B30690
Molybdenum	ND	0.0080		mg/L	1	12/17/2015 2:18:43 PM	B30929
Nickel	ND	0.010		mg/L	1	12/8/2015 8:30:22 PM	B30690
Silver	ND	0.0050		mg/L	1	12/8/2015 8:30:22 PM	B30690
Zinc	0.020	0.010		mg/L	1	12/17/2015 2:18:43 PM	B30929
EPA METHOD 245.1: MERCURY						Analyst: **DBD**	
Mercury	ND	0.00020		mg/L	1	12/11/2015 11:02:05 AM	22710

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: R.O. Reject
Project: Monthly RO Reject
Collection Date: 12/3/2015 9:00:00 AM
Lab ID: 1512236-001 **Matrix:** AQUEOUS **Received Date:** 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.010		µg/L	1	12/9/2015	22664
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1221	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1232	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1242	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1248	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1254	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Aroclor 1260	ND	1.0		µg/L	1	12/11/2015 1:29:36 PM	22699
Surr: Decachlorobiphenyl	75.6	17.7-151		%REC	1	12/11/2015 1:29:36 PM	22699
Surr: Tetrachloro-m-xylene	55.6	20.6-151		%REC	1	12/11/2015 1:29:36 PM	22699
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	12/7/2015 1:23:00 PM	22645
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	12/7/2015 1:23:00 PM	22645
Surr: DNOP	96.8	72-136		%REC	1	12/7/2015 1:23:00 PM	22645
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/10/2015 12:52:34 AM	A30727
Surr: BFB	86.5	49.5-130		%REC	1	12/10/2015 12:52:34 AM	A30727
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	2.0		µg/L	1	12/11/2015 7:13:46 AM	22700
1-Methylnaphthalene	ND	2.0		µg/L	1	12/11/2015 7:13:46 AM	22700
2-Methylnaphthalene	ND	2.0		µg/L	1	12/11/2015 7:13:46 AM	22700
Benzo(a)pyrene	ND	0.070		µg/L	1	12/11/2015 7:13:46 AM	22700
Surr: Benzo(e)pyrene	67.8	33.4-129		%REC	1	12/11/2015 7:13:46 AM	22700
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Toluene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Ethylbenzene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Carbon Tetrachloride	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Chloroform	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1-Dichloroethane	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1-Dichloroethene	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Methylene Chloride	ND	3.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: R.O. Reject
Project: Monthly RO Reject
Collection Date: 12/3/2015 9:00:00 AM
Lab ID: 1512236-001 **Matrix:** AQUEOUS **Received Date:** 12/4/2015 9:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Vinyl chloride	ND	1.0		µg/L	1	12/8/2015 11:07:53 PM	A30709
Xylenes, Total	ND	1.5		µg/L	1	12/8/2015 11:07:53 PM	A30709
Surr: 1,2-Dichloroethane-d4	107	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
Surr: Dibromofluoromethane	107	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
Surr: Toluene-d8	99.7	70-130		%REC	1	12/8/2015 11:07:53 PM	A30709
TOTAL PHENOLICS BY SW-846 9067						Analyst: **SCC**	
Phenolics, Total Recoverable	ND	2.5		µg/L	1	12/14/2015	22770

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B30690**	RunNo: **30690**
Prep Date:	Analysis Date: **12/8/2015**	SeqNo: **937145** 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								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B30690**	RunNo: **30690**
Prep Date:	Analysis Date: **12/8/2015**	SeqNo: **937146** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	101	85	115			
Barium	0.48	0.0020	0.5000	0	96.8	85	115			
Boron	0.49	0.040	0.5000	0	98.4	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.1	85	115			
Cobalt	0.48	0.0060	0.5000	0	96.2	85	115			
Copper	0.48	0.0060	0.5000	0	95.8	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.49	0.0020	0.5000	0	97.4	85	115			
Nickel	0.48	0.010	0.5000	0	96.2	85	115			
Silver	0.098	0.0050	0.1000	0	97.8	85	115			

Sample ID **LLLCS-B**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B30690**	RunNo: **30690**
Prep Date:	Analysis Date: **12/8/2015**	SeqNo: **937147** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	91.5	50	150			
Barium	0.0022	0.0020	0.002000	0	109	50	150			
Boron	ND	0.040	0.04000	0	99.4	50	150			
Cadmium	0.0022	0.0020	0.002000	0	109	50	150			
Cobalt	0.0072	0.0060	0.006000	0	120	50	150			
Copper	ND	0.0060	0.006000	0	95.5	50	150			
Iron	0.021	0.020	0.02000	0	104	50	150			
Manganese	0.0021	0.0020	0.002000	0	106	50	150			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**LLLCS-B**	SampType:	**LCSLL**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**B30690**		RunNo:	**30690**				
Prep Date:		Analysis Date:	**12/8/2015**		SeqNo:	**937147**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	149	50	150			
Silver	ND	0.0050	0.005000	0	94.2	50	150			

Sample ID	**MB-B**	SampType:	**MBLK**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**PBW**	Batch ID:	**B30821**		RunNo:	**30821**				
Prep Date:		Analysis Date:	**12/14/2015**		SeqNo:	**941747**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID	**LCS-B**	SampType:	**LCS**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**B30821**		RunNo:	**30821**				
Prep Date:		Analysis Date:	**12/14/2015**		SeqNo:	**941748**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.51	0.0060	0.5000	0	101	85	115			

Sample ID	**LLLCS-B**	SampType:	**LCSLL**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**B30821**		RunNo:	**30821**				
Prep Date:		Analysis Date:	**12/14/2015**		SeqNo:	**941749**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.0067	0.0060	0.006000	0	112	50	150			

Sample ID	**MB-B**	SampType:	**MBLK**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**PBW**	Batch ID:	**B30929**		RunNo:	**30929**				
Prep Date:		Analysis Date:	**12/17/2015**		SeqNo:	**945585**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	ND	0.0080								
Zinc	ND	0.010								

Sample ID	**LCS-B**	SampType:	**LCS**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**B30929**		RunNo:	**30929**				
Prep Date:		Analysis Date:	**12/17/2015**		SeqNo:	**945586**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.49	0.0080	0.5000	0	98.3	85	115			
Zinc	0.46	0.010	0.5000	0	92.3	85	115			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**LLLCS-B**	SampType:	**LCSLL**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**B30929**		RunNo:	**30929**				
Prep Date:		Analysis Date:	**12/17/2015**		SeqNo:	**945587**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.0097	0.0080	0.008000	0	122	50	150			
Zinc	ND	0.010	0.005000	0	101	50	150			

Sample ID	**1512236-001GMS**	SampType:	**MS**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**R.O. Reject**	Batch ID:	**B30929**		RunNo:	**30929**				
Prep Date:		Analysis Date:	**12/17/2015**		SeqNo:	**945614**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.49	0.0080	0.5000	0.006130	96.0	70	130			
Zinc	0.47	0.010	0.5000	0.01974	89.6	70	130			

Sample ID	**1512236-001GMSD**	SampType:	**MSD**		TestCode:	**EPA Method 200.7: Dissolved Metals**				
Client ID:	**R.O. Reject**	Batch ID:	**B30929**		RunNo:	**30929**				
Prep Date:		Analysis Date:	**12/17/2015**		SeqNo:	**945615**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Molybdenum	0.50	0.0080	0.5000	0.006130	99.6	70	130	3.67	20	
Zinc	0.48	0.010	0.5000	0.01974	91.4	70	130	1.94	20	

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	1512236-001GMSLL	SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	R.O. Reject	Batch ID:	B30746		RunNo:	30746				
Prep Date:		Analysis Date:	12/9/2015		SeqNo:	939236	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	104	70	130			
Selenium	0.030	0.0010	0.02500	0.005378	98.7	70	130			
Uranium	0.018	0.00050	0.01250	0.003210	115	70	130			

Sample ID	LCS	SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	LCSW	Batch ID:	B30746		RunNo:	30746				
Prep Date:		Analysis Date:	12/9/2015		SeqNo:	939237	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012	0.00050	0.01250	0	97.3	85	115			
Selenium	0.024	0.0010	0.02500	0	96.0	85	115			
Uranium	0.012	0.00050	0.01250	0	98.1	85	115			

Sample ID	LLLCS	SampType:	LCSLL		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	BatchQC	Batch ID:	B30746		RunNo:	30746				
Prep Date:		Analysis Date:	12/9/2015		SeqNo:	939238	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050	0.0005000	0	99.9	50	150			
Selenium	ND	0.0010	0.001000	0	97.8	50	150			
Uranium	ND	0.00050	0.0005000	0	97.3	50	150			

Sample ID	MB	SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	PBW	Batch ID:	B30746		RunNo:	30746				
Prep Date:		Analysis Date:	12/9/2015		SeqNo:	939239	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	1512236-001GMSLL	SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	R.O. Reject	Batch ID:	A30798		RunNo:	30798				
Prep Date:		Analysis Date:	12/11/2015		SeqNo:	941037	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.001076	101	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**LCS**	SampType:	**LCS**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**LCSW**	Batch ID:	**A30798**		RunNo:	**30798**				
Prep Date:		Analysis Date:	**12/11/2015**		SeqNo:	**941051**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.6	85	115			

Sample ID	**LLLCS**	SampType:	**LCSLL**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**BatchQC**	Batch ID:	**A30798**		RunNo:	**30798**				
Prep Date:		Analysis Date:	**12/11/2015**		SeqNo:	**941054**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	94.6	50	150			

Sample ID	**MB**	SampType:	**MBLK**		TestCode:	**EPA 200.8: Dissolved Metals**				
Client ID:	**PBW**	Batch ID:	**A30798**		RunNo:	**30798**				
Prep Date:		Analysis Date:	**12/11/2015**		SeqNo:	**941056**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-22710**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**PBW**	Batch ID:	**22710**	RunNo:	**30788**				
Prep Date:	**12/9/2015**	Analysis Date:	**12/11/2015**	SeqNo:	**940469**	Units:	**mg/L**		

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

Sample ID	**LCS-22710**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**				
Client ID:	**LCSW**	Batch ID:	**22710**	RunNo:	**30788**				
Prep Date:	**12/9/2015**	Analysis Date:	**12/11/2015**	SeqNo:	**940470**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A30652**	RunNo: **30652**
Prep Date:	Analysis Date: **12/5/2015**	SeqNo: **936397** Units: **mg/L**

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

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A30652**	RunNo: **30652**
Prep Date:	Analysis Date: **12/5/2015**	SeqNo: **936398** 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			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R31049**	RunNo: **31049**
Prep Date:	Analysis Date: **12/22/2015**	SeqNo: **949718** Units: **mg/L**

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

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R31049**	RunNo: **31049**
Prep Date:	Analysis Date: **12/22/2015**	SeqNo: **949719** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	95.9	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A31049**	RunNo: **31049**
Prep Date:	Analysis Date: **12/23/2015**	SeqNo: **949774** Units: **mg/L**

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

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A31049**	RunNo: **31049**
Prep Date:	Analysis Date: **12/23/2015**	SeqNo: **949775** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Sulfate	10	0.50	10.00	0	99.7	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#: **1512236**

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID	**MB-22664**	SampType:	**MBLK**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**PBW**	Batch ID:	**22664**	RunNo:	**30705**					
Prep Date:	**12/8/2015**	Analysis Date:	**12/9/2015**	SeqNo:	**937923**	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-22664**	SampType:	**LCS**	TestCode:	**EPA Method 8011/504.1: EDB**					
Client ID:	**LCSW**	Batch ID:	**22664**	RunNo:	**30705**					
Prep Date:	**12/8/2015**	Analysis Date:	**12/9/2015**	SeqNo:	**937924**	Units:	**µg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.10	0.010	0.1000	0	101	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **MB-22645**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **22645**	RunNo: **30655**
Prep Date: **12/7/2015**	Analysis Date: **12/7/2015**	SeqNo: **936459** 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	0.98		1.000		98.3	72	136			

Sample ID **LCS-22645**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **22645**	RunNo: **30655**
Prep Date: **12/7/2015**	Analysis Date: **12/7/2015**	SeqNo: **936460** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.9	1.0	5.000	0	97.6	52.4	154			
Surr: DNOP	0.44		0.5000		87.9	72	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **A30727**	RunNo: **30727**
Prep Date:	Analysis Date: **12/9/2015**	SeqNo: **938906** 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		92.4	49.5	130			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **A30727**	RunNo: **30727**
Prep Date:	Analysis Date: **12/9/2015**	SeqNo: **938907** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.4	80	120			
Surr: BFB	23		20.00		113	49.5	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#: **1512236**

06-Jan-16

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID	**MB-22699**	SampType:	**MBLK**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**PBW**	Batch ID:	**22699**	RunNo:	**30771**					
Prep Date:	**12/9/2015**	Analysis Date:	**12/11/2015**	SeqNo:	**939925**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.0		2.500		78.4	17.7	151			
Surr: Tetrachloro-m-xylene	1.1		2.500		44.0	20.6	151			

Sample ID	**LCS-22699**	SampType:	**LCS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**LCSW**	Batch ID:	**22699**	RunNo:	**30771**					
Prep Date:	**12/9/2015**	Analysis Date:	**12/11/2015**	SeqNo:	**940026**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.0	1.0	5.000	0	39.4	9.01	142			
Aroclor 1260	3.0	1.0	5.000	0	59.3	25.6	164			
Surr: Decachlorobiphenyl	1.8		2.500		73.2	17.7	151			
Surr: Tetrachloro-m-xylene	1.1		2.500		43.2	20.6	151			

Sample ID	**1512236-001DMS**	SampType:	**MS**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**R.O. Reject**	Batch ID:	**22699**	RunNo:	**30771**					
Prep Date:	**12/9/2015**	Analysis Date:	**12/11/2015**	SeqNo:	**940884**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.2	1.0	5.000	0	44.7	14.5	105			
Aroclor 1260	3.8	1.0	5.000	0	76.3	21.4	125			
Surr: Decachlorobiphenyl	2.1		2.500		84.0	17.7	151			
Surr: Tetrachloro-m-xylene	1.5		2.500		61.2	20.6	151			

Sample ID	**1512236-001DMSD**	SampType:	**MSD**	TestCode:	**EPA Method 8082: PCB's**					
Client ID:	**R.O. Reject**	Batch ID:	**22699**	RunNo:	**30771**					
Prep Date:	**12/9/2015**	Analysis Date:	**12/11/2015**	SeqNo:	**940885**	Units:	**µg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.1	1.0	5.000	0	41.4	14.5	105	7.72	20	
Aroclor 1260	3.4	1.0	5.000	0	68.9	21.4	125	10.2	27.6	
Surr: Decachlorobiphenyl	1.9		2.500		77.6	17.7	151	0	0	
Surr: Tetrachloro-m-xylene	1.4		2.500		55.6	20.6	151	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1512236**

06-Jan-16

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **A30709**	RunNo: **30709**
Prep Date:	Analysis Date: **12/8/2015**	SeqNo: **937841** 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
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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