GW - 028

2015 Annual Discharge Permit Report

PART 8 OF 16

March 2016

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-20149	SampType: MBLK TestCode: EPA Method 8082: PCB's									
Client ID: PBW	Batch	ID: 20	149	F	RunNo: 2	7467				
Prep Date: 7/8/2015	Analysis D	ate: 7/	14/2015	S	eqNo: 8	24114	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.5		2.500		60.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.8	31.8	95.7			
Surr: Tetrachloro-m-xylene Sample ID LCS-20149	Const	ype: LC		Tes		26/22	95.7 8082: PCB's			
	SampT	ype: LC	s			PA Method	257.00			
Sample ID LCS-20149	SampT	ID: 20	S 149	R	tCode: El	PA Method 7467	257.00			
Sample ID LCS-20149 Client ID: LCSW	SampT Batch	ID: 20	S 149 14/2015	R	tCode: El	PA Method 7467	8082: PCB's	%RPD	RPDLimit	Qual
Sample ID LCS-20149 Client ID: LCSW Prep Date: 7/8/2015 Analyte	SampT Batch Analysis D	ID: 20 °	S 149 14/2015	F S	tCode: El RunNo: 2 SeqNo: 8	PA Method 7467 24697	8082: PCB's Units: μg/L	%RPD	RPDLimit	Qual
Sample ID LCS-20149 Client ID: LCSW Prep Date: 7/8/2015 Analyte Aroclor 1016	SampT Batch Analysis D Result	ID: 20 ° ate: 7 / PQL	\$ 149 14/2015 SPK value	SPK Ref Val	tCode: El RunNo: 2 SeqNo: 8 %REC	PA Method 7467 24697 LowLimit	8082: PCB's Units: µg/L HighLimit	%RPD	RPDLimit	Qual
Sample ID LCS-20149 Client ID: LCSW Prep Date: 7/8/2015	SampT Batch Analysis D Result 3.6	ID: 20 °ate: 7 / PQL 1.0	\$ 149 14/2015 SPK value 5.000	SPK Ref Val	tCode: El RunNo: 2 SeqNo: 8 %REC 72.5	PA Method 7467 24697 LowLimit 9.01	8082: PCB's Units: µg/L HighLimit 142	%RPD	RPDLimit	Qual

Sample ID 1507157-001DMS	SampT	SampType: MS TestCode: EPA Method 8082: PCB's								
Client ID: R.O. Reject	Batch	ID: 20	20149 RunNo: 27467							
Prep Date: 7/8/2015	Analysis D	ate: 7/	14/2015	8	SeqNo: 8	24698	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	62.2	14.5	105			
Arodor 1260	3.7	1.0	5.000	0	74.5	21.4	125			
Surr: Decachlorobiphenyl	1.5		2.500		58.4	44.5	110			
Surr: Tetrachloro-m-xylene	1.4		2.500		56.8	31.8	95.7			

Sample ID 1507157-001DMS	SD SampT	ype: MS	SD	Tes	tCode: E					
Client ID: R.O. Reject	Batch	ID: 20	149	RunNo: 27467						
Prep Date: 7/8/2015	Analysis D	ate: 7/	14/2015	8	SeqNo: 8	24699	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.2	1.0	5.000	0	64.0	14.5	105	2.85	20	
Arodor 1260	3.8	1.0	5.000	0	76.2	21.4	125	2.23	27.6	
Surr: Decachlorobiphenyl	1.5		2.500		60.8	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		58.4	31.8	95.7	0	0	

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb1 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: R27395 RunNo: 27395 Analysis Date: 7/9/2015 Prep Date: SeqNo: 821898 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND Benzene 1.0 ND Toluene 1.0 ND Ethylbenzene 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 ND 10 Acetone ND 1.0 Bromobenzene Bromodichloromethane ND 1.0 ND Bromoform 1.0 Bromomethane ND 3.0 2-Butanone ND 10 10 Carbon disulfide ND Carbon Tetrachloride ND 1.0 ND 1.0 Chlorobenzene 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 ND 1.0 Dibromomethane 1,2-Dichlorobenzene ND 1.0 1,3-Dichlorobenzene ND 1.0 ND 1.0 1,4-Dichlorobenzene Dichlorodifluoromethane ND 1.0 ND 1.0 1,1-Dichloroethane 1,1-Dichloroethene ND 1.0 ND 1,2-Dichloropropane 1.0 1,3-Dichloropropane ND 1.0 2,2-Dichloropropane ND 2.0

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb1	SampT	SampType: MBLK TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch	ID: R2	7395	R	lunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	eqNo: 8	21898	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID 100ng Ics	SampType: LCS TestCode: EPA Method 8260B: VOLATILES							ATILES		
Client ID: LCSW	Batch	Batch ID: R27395 RunNo: 27395								
Prep Date:	Analysis D	ate: 7/	9/2015	S	eqNo: 8	21903	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene Toluene	20 21	1.0 1.0	20.00 20.00	0	100 106	70 70	130 130			

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb7

Sample ID 100ng Ics	SampType: LCS TestCode: EPA Method 8260B: VOLATILES									
Client ID: LCSW	Batch	n ID: R2	27395 RunNo: 27395							
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21903	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch ID: R27395			F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21963	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								

Qualifiers:

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- O RSD is greater than RSDlimit
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb7 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: R27395 RunNo: 27395 Analysis Date: 7/9/2015 Prep Date: SeqNo: 821963 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 1,2-Dibromo-3-chloropropane ND 2.0 ND Dibromochloromethane 1.0 ND Dibromomethane 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 ND 1.0 1,2-Dichloropropane 1,3 Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 1,1-Dichloropropene ND 1.0 Hexachlorobutadiene ND 1.0 ND 10 2-Hexanone Isopropylbenzene ND 1.0 ND 1.0 4-Isopropyltoluene 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 ND 2.0 1,1,2,2-Tetrachloroethane Tetrachloroethene (PCE) ND 1.0 trans-1,2-DCE ND 1.0 trans-1,3-Dichloropropene ND 1.0 ND 1.0 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene ND 1.0 1,1,1-Trichloroethane ND 1.0 1,1,2-Trichloroethane ND 1.0 Trichloroethene (TCE) ND 1.0 Trichlorofluoromethane ND 1.0 1,2,3-Trichloropropane ND 2.0 Vinyl chloride ND 1.0 Xylenes, Total ND 1.5 Surr: 1,2-Dichloroethane-d4 9.9 10.00 98.9 70 130

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb7	SampT	уре: МЕ	BLK	TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch	Batch ID: R27395 RunNo: 27395								
Prep Date:	Analysis D	ate: 7/	9/2015	S	eqNo: 8	21963	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID 100ng Ics2	SampType: LCS TestCode: EPA Method 8260B: VOLATILES									
Client ID: LCSW	Batch	ID: R2	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21965	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20150	SampType: MBLK	TestCode: EPA Method 8310: PAH

Client ID: PBW Batch ID: 20150 RunNo: 27333

Prep Date: 7/8/2015	Analysis D	Analysis Date: 7/8/2015			SeqNo: 820082 Units: μ					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	17		20.00		82 6	37.2	136			

Sample ID LCS-20150	SampT	ype: LC	s	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: LCSW	Batch	1D: 20	20150 RunNo: 27333							
Prep Date: 7/8/2015	Analysis D	ate: 7/	8/2015	8	20084	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.3	57.8	83.9			S
1-Methylnaphthalene	75	2.0	80.20	0	93.1	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	90.5	34.2	94.5			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6			
Surr: Benzo(e)pyrene	14				70.7	37.2	136			

Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20119 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: **PBW** Batch ID: **20119** RunNo: **27307**

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818519 Units: μg/L

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

Phenolics, Total Recoverable ND 2.5

Sample ID LCS-20119 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 20119 RunNo: 27307

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818520 Units: μg/L

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

Phenolics, Total Recoverable 18 2.5 20.00 0 92.4 64.4 135

Qualifiers:

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- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

WO#: **1507157**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R27657 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R27657 RunNo: 27657

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830507 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R27657 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R27657 RunNo: 27657

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830508 Units: mg/L

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

Cyanide 0.512 0.5000 0 102 90 110

Qualifiers:

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- B Analyte detected in the associated Method Blank
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- P Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R27657	SampType: MBLK			TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed						ed
Client ID: PBW	Batch ID: R27657			RunNo: 27657						
Prep Date:	Analysis D	ate: 7/	16/2015	S	eqNo: 8	30510	Units: pCi/L	(
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.294	0.541								
Radium-226 ±	0.354	0.541								
Radium-228	0.097	0.682								
Radium-228 ±	0.303	0.682								

Qualifiers:

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- E Value above quantitation range
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- S Spike Recovery outside accepted recovery limits
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- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507157

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20140 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821530 Units: mg/L

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

Total Dissolved Solids ND 20.0

Sample ID LCS-20140 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821531 Units: mg/L

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

Total Dissolved Solids 1020 20.0 1000 0 102 80 120

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Albuquerque, NM 87109

TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com

Sample Log-In Check List

RcotNo: 1 Work Order Number: 1507157 NAVAJO REFINING CO Client Name: Received by/date: 7/3/2015 9:45:00 AM Logged By: Lindsay Mangin Completed By: Lindsay Mangin 7/6/2015 8:30:01 AM Reviewed By: Chain of Custody Not Present 🗸 No 🗌 Yes 1. Custody seals intact on sample bottles? Yes V No 🗌 Not Present 2. Is Chain of Custody complete? Courier 3. How was the sample delivered? Log In NA 🗌 Yes V No _ 4. Was an attempt made to cool the samples? NA 🗌 No 🗌 Were all samples received at a temperature of >0° C to 6.0°C Yes V No Yes V Sample(s) in proper container(s)? Yes 🗸 7. Sufficient sample volume for indicated test(s)? 8. Are samples (except VOA and ONG) properly preserved? NA No V 9. Was preservative added to bottles? Yes No . Yes 🗸 No VOA Vials 10. VOA vials have zero headspace? No V 11. Were any sample containers received broken? # of preserved bottles checked No _ for pH: Yes V 12. Does paperwork match bottle labels? (<2)or \$12/unless noted) (Note discrepancies on chain of custody) Adjusted? No _ Yes V 13 Are matrices correctly identified on Chain of Custody? V No Yes 14. Is it clear what analyses were requested? Checked by Yes V No _ 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No NA V 16. Was client notified of all discrepancies with this order? Date Person Notified: Via: eMail Phone Fax In Person By Whom: Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Cooler No Temp °C Condition Seal Intact | Seal No Seal Date Signed By 2.1 Good Yes

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane; 1.1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibrompethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Total Dissolved Solids × Metals: As. Al. Ba. B. Cd. Cr. Co. Cu. Fe. Pb. Mn. Hg. Mo. Ni. Se. Ag. U. Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane: Ethylbenzene: Toluene: Total Xvenes: Viryl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** Chloride × Sulfate × Radioactivity (Ra-226+Ra-228) × 8085: PCBs × Tel. 505-345-3975 око, рко, око :6108 Mercury :0747 × Total Cyanide 335.4 × 6010B: WOCC Metals × **MOCC list SAOCs** 8270C: × Remarks 8260B: WQCC List VOCs × Time 古の中の日 HEAL No. Date RE Elizabeth Salsberry Sample Temperature: 25.9 C Rush Preservative Project #: P.O. # 167796 1 - 1L Glass unpres 2-40ml VOA unpres X Yes HN03 2 - 1L Glass unpres -unpres H2S04 HN03 Monthly R.O. Reject HN03 NaOH Turn-Around Time 3-40ml VOA HCL 3-40ml VOA HCL 2-40ml VOA HCL Project Manager: Robert Combs Project Name: X Standard Type and # 2 - 500ml P Container 1-500ml P 1-125ml P 1-500ml P Received by: Received by Sampler: 2-1L P On Ice: ☐ Level 4 (Full Validation) Relinquished by: Elizabeth Salzberry Sample Request ID LUNCI Chain-of-Custody Record Trip Blank Evaluate daharay Mailing Address: P.O. Box 159 Artesia, Relinquished by: email or Fax#: 575-746-5451 Matrix Client: Navajo Refinery Phone #: 575-748-3311 250pm liquid 1 lam NM 88211-0159 2.50pm 2.50pg 25Dpm 250pm 7-1-15 2:Stam 7-1-15 2:Supm 7-1-15 230pm 7-1-15/2:30pm 7-1-15 250pm 7-1-15 23bm Time QA/QC Package: EDD (Type) Time: Time X Standard □ Other 7-15 7-1-15 7-1-15 9-1-12 7-FIS Date 7215

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



End Date and Time 7/1/2015 @ 2:54 pm Start Date and Time 7/1/2015 @ 2:43 pm

Parts / Sample Intervals One

Type of Sampler Directly to sample jars

Samplers Affiliation Navajo Refining Co. LLC

Samplers Name Elizabeth Salsberry Project Name Biannual RO Reject

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

Reject Sample Biannual RO Details

Time Weighted Composite Flow Weighted Composite Attachment Sample Type Grab 🖸

				The Holly
Sludge	Liquid	Solid	Phys	LYFRON The HollyFrontier Compar
	U		hysical Property	NTIER

ontainer Outfall / Sample Location: 500ml 500ml 125ml 500ml 40ml 40ml 40ml Plastic Plastic Plastic Glass Plastic Glass Plastic VOA VOA VOA □ North Field R.O. Reject Discarge Containers # of w (None) Neat ×× × HCL HNO3 × × × H2S04 × South Field R.O. Reject Discarge Preservatives NaCH × Na2S203 NaHSO4 Other Analysis and/or Method Requested pH, CI, F, S04, NO2/NO3, TDS 6020 total metals, 7470 Hg 8270 see attached list 6020 Dissolved Metals 8260 see attached list Radium 226/228 8082 PCBs 8015 GRO 8015 DRO Cyanide

							6. Wind Dir East, Wind Speed 10.4 mph. Conditions Clear
Other	100	Shipping Media		Other	Refrigerated	lœ 🖸	Storage Method
		2002	J	_			

Radium 226/228

Date and Time:

ield Temp. 25.9 C

Field pH 7.83

Field Data (Weather, Observations, Etc):

7/1/2014 2:43 pm Tmp. 91.4 °F. Humidity 29°

9 00

6

40ml

6 O 4 w



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

July 22, 2015

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

FAX

RE: Monthly RO Reject OrderNo.: 1507158

Dear Robert Combs:

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

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andyl

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1507158

Date Reported: 7/22/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O.

Project: Monthly RO Reject Collection Date: 7/1/2015 3:02:00 PM

Lab ID: 1507158-001 Matrix: AQUEOUS Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	DBD
Arsenic	ND	0.0050		mg/L	5	7/14/2015 1:51:42 PM	R27505
Lead	ND	0.00050		mg/L	1	7/14/2015 1:14:57 PM	R27505
Selenium	0.0082	0.0010		mg/L	1	7/14/2015 1:14:57 PM	R2750
Uranium	0.0055	0.00050		mg/L	1	7/14/2015 1:14:57 PM	R2750
EPA 903.1: RA 226 AND EPA 904.0:	RA 228-SUBBE	D				Analyst	SUB
Radium-226	1.05	0.202		pCi/L	1	7/16/2015	R2765
Radium-226 ±	0.561	0.202		pCi/L	1	7/16/2015	R2765
Radium-228	0.158	0.824		pCi/L	1	7/16/2015	R2765
Radium-228 ±	0.38	0.824		pCi/L	1	7/16/2015	R2765
EPA METHOD 300.0: ANIONS						Analyst	LGT
Fluoride	3.4	2.0		mg/L	20	7/6/2015 10:42:35 PM	R2731
Chloride	130	10		mg/L	20	7/6/2015 10:42:35 PM	R2731
Sulfate	1500	50		mg/L	100	7/15/2015 4:21:52 PM	R2753
Nitrate+Nitrite as N	1.8	1.0		mg/L	5	7/6/2015 11:44:37 PM	R2731
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst	KS
Total Dissolved Solids	3100	20.0	*	mg/L	1	7/9/2015 2:45:00 PM	20140
EPA 335.4: TOTAL CYANIDE SUBB	ED					Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	7/13/2015	R2765
SM4500-H+B: PH						Analyst	JRR
рН	8.06	1.68	Н	pH units	1	7/9/2015 10:09:14 PM	R2741
EPA METHOD 200.7: DISSOLVED N	IETALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	7/7/2015 3:26:45 PM	R2732
Barium	0.063	0.0020		mg/L	1	7/7/2015 3:26:45 PM	R2732
Boron	0.076	0.040		mg/L	1	7/7/2015 3:26:45 PM	R2732
Cadmium	ND	0.0020		mg/L	1	7/7/2015 3:26:45 PM	R2732
Chromium	ND	0.0060		mg/L	1	7/7/2015 3:26:45 PM	R2732
Cobalt	ND	0.0060		mg/L	1	7/7/2015 3:26:45 PM	R2732
Copper	ND	0.0060		mg/L	1	7/7/2015 3:26:45 PM	R2732
Iron	ND	0.020		mg/L	1	7/7/2015 3:26:45 PM	R2732
Manganese	0.010	0.0020		mg/L	1	7/7/2015 3:26:45 PM	R2732
Molybdenum	ND	0.0080		mg/L	1	7/7/2015 3:26:45 PM	R2732
Nickel	ND	0.010		mg/L	1	7/7/2015 3:26:45 PM	R2732
Silver	ND	0.0050		mg/L	1	7/7/2015 3:26:45 PM	R2732
Zinc	0.065	0.010		mg/L	1	7/7/2015 3:26:45 PM	R2732
EPA METHOD 245.1: MERCURY						Analyst	JLF
Mercury	ND	0.00020		mg/L	1	7/8/2015 4:37:50 PM	20160

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

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- RSD is greater than RSDlimit
- RPD outside accepted recovery limits
- Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank
- Holding times for preparation or analysis exceeded H

Page 1 of 26

- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- Reporting Detection Limit

RL

Lab Order 1507158

Date Reported: 7/22/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O.

Project: Monthly RO Reject Collection Date: 7/1/2015 3:02:00 PM

Lab ID: 1507158-001 Matrix: AQUEOUS Received Date: 7/3/2015 9:45:00 AM

Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB					Analyst:	KJH
1,2-Dibromoethane	ND	0.010	μg/L	1	7/9/2015 5:30:06 PM	20171
EPA METHOD 8082: PCB'S					Analyst:	SCC
Aroclor 1016	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1221	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1232	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	
Aroclor 1242	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1248	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1254	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Aroclor 1260	ND	1.0	μg/L	1	7/14/2015 10:41:50 AM	20149
Surr: Decachlorobiphenyl	70.8	44.5-110	%REC	1	7/14/2015 10:41:50 AM	20149
Surr: Tetrachloro-m-xylene	58.8	31.8-95.7	%REC	1	7/14/2015 10:41:50 AM	20149
EPA METHOD 8015M/D: DIESEL RANGE					Analyst	KJH
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	7/6/2015 8:59:32 PM	20109
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	7/6/2015 8:59:32 PM	20109
Surr: DNOP	100	76.5-150	%REC	1	7/6/2015 8:59:32 PM	20109
EPA METHOD 8015D: GASOLINE RANGI	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	7/7/2015 5:26:23 PM	R27335
Surr: BFB	86.8	57.8-137	%REC	1	7/7/2015 5:26:23 PM	R27335
EPA METHOD 8310: PAHS					Analyst:	SCC
Naphthalene	ND	2.0	μg/L	1	7/8/2015 3:41:21 PM	20150
1-Methylnaphthalene	ND	2.0	μg/L	1	7/8/2015 3:41:21 PM	20150
2-Methylnaphthalene	ND	2.0	μg/L	1	7/8/2015 3:41:21 PM	20150
Benzo(a)pyrene	ND	0.070	μg/L	1	7/8/2015 3:41:21 PM	20150
Surr: Benzo(e)pyrene	81.0	37.2-136	%REC	1	7/8/2015 3:41:21 PM	20150
EPA METHOD 8260B: VOLATILES					Analyst:	cadg
Benzene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Toluene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Ethylbenzene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Carbon Tetrachloride	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Chloroform	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1-Dichloroethane	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1-Dichloroethene	ND	1.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
Methylene Chloride	ND	3.0	μg/L	1	7/10/2015 5:46:58 AM	R27395
1,1,2,2-Tetrachloroethane	ND	2.0	µg/L	1	7/10/2015 5:46:58 AM	R27395
Tetrachloroethene (PCE)	ND	1.0	µg/L	1	7/10/2015 5:46:58 AM	R27395
11111						

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

Qualifiers:

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

Page 2 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1507158

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/22/2015

CLIENT: Navajo Refining Company Client Sample ID: Temporary R.O.

 Project:
 Monthly RO Reject
 Collection Date: 7/1/2015 3:02:00 PM

 Lab ID:
 1507158-001
 Matrix: AQUEOUS
 Received Date: 7/3/2015 9:45:00 AM

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

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- Page 3 of 26
- RL Reporting Detection Limit

Lab Order 1507158

Date Reported: 7/22/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly RO Reject Collection Date:

Lab ID: 1507158-002 Matrix: TRIP BLANK Received Date: 7/3/2015 9:45:00 AM

EPA METHOD 8011/504.1: EDB 1,2-Dibromoethane ND EPA METHOD 8015D: GASOLINE RANGE	0.010 0.050 57.8-137	μg/L mg/L	1	Analyst 7/9/2015 5:43:48 PM	: KJH 20171
	0.050		1		20171
EPA METHOD 8015D: GASOLINE RANGE	amenantal accessors	mg/L			
	amenantal accessors	mg/L		Analyst	: NSB
Gasoline Range Organics (GRO) ND	amenantal accessors		1	7/8/2015 2:03:47 AM	R27335
Surr: BFB 86.3	2002 WEG	%REC	1	7/8/2015 2:03:47 AM	R27335
EPA METHOD 8260B: VOLATILES				Analyst	
Benzene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Toluene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Ethylbenzene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
access and a second way	1.0	μg/L μg/L	1	7/10/2015 6:15:42 AM	R27395
			1	7/10/2015 6:15:42 AM	R27395
1,2,4-Trimethylbenzene ND	1.0	μg/L	1		
1,3,5-Trimethylbenzene ND	1.0	μg/L		7/10/2015 6:15:42 AM	R27395
1,2-Dichloroethane (EDC) ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dibromoethane (EDB) ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Naphthalene ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1-Methylnaphthalene ND	4.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2-Methylnaphthalene ND	4.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Acetone ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Bromobenzene	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Bromodichloromethane ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Bromoform ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Bromomethane	3.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2-Butanone ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Carbon disulfide ND	10	μg/L	1	7/10/2015 6:15:42 AM	R27395
Carbon Tetrachloride ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Chlorobenzene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Chloroethane ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Chloroform ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Chloromethane	3.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
2-Chlorotoluene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
4-Chlorotoluene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
cis-1,2-DCE ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
cis-1,3-Dichloropropene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dibromo-3-chloropropane ND	2.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Dibromochloromethane	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
Dibromomethane	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,2-Dichlorobenzene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,3-Dichlorobenzene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395
1,4-Dichlorobenzene ND	1.0	μg/L	1	7/10/2015 6:15:42 AM	R27395

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

Page 4 of 26

- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1507158

Date Reported: 7/22/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly RO Reject Collection Date:

Lab ID: 1507158-002 Matrix: TRIP BLANK Received Date: 7/3/2015 9:45:00 AM

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

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

Qualifiers:

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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

ND

ND

0.0050

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA Method 200.7: Dissolved Metals Client ID: **PBW** Batch ID: R27323 RunNo: 27323 Prep Date: Analysis Date: 7/7/2015 SeqNo: 818884 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual ND 0.020 Aluminum ND 0.0020 Barium 0.040 Boron ND Cadmium ND 0.0020 Chromium ND 0.0060 Cobalt ND 0.0060 Copper ND 0.0060 ND 0.020 Iron Manganese ND 0.0020 Molybdenum ND 0.0080 Nickel ND 0.010

Sample ID LCS	Samp	Type: LC	S	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Bato	h ID: R2	7323	R	tunNo: 2	7323					
Prep Date:	Analysis	Date: 7/	7/2015	S	eqNo: 8	18885	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.53	0.020	0.5000	0	106	85	115				
Barium	0.47	0.0020	0.5000	0	94.9	85	115				
Boron	0.50	0.040	0.5000	0	100	85	115				
Cadmium	0.51	0.0020	0.5000	0	102	85	115				
Chromium	0.48	0.0060	0.5000	0	96.4	85	115				
Cobalt	0.49	0.0060	0.5000	0	97.9	85	115				
Copper	0.47	0.0060	0.5000	0	95.0	85	115				
Iron	0.47	0.020	0.5000	0	93.1	85	115				
Manganese	0.48	0.0020	0.5000	0	96.9	85	115				
Molybdenum	0.49	0.0080	0.5000	0	98.0	85	115				
Nickel	0.48	0.010	0.5000	0	95.7	85	115				
Silver	0.099	0.0050	0.1000	0	99.3	85	115				
Zinc	0.47	0.010	0.5000	0	94.4	85	115				

Sample ID LLLCS	Sampl	Type: LC	SLL	Test	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC	Batch ID: R27323 RunNo: 27323					7323				
Prep Date:	Analysis [Date: 7/	7/2015	S	eqNo: 8	18886	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	147	50	150			
Barium	0.0022	0.0020	0.002000	0	112	50	150			

Qualifiers:

Silver

Zinc

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID LLLC	S Samp	Type: LC	SLL	Test	PA Method	200.7: Dissol	Dissolved Metals				
Client ID: Batch	nQC Bate	ch ID: R2	7323	R	unNo: 2	7323					
Prep Date:	Analysis	Date: 7 /	7/2015	S	eqNo: 8	18886	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Boron	ND	0.040	0.04000	0	89.4	50	150				
Cadmium	0.0020	0.0020	0.002000	0	101	50	150				
Chromium	ND	0.0060	0.006000	0	89.8	50	150				
Cobalt	ND	0.0060	0.006000	0	97.2	50	150				
Copper	ND	0.0060	0.006000	0	99.2	50	150				
Iron	0.022	0.020	0.02000	0	112	50	150				
Manganese	ND	0.0020	0.002000	0	98.0	50	150				
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150				
Nickel	ND	0.010	0.005000	0	92.4	50	150				
Silver	0.0055	0.0050	0.005000	0	109	50	150				
Zinc	ND	0.010	0.005000	0	90.4	50	150				
Sample ID MB	Samp	Туре: МЕ	BLK	Test	Code: El	PA Method	200.7: Dissol	ved Meta	ls	-	

Client ID: PBW	Bato	ch ID: R2	7323	F	RunNo: 2	7323				
Prep Date:	Analysis	Date: 7/	7/2015	5	SeqNo: 8	18887	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID LCS	SampType: L0	cs	Tes	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: R	27323	R	RunNo: 2	7323						
Prep Date:	Analysis Date: 7	/7/2015	S	SeqNo: 8	18888	Units: mg/L					
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Aluminum	0.54 0.020	0.5000	0	108	85	115					
Barium	0.48 0.0020	0.5000	0	95.6	85	115					
Boron	0.51 0.040	0.5000	0	101	85	115					
Cadmium	0.51 0.0020	0.5000	0	103	85	115					

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID LCS SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals LCSW Client ID: Batch ID: R27323 RunNo: 27323 Prep Date: Analysis Date: 7/7/2015 SeqNo: 818888 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit **HighLimit** %RPD **RPDLimit** Qual 0.48 0.0060 0.5000 0 96.3 85 Chromium 115 0.49 0.0060 0.5000 0 98.5 85 Cobalt 115 0.0060 0.5000 0 96.1 85 Copper 0.48 115 0.49 0.020 0.5000 0 97.1 85 115 Iron Manganese 0.49 0.0020 0.5000 0 97.6 85 115 Molybdenum 0.49 0.0080 0.5000 0 98.1 85 115 Nickel 0.48 0.010 0.5000 0 96.1 85 115 Silver 0.0050 0.1000 0 99.9 85 0.10 115 Zinc 0.48 0.010 0.5000 0 95.0 85 115

Sample ID LLLCS	Samp	Type: LC	SLL	TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Bate	ch ID: R2	7323	F	RunNo: 27323						
Prep Date:	Analysis	Date: 7/	7/2015	S	SeqNo: 8	18889	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020	0.01000	0	133	50	150				
Barium	0.0024	0.0020	0.002000	0	118	50	150				
Boron	ND	0.040	0.04000	0	89.1	50	150				
Cadmium	ND	0.0020	0.002000	0	89.0	50	150				
Chromium	ND	0.0060	0.006000	0	75.2	50	150				
Cobalt	0.0065	0.0060	0.006000	0	108	50	150				
Copper	0.0066	0.0060	0.006000	0	110	50	150				
Iron	0.021	0.020	0.02000	0	106	50	150				
Manganese	0.0020	0.0020	0.002000	0	103	50	150				
Molybdenum	0.011	0.0080	0.008000	0	140	50	150				
Nickel	ND	0.010	0.005000	0	104	50	150				
Silver	ND	0.0050	0.005000	0	72.0	50	150				
Zinc	ND	0.010	0.005000	0	88.8	50	150				

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

- 155	1	7.									
Sample ID	LCS	Sam	pType: LC	s	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	LCSW	Bat	tch ID: R2	7505	F	lunNo: 2	7505				
Prep Date:		Analysis	Date: 7/	14/2015	S	eqNo: 8	25388	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.025	0.0010	0.02500	0	101	85	115			
Lead		0.013	0.00050	0.01250	0	100	85	115			
Selenium		0.025	0.0010	0.02500	0	100	85	115			
Uranium		0.013	0.00050	0.01250	0	100	85	115			
Sample ID	LCS	Sam	pType: LC	s	Tes	Code: El	PA 200.8: [tals			
Client ID:	LCSW	Bat	tch ID: R2	7505	R	7505					
Prep Date:		Analysis	Date: 7/	14/2015	S	eqNo: 8	25389	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.025	0.0010	0.02500	0	100	85	115			
Lead		0.013	0.00050	0.01250	0	102	85	115			
Selenium		0.026	0.0010	0.02500	0	104	85	115			
Uranium		0.013	0.00050	0.01250	0	102	85	115			
Sample ID	LLLCS	Sam	pType: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	BatchQC	Bat	tch ID: R2	7505	F	lunNo: 2					
Prep Date:		Analysis	Date: 7/	14/2015	S	eqNo: 82	25390	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.0010	0.001000	0	94.0	50	150			
Lead		0.00052	0.00050	0.0005000	0	103	50	150			
Selenium		ND	0.0010	0.001000	0	98.3	50	150			
Uranium		0.00050	0.00050	0.0005000	0	100	50	150			
Sample ID	LLLCS	Sam	pType: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	BatchQC	Bat	tch ID: R2	7505	F	tunNo: 2	7505				
Prep Date:		Analysis	Date: 7/	14/2015	S	eqNo: 8	25391	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.0010	0.0010	0.001000	0	102	50	150			
		0.00052	0.00050	0.0005000	0	104	50	150			
Lead					•	400	50	150			
Lead Selenium		0.0011	0.0010	0.001000	0	108	50	100			
				0.001000 0.0005000	0	101	50	150			
Selenium	мв	0.00050		0.0005000	0	101	50		tals		
Selenium Uranium		0.00050 Samp	0.00050	0.0005000 BLK	0 Tes	101	50 PA 200.8: I	150	tals		

Qualifiers:

Analyte

* Value exceeds Maximum Contaminant Level.

Result

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

SPK value SPK Ref Val %REC LowLimit

RL Reporting Detection Limit

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Qual

RPDLimit

%RPD

HighLimit

Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R27505 RunNo: 27505

Prep Date: Analysis Date: 7/14/2015 SeqNo: 825392 Units: mg/L

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

 Arsenic
 ND
 0.0010

 Lead
 ND
 0.00050

 Selenium
 ND
 0.0010

 Uranium
 ND
 0.00050

Sample ID MB SampType: MBLK TestCode: EPA 200.8: Dissolved Metals

Client ID: PBW Batch ID: R27505 RunNo: 27505

Prep Date: Analysis Date: 7/14/2015 SeqNo: 825393 Units: mg/L

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

 Arsenic
 ND
 0.0010

 Lead
 ND
 0.00050

 Selenium
 ND
 0.0010

 Uranium
 ND
 0.00050

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20160 SampType: MBLK TestCode: EPA Method 245.1: Mercury

Client ID: PBW Batch ID: 20160 RunNo: 27365

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820623 Units: mg/L

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

Mercury ND 0.00020

Sample ID LCS-20160 SampType: LCS TestCode: EPA Method 245.1: Mercury

Client ID: LCSW Batch ID: 20160 RunNo: 27365

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820626 Units: mg/L

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

Mercury 0.0049 0.00020 0.005000 0 98.8 80 120

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

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10.00

WO#: 1507158

22-Jul-15

Client:	Navajo Refining Company
Project:	Monthly RO Reject

Project:	Monthly RO Reject	
Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBW	Batch ID: R27319	RunNo: 27319
Prep Date:	Analysis Date: 7/6/2015	SeqNo: 818775 Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Fluoride	ND 0.10	
Chloride	ND 0.50	
Nitrate+Nitrite as N	ND 0.20	
Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSW	Batch ID: R27319	RunNo: 27319
Prep Date:	Analysis Date: 7/6/2015	SeqNo: 818776 Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Fluoride	0.51 0.10 0.5000	0 102 90 110
Chloride	4.7 0.50 5.000	0 93.6 90 110
Nitrate+Nitrite as N	3.5 0.20 3.500	0 99.2 90 110
Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions
Client ID: PBW	Batch ID: R27535	RunNo: 27535
Prep Date:	Analysis Date: 7/15/2015	SeqNo: 826667 Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Sulfate	ND 0.50	
Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions
Client ID: LCSW	Batch ID: R27535	RunNo: 27535
Prep Date:	Analysis Date: 7/15/2015	SeqNo: 826668 Units: mg/L
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Qualifiers:

Sulfate

- Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20171 SampType: MBLK TestCode: EPA Method 8011/504.1: EDB

Client ID: PBW Batch ID: 20171 RunNo: 27393

Prep Date: 7/9/2015 Analysis Date: 7/9/2015 SeqNo: 821853 Units: μg/L

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

1,2-Dibromoethane ND 0.010

Sample ID LCS-20171 SampType: LCS TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW Batch ID: 20171 RunNo: 27393

Prep Date: 7/9/2015 Analysis Date: 7/9/2015 SeqNo: 821854 Units: µg/L

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

1,2-Dibromoethane 0.11 0.010 0.1000 0 107 70 130

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20109 SampType: MBLK TestCode: EPA Method 8015M/D: Diesel Range Client ID: **PBW** Batch ID: 20109 RunNo: 27291 Prep Date: 7/6/2015 Analysis Date: 7/6/2015 SeqNo: 818285 Units: mg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit **HighLimit** %RPD **RPDLimit** Qual Diesel Range Organics (DRO) ND 1.0 ND Motor Oil Range Organics (MRO) 5.0 Surr: DNOP 0.88 1.000 88.5 76.5 150

TestCode: EPA Method 8015M/D: Diesel Range Sample ID LCS-20109 SampType: LCS Client ID: LCSW Batch ID: 20109 RunNo: 27291 Prep Date: 7/6/2015 Analysis Date: 7/6/2015 SeqNo: 818286 Units: mg/L Analyte PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual Diesel Range Organics (DRO) 81.8 4.1 1.0 5.000 0 60.1 156 Surr: DNOP 0.49 0.5000 97.8 76.5 150

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID 5ML RB SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range

Client ID: PBW Batch ID: R27335 RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819311 Units: mg/L

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

Gasoline Range Organics (GRO) ND 0.050

Surr: BFB 18 20.00 89.3 57.8 137

Sample ID 2.5UG GRO LCS SampType: LCS TestCode: EPA Method 8015D: Gasoline Range

Client ID: LCSW Batch ID: R27335 RunNo: 27335

Prep Date: Analysis Date: 7/7/2015 SeqNo: 819312 Units: mg/L

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

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company Project: Monthly RO Reject

Sample ID MB-20149 SampType: MBLK TestCode: EPA Method 8082: PCB's

Client ID: **PBW** Batch ID: 20149 RunNo: 27467

7/8/2015 Analysis Date: 7/14/2015 Prep Date: SeqNo: 824114 Units: µg/L

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

Sample ID LCS-20149 SampType: LCS TestCode: EPA Method 8082: PCB's

Client ID: LCSW Batch ID: 20149 RunNo: 27467

Prep Date: 7/8/2015	Analysis D	Analysis Date: 7/14/2015			SeqNo: 824697			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	3.6	1.0	5.000	0	72.5	9.01	142				
Arodor 1260	4.2	1.0	5.000	0	84.4	25.6	164				
Surr: Decachlorobiphenyl	1.7		2.500		68.8	44.5	110				
Surr: Tetrachloro-m-xylene	1.9		2.500		76.8	31.8	95.7				

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb1	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	5	SeqNo: 8	21898	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.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: **1507158**

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb1	SampType: MBLK Testo					Code: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch	ID: R2	7395	R	RunNo: 2	7395						
Prep Date:	Analysis D	ate: 7/	9/2015	S	eqNo: 8	21898	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
1,1-Dichloropropene	ND	1.0										
Hexachlorobutadiene	ND	1.0										
2-Hexanone	ND	10										
Isopropylbenzene	ND	1.0										
4-Isopropyltoluene	ND	1.0										
4-Methyl-2-pentanone	ND	10										
Methylene Chloride	ND	3.0										
n-Butylbenzene	ND	3.0										
n-Propylbenzene	ND	1.0										
sec-Butylbenzene	ND	1.0										
Styrene	ND	1.0										
tert-Butylbenzene	ND	1.0										
1,1,1,2-Tetrachloroethane	ND	1.0										
1,1,2,2-Tetrachloroethane	ND	2.0										
Tetrachloroethene (PCE)	ND	1.0										
trans-1,2-DCE	ND	1.0										
trans-1,3-Dichloropropene	ND	1.0										
1,2,3-Trichlorobenzene	ND	1.0										
1,2,4-Trichlorobenzene	ND	1.0										
1,1,1-Trichloroethane	ND	1.0										
1,1,2-Trichloroethane	ND	1.0										
Trichloroethene (TCE)	ND	1.0										
Trichlorofluoromethane	ND	1.0										
1,2,3-Trichloropropane	ND	2.0										
Vinyl chloride	ND	1.0										
Xylenes, Total	ND	1.5										
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130					
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130					
Surr: Dibromofluoromethane	9.5		10.00		95.5	70	130					
Surr: Toluene-d8	10		10.00		105	70	130					

Sample ID 100ng Ics	SampT	ype: LC	S	Test	tCode: El					
Client ID: LCSW	Batch	ID: R2	7395	R	RunNo: 2					
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21903	Units: µg/L			
Analida	- "	501	0014	00140 4141	WDE0			0/ 000	DDD1:	0 1
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	Result 20	1.0	20.00	SPK Ref Val	100	LowLimit 70	HighLimit 130	%RPD	RPDLIMIT	Qual
	11135.55111	. ~-			- ME 497 C 1070	000000000000000000000000000000000000000		%RPD	RPDLIMIT	Qual

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

SampType: MBLK

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb7

Sample ID 100ng Ics	SampT	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch	Batch ID: R27395			RunNo: 27395						
Prep Date:	Analysis Date: 7/9/2015			S	SeqNo: 8	21903					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,1-Dichloroethene	23	1.0	20.00	0	115	70	130				
Trichloroethene (TCE)	18	1.0	20.00	0	89.2	70	130				
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130				
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130				
Surr: Dibromofluoromethane	9.3		10.00		93.4	70	130				
Surr: Toluene-d8	10		10.00		104	70	130				

TestCode: EPA Method 8260B: VOLATILES

Client ID: PBW	Batch	ID: R2	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	8	SeqNo: 8	21963	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb7 SampType: MBLK TestCode: EPA Method 8260B: VOLATILES Client ID: **PBW** Batch ID: R27395 RunNo: 27395 Analysis Date: 7/9/2015 Prep Date: SeqNo: 821963 Units: µg/L Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD **RPDLimit** Qual 1,2-Dibromo-3-chloropropane ND 2.0 ND Dibromochloromethane 1.0 ND Dibromomethane 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 ND 1.0 1,2-Dichloropropane 1,3 Dichloropropane ND 1.0 ND 2.0 2,2-Dichloropropane 1,1-Dichloropropene ND 1.0 Hexachlorobutadiene ND 1.0 ND 10 2-Hexanone Isopropylbenzene ND 1.0 ND 1.0 4-Isopropyltoluene 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 ND 2.0 1,1,2,2-Tetrachloroethane Tetrachloroethene (PCE) ND 1.0 trans-1,2-DCE ND 1.0 trans-1,3-Dichloropropene ND 1.0 ND 1.0 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene ND 1.0 1,1,1-Trichloroethane ND 1.0 1,1,2-Trichloroethane ND 1.0 Trichloroethene (TCE) ND 1.0 Trichlorofluoromethane ND 1.0 1,2,3-Trichloropropane ND 2.0 Vinyl chloride ND 1.0 Xylenes, Total ND 1.5 Surr: 1,2-Dichloroethane-d4 9.9 10.00 98.9 70 130

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID rb7	SampType: MBLK		Tes	TestCode: EPA Method 8260B: VOLATIL						
Client ID: PBW	Batch ID: R27395			RunNo: 27395						
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21963	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID 100ng lcs2	SampT	ype: LC	s	Tes	TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW	Batch	ID: R2	7395	F	RunNo: 2	7395				
Prep Date:	Analysis D	ate: 7/	9/2015	S	SeqNo: 8	21965	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	101	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company
Project: Monthly RO Reject

Sample ID MB-20150 SampType: MBLK TestCode: EPA Method 8310: PAHs

Client ID: PBW Batch ID: 20150 RunNo: 27333

Prep Date: 7/8/2015 Analysis Date: 7/8/2015 SeqNo: 820082 Units: μg/L

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

 Naphthalene
 ND
 2.0

 1-Methylnaphthalene
 ND
 2.0

 2-Methylnaphthalene
 ND
 2.0

 Benzo(a)pyrene
 ND
 0.070

Surr: Benzo(e)pyrene 17 20.00 82.6 37.2 136

Sample ID LCS-20150	Samp	SampType: LCS			tCode: El	PA Method				
Client ID: LCSW	Batc	Batch ID: 20150 RunNo:			RunNo: 2	7333				
Prep Date: 7/8/2015	Analysis [Date: 7/	8/2015	\$	SeqNo: 8	20084	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.3	57.8	83.9			S
1-Methylnaphthalene	75	2.0	80.20	0	93.1	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	90.5	34.2	94.5			
Benzo(a)pyrene	0.45	0.070	0.5020	0	89.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.7	37.2	136			

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20119 SampType: MBLK TestCode: Total Phenolics by SW-846 9067

Client ID: **PBW** Batch ID: **20119** RunNo: **27307**

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818519 Units: μg/L

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

Phenolics, Total Recoverable ND 2.5

Sample ID LCS-20119 SampType: LCS TestCode: Total Phenolics by SW-846 9067

Client ID: LCSW Batch ID: 20119 RunNo: 27307

Prep Date: 7/7/2015 Analysis Date: 7/7/2015 SeqNo: 818520 Units: μg/L

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

Phenolics, Total Recoverable 18 2.5 20.00 0 92.4 64.4 135

Qualifiers:

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

RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R27658 SampType: MBLK TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: PBW Batch ID: R27658 RunNo: 27658

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830512 Units: mg/L

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

Cyanide ND 0.0100

Sample ID LCS-R27658 SampType: LCS TestCode: EPA 335.4: Total Cyanide Subbed

Client ID: LCSW Batch ID: R27658 RunNo: 27658

Prep Date: Analysis Date: 7/13/2015 SeqNo: 830513 Units: mg/L

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

Cyanide 0.512 0.5000 0 102 90 110

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-R27658	SampType: MBLK		Tes	tCode: El	PA 903.1: F	Ra 226 and EF	PA 904.0: F	Ra 228-Subbe	ed	
Client ID: PBW	Batch ID: R27658		RunNo: 27658							
Prep Date:	Analysis D	ate: 7/	16/2015	S	SeqNo: 8	30515	Units: pCi/L	·		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.294	0.541								
Radium-226 ±	0.354	0.541								
Radium-228	0.523	0.758								
Radium-228 ±	0.388	0.758								

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1507158

22-Jul-15

Client: Navajo Refining Company

Project: Monthly RO Reject

Sample ID MB-20140 SampType: MBLK TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: PBW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821530 Units: mg/L

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

Total Dissolved Solids ND 20.0

Sample ID LCS-20140 SampType: LCS TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW Batch ID: 20140 RunNo: 27385

Prep Date: 7/7/2015 Analysis Date: 7/9/2015 SeqNo: 821531 Units: mg/L

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

Total Dissolved Solids 1020 20.0 1000 0 102 80 120

Qualifiers:

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

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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO Work Order Number: 1507158 RcptNo: 1 Received by/date: 7/3/2015 9:45:00 AM Logged By: Lindsay Mangin Completed By: Lindsay Mangin 7/6/2015 8:34:53 AM Reviewed By: Chain of Custody Yes No Not Present V 1. Custody seals intact on sample bottles? Yes 🗸 No 🗌 Not Present 2. Is Chain of Custody complete? 3. How was the sample delivered? Courier Log In No NA _ Yes 🗸 4. Was an attempt made to cool the samples? NA No Were all samples received at a temperature of >0° C to 6.0°C No _ Yes V Sample(s) in proper container(s)? No . 7. Sufficient sample volume for indicated test(s)? Yes No 8. Are samples (except VOA and ONG) properly preserved? Yes 9. Was preservative added to bottles? No V NA . Yes No VOA Vials 10. VOA vials have zero headspace? No _ No V Yes 11. Were any sample containers received broken? # of preserved bottles checked No . for pH: 12. Does paperwork match bottle labels? Yes V 12 unless noted) (Note discrepancies on chain of custody) Adjusted No Yes 🗸 13. Are matrices correctly identified on Chain of Custody? No 14. Is it clear what analyses were requested? Yes No _ Checked by Yes 🗸 15. Were all holding times able to be met? (If no, notify customer for authorization.) Special Handling (if applicable) Yes No _ NA V 16. Was client notified of all discrepancies with this order? Person Notified: Date By Whom: Via: eMail Phone Fax In Person Regarding: Client Instructions: 17. Additional remarks: 18. Cooler Information Condition | Seal Intact | Seal No | Seal Date Cooler No Temp °C Signed By Good

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2 SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene ANALYSIS LABORATORY HALL ENVIRONMENTAL Trichloroethane, 1,1,2-Trichloroethylene, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-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 Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform Total Dissolved Solids × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride Fax 505-345-4107 Fluoride × www.hallenvironmental.com **Analysis Request** Chloride × Sulfate × Radioactivity (Ra-226+Ra-228) × **bcBs** :2808 × Tel. 505-345-3975 еко, рко, око :9108 × Mercury :0747 × 335.4: Total Cyanide × 6010B: WOCC Metals × Remarks 8270C: WQCC list SVOCs × 8260B:WQCC List VOCs × ンナでか HEAL No. Date ON L Elizabeth Salsberry Sample Temperature 29.1 6-□ Rush Preservative Project #: P.O. # 167796 1-unpres H2SO4 1 - 1L Glass unpres X Yes 2 - 1L Glass unpres 2-40ml VOA unpres HN03 HN03 HN03 Monthly R.O. Reject NaOH Turn-Around Time. 340ml VOA HCL 3-40ml VOA HCL 2-40ml VOA HCL Project Manager: Robert Combs Project Name X Standard Type and # 2 - 500ml P Container 1-500ml P 1-500ml P 1-125ml P Relinquished by: Elizabeth Salsparry Received by: Received by Sampler. 2-1L P On Ice □ Level 4 (Full Validation) Sample Request ID Chain-of-Custody Record EMPORARYR. Trip Blank Chipper Books Mailing Address: P.O. Box 159 Artesia. Relinquished by email or Fax# 575-746-5451 Client: Navajo Refinery Matrix Phone #: 575-748-3311 S'ORPM liquid NM 88211-0159 302pm 3.02pm 3:04m 3.ozpm 802pm 7-1-15 3:czpm S. C. Caper Statem 3024 QA/QC Package: 3 Cappa Time EDD (Type) 1 lam Time: me X Standard Other 7-1-5 7-7-15 7-1-15 7-1-15 Date 7-1-15 7-1-15 7-1-15 51-1-2 7-1-15 7-1-5 7-1-15 Date: Date:



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

Biannual RO Reject Sample Details Attachment

HOLLYFRONTIER

The HolyFrontier Companies

Sludge	Liquid	Solid	Phys
	S		ical Property

Sample Type

Type of Sampler Directly to sample jars

Start Eate and Time 7/1/2015 @ 3:02 pm End Date and Time 7/1/2015 @ 3:11 pm Samplers Attilation Navajo Retining Co. LLC Samplers Name Elizabeth Salsberry Project Name Biannual RO Reject Flow Weighted Composite Time Weighted Composite Parts / Sample intervals One Grab 🖸

Parts / Sample intervals One

North Field R.O. Reject Discarge

Parts / Sample intervals One

Outfall / Sample Location

Container 10 9 6 5 4 N 00 w 125ml 500ml 40ml 500ml 40ml 40m 40m Plastic Plastic Plastic Plastic Plastic Glass Glass VOA VOA Containers # of N w (None) Neat × × × HCL × × HN03 × × H25C4 Preservatives NaOH × Na2S2O3 NaHSO4 Other Analysis and/or Method Requested pH, Cl, F, S04, NO2/NO3, TDS 6020 total metals, 7470 Hg 6020 Dissolved Metals 8280 see attached list 8270 see attached list Radium 226/228 Radium 226/228 8082 PCBs 8015 GRO 8015 DRO Cyanide

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ield Temp. 29.1 C

Field pH 7.65

Other	ioe 🗸	Shipping Media	Other	Refrigerated	loe 🗸	Storage Method



September 15, 2015

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

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

RE: WQA-OCD-CO-2015-002

Monthly Report - August 2015 Reporting Period

Dear Sirs:

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

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

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

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

Daily RO Reject Fluid Discharge Flow Measurements

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

Stipulated Penalties

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

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

Navajo has calculated a penalty of \$3,100 for August 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 31 days in August. Calculations conducted in accordance with Paragraph III.2.b.i.2 of the Agreed Compliance Order are provided in Attachment 2.

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

Monthly Discharge Sample Results

Navajo collected a sample of the RO reject fluid discharge from both the permanent RO units (combined discharge) and the temporary RO unit on August 3, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

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

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

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

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

Sincerely,

Scott M. Denton

Environmental Manager

Enclosures:

Attachment 1: Daily Discharge Flow Rates

Attachment 2: Stipulated Penalty Calculation

Attachment 3: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder

OCD: A. Marks, B. Brancard

Attachment 1
Daily Discharge Flow Rates

Daily RO Reject Discharge Flow Rate Measurements and Calculated Daily Discharge

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

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - August 2015

Order Section III., Paragraph Number	Penalty	Payment per day	No. of Days (per violation)	Amount
2.b.i	Exceedance of the 10,000 barrel per day RO reject fluid discharge volume limit specified in Discharge Permit GW-028:			-
2.b.i.1	- Prior to Navajo submitting a discharge permit modification application	\$1,000		\$0
2.b.i.2	- If the daily volume is between 10,000 and 15,000 barrels after Navajo submits discharge permit modification application	\$100	31	\$3,100
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
		Total A	Amount:	\$3,100

Attachment 3 Analytical Lab Report



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

August 26, 2015

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

FAX

RE: Monthly Temporary R.O. Reject

OrderNo.: 1508063

Dear Robert Combs:

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

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

andel

4901 Hawkins NE

Albuquerque, NM 87109

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 8/3/2015 9:30:00 AM

Lab ID: 1508063-001

Matrix: AQUEOUS Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL (Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst	: DBD
Arsenic	ND	0.0050		mg/L	5	8/12/2015 8:39:59 PM	D28151
Copper	0.0037	0.0010		mg/L	1	8/19/2015 1:30:00 PM	B28323
Lead	ND	0.00050		mg/L	1	8/12/2015 8:19:49 PM	D28151
Selenium	0.0086	0.0050		mg/L	5	8/12/2015 8:39:59 PM	D28151
Uranium	0.0070	0.00050		mg/L	1	8/12/2015 8:19:49 PM	D28151
EPA 903.1: RA 226 AND EPA 904.0: I	RA 228-SUBBE	D				Analyst	SUB
Radium-226	1.27	0.620		pCi/L	1	8/18/2015	R28452
Radium-226 ±	0.644	0.620		pCi/L	1	8/18/2015	R28452
Radium-228	0.571	0.712		pCi/L	1	8/18/2015	R28452
Radium-228 ±	0.375	0.712		pCi/L	1	8/18/2015	R28452
EPA METHOD 300.0: ANIONS						Analyst	: LGT
Fluoride	3.6	0.10		mg/L	1.	8/4/2015 2:39:23 PM	R27968
Chloride	320	10		mg/L	20	8/4/2015 3:16:37 PM	R27968
Sulfate	1900	50		mg/L	100	8/14/2015 3:34:40 AM	R28192
Nitrate+Nitrite as N	1.7	1.0		mg/L	5	8/14/2015 4:24:18 AM	R28192
SM2540C MOD: TOTAL DISSOLVED	SOLIDS					Analyst	: KS
Total Dissolved Solids	4000	20.0	•	mg/L	1	8/6/2015 5:55:00 PM	20614
EPA 335.4: TOTAL CYANIDE SUBBE	D					Analyst	SUB
Cyanide	ND	0.0100		mg/L	1	8/12/2015	R28452
SM4500-H+B: PH						Analyst	: JRR
рH	8.04	1.68	Н	pH units	1	8/6/2015 8:07:28 PM	R28029
EPA METHOD 200.7: DISSOLVED MI	ETALS					Analyst	ELS
Aluminum	ND	0.020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Barium	0.076	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Boron	0.093	0.040		mg/L	1	8/5/2015 9:48:22 PM	R27986
Cadmium	ND	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R27986
Chromium	ND	0.0060		mg/L	1	8/5/2015 9:48:22 PM	R2798
Cobalt	ND	0.0060		mg/L	1	8/5/2015 9:48:22 PM	R27986
Iron	ND	0.020		mg/L	1	8/7/2015 2:05:37 PM	R2804
Manganese	0.0094	0.0020		mg/L	1	8/5/2015 9:48:22 PM	R2798
Molybdenum	0.0082	0.0080		mg/L	1	8/5/2015 9:48:22 PM	R2798
Nickel	ND	0.010		mg/L	1	8/5/2015 9:48:22 PM	R27986
Silver	ND	0.0050		mg/L	1	8/5/2015 9:48:22 PM	R2798
Zinc	0.053	0.010		mg/L	1	8/6/2015 3:42:35 PM	C2801
EPA METHOD 245.1: MERCURY						Analyst	: JLF
Mercury	ND	0.00020		mg/L	1 1	8/7/2015 2:01:54 PM	20665

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

- 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 Page 1 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project:

Monthly Temporary R.O. Reject

Collection Date: 8/3/2015 9:30:00 AM

Lab ID:

1508063-001

Matrix: AQUEOUS

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RA	ANGE	-				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/4/2015 8:14:29 PM	R27954
Surr: BFB	99.9	70-130		%REC	1	8/4/2015 8:14:29 PM	R27954
EPA METHOD 8011/504.1: EDB						Analys	t: JME
1,2-Dibromoethane	ND	0.010		μg/L	1	8/7/2015 12:08:21 PM	20627
EPA METHOD 8082: PCB'S						Analys	t: SCC
Aroclor 1016	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1221	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1232	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1242	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1248	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1254	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Aroclor 1260	ND	1.0		μg/L	1	8/10/2015 9:50:46 AM	20661
Surr: Decachlorobiphenyl	92.0	44.5-110		%REC	1	8/10/2015 9:50:46 AM	20661
Surr: Tetrachloro-m-xylene	113	31.8-95.7	s	%REC	1	8/10/2015 9:50:46 AM	20661
EPA METHOD 8015M/D: DIESEL RA	NGE					Analys	t: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/5/2015 10:39:12 PM	20617
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/5/2015 10:39:12 PM	20617
Surr: DNOP	98.5	72-136		%REC	1	8/5/2015 10:39:12 PM	20617
EPA METHOD 8310: PAHS						Analys	t: SCC
Naphthalene	ND	2.0		μg/L	1	8/10/2015 9:22:01 AM	20677
1-Methylnaphthalene	ND	2.0		μg/L	1	8/10/2015 9:22:01 AM	20677
2-Methylnaphthalene	ND	2.0		μg/L	1	8/10/2015 9:22:01 AM	20677
Benzo(a)pyrene	ND	0.070		μg/L	1	8/10/2015 9:22:01 AM	20677
Surr: Benzo(e)pyrene	48.7	37.2-136		%REC	1	8/10/2015 9:22:01 AM	20677
EPA METHOD 8260B: VOLATILES						Analys	t: BCN
Benzene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Toluene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Ethylbenzene	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,2-Dichloroethane (EDC)	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,2-Dibromoethane (EDB)	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R2795
Carbon Tetrachloride	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Chloroform	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R2795
1,1-Dichloroethane	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R2795
1,1-Dichloroethene	ND	1.0		μg/L	, 1	8/4/2015 5:33:38 PM	R2795
Methylene Chloride	ND	3.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
1,1,2,2-Tetrachloroethane	ND	2.0		μg/L	1	8/4/2015 5:33:38 PM	R27952
Tetrachloroethene (PCE)	ND	1.0		μg/L	1	8/4/2015 5:33:38 PM	R27952

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

- 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 Page 2 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project:

Monthly Temporary R.O. Reject

Collection Date: 8/3/2015 9:30:00 AM

Lab ID:

1508063-001

Matrix: AQUEOUS

Received Date: 8/4/2015 9:13:00 AM

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

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

- * 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 Page 3 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Monthly Temporary R.O. Reject

Collection Date:

Lab ID:

1508063-002

Matrix: TRIP BLANK

Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	8/4/2015 8:42:06 PM	R2795
Surr: BFB	99.0	70-130	%REC	1	8/4/2015 8:42:06 PM	R2795
EPA METHOD 8260B: VOLATILES					Analys	t: BCN
Benzene	ND	1.0	, μg/L	1	8/4/2015 6:02:20 PM	R2795
Toluene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Ethylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Methyl tert-butyl ether (MTBE)	ND	1.0	μg/L	_1	8/4/2015 6:02:20 PM	R2795
1,2,4-Trimethylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,3,5-Trimethylbenzene	ND	1.0	μg/L	. 1	8/4/2015 6:02:20 PM	R2795
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,2-Dibromoethane (EDB)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Naphthalene	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1-Methylnaphthalene	ND	4.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
2-Methylnaphthalene	ND	4.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Acetone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromodichloromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromoform	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Bromomethane	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
2-Butanone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R2795
Carbon disulfide	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R2795
Carbon Tetrachloride	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chloroethane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chloroform	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Chloromethane	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
2-Chlorotoluene	ND	1.0	μg/L	. 1	8/4/2015 6:02:20 PM	R2795
4-Chlorotoluene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
cis-1,2-DCE	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
cis-1,3-Dichloropropene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,2-Dibromo-3-chloropropane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Dibromochloromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Dibromomethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2-Dichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,3-Dichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,4-Dichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
Dichlorodifluoromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R2795
1,1-Dichloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1-Dichloroethene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952

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

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- Analyte detected below quantitation limits Page 4 of 25
- Sample pH Not In Range
- RL Reporting Detection Limit

Lab Order 1508063

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject Collection Date:

Lab ID: 1508063-002 Matrix: TRIP BLANK Received Date: 8/4/2015 9:13:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: BCN
1,2-Dichloropropane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,3-Dichloropropane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
2,2-Dichloropropane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1-Dichloropropene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Hexachlorobutadiene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
2-Hexanone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R27952
Isopropylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
4-Isopropyltoluene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
4-Methyl-2-pentanone	ND	10	μg/L	1	8/4/2015 6:02:20 PM	R27952
Methylene Chloride	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
n-Butylbenzene	ND	3.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
n-Propylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
sec-Butylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Styrene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
tert-Butylbenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,1,2-Tetrachloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Tetrachloroethene (PCE)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
trans-1,2-DCE	ND	1,0	μg/L	1	8/4/2015 6:02:20 PM	R27952
trans-1,3-Dichloropropene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,3-Trichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,4-Trichlorobenzene	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,1-Trichloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,1,2-Trichloroethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Trichloroethene (TCE)	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Trichlorofluoromethane	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
1,2,3-Trichloropropane	ND	2.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Vinyl chloride	ND	1.0	μg/L	1	8/4/2015 6:02:20 PM	R27952
Xylenes, Total	ND	1.5	μg/L	1	8/4/2015 6:02:20 PM	R27952
Surr: 1,2-Dichloroethane-d4	97.6	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: 4-Bromofluorobenzene	98.2	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: Dibromofluoromethane	95.9	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952
Surr: Toluene-d8	89.0	70-130	%REC	1	8/4/2015 6:02:20 PM	R27952

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

- 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 Page 5 of 25
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB	Samp	Type: ME	BLK	Tes	tCode: El	PA Method	200.7: Disso	lved Meta	ls		
Client ID: PBW	Bato	h ID: R2	7986	F	RunNo: 2	7986					
Prep Date:	Analysis I	Date: 8/	5/2015	s	SeqNo: 842241			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020									
Barium	ND	0.0020									
Boron	ND	0.040									
Cadmium	ND	0.0020									
Chromium	ND	0.0060									
Cobalt	ND	0.0060									
Manganese	ND	0.0020									
Molybdenum	ND	0.0080									
Nickel	ND	0.010									
Silver	ND	0.0050									

Sample ID LCS	Samp	Type: LC	S	Test	tCode: El	PA Method	200.7: Disso	ved Meta	ls		
Client ID: LCSW	Batc	h ID: R2	7986	. R	Run N o: 2	7986					
Prep Date:	Analysis [Date: 8/	5/2015	S	SeqNo: 8	42242	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.52	0.020	0.5000	0	104	85	115				
Barium	0.49	0.0020	0.5000	0	98.4	85	115				
Boron	0.51	0.040	0.5000	0	102	85	115				
Cadmium	0.49	0.0020	0.5000	0	98.2	85	115				
Chromium	0.49	0.0060	0.5000	0	98.1	85	115				
Cobalt	0.47	0.0060	0.5000	0	93.6	85	115				
Manganese	0.48	0.0020	0.5000	0	95.6	85	115				
Molybderium	0.51	0.0080	0.5000	0	102	85	115				
Nickel	0.47	0.010	0.5000	0	94.3	85	115				
Silver	0.10	0.0050	0.1000	0	99.7	85	115				

Sample ID LLLCS	Samp	Type: LC	SLL	Test	ls						
Client ID: BatchQC	Bato	h ID: R2	7986		RunNo: 2	7986					
Prep Date:	Analysis	Date: 8/	5/2015	S	SeqNo: 8	42243	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020	0.01000	0	115	50	150				
Barium	ND	0.0020	0.002000	. 0	85.0	50	150				
Boron	ND	0.040	0.04000	0	97.3	50	150				
Cadmium	ND	0.0020	0.002000	0	95.5	50	150				
Chromium	0.0062	0.0060	0.006000	0	104	50	150				
Cobalt	ND	0.0060	0.006000	0	99.3	50	150				
Manganese	0.0026	0.0020	0.002000	0	131	50	150				
Mołybdenum	0.0087	0.0080	0.008000	0	109	50	150				

- * 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
- Page 6 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID LLLCS	Samp	Type: LC	SLL	Tes	tCode: E	PA Method	200.7: Disso	lved Meta	ls	
Client ID: BatchQC	Bato	h ID: R2	7986	F	RunNo: 2	7986				
Prep Date:	Analysis I	Date: 8/	5/2015	SeqNo: 842243			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	93.4	50	150			
Silver	ND	0.0050	0.005000	0	93.8	50	150			

Sample ID MB	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	200.7: Disso	ved Meta	ls		
Client ID: PBW	Bato	hiD: R2	7986	F	RunNo: 27986						
Prep Date:	Analysis I	Date: 8/	5/2015	5	SeqNo: 842244			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	ND	0.020									
Barium	ND	0.0020									
Boron	ND	0.040									
Cadmium	ND	0.0020									
Chromium	ND	0.0060									
Cobalt	ND	0.0060									
Manganese	ND	0.0020									
Molybdenum	ND	0.0080									
Nickel	ND	0.010									
Silver	ND	0.0050									

Sample ID LCS	Samp	Type: LC	:S	Tes	tCode: E	PA Method	200.7: Disso	ved Meta	ls		
Client ID: LCSW	Bato	h ID: R2	7986	F	RunNo: 2	7986					
Prep Date:	Analysis I	Date: 8/	5/2015	S	SeqNo: 8	42245	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum	0.52	0.020	0.5000	0	103	85	115		,		
Barium	0.50	0.0020	0.5000	0	99.0	85	115				
Boron	0.51	0.040	0.5000	0	103	85	115				
Cadmium	0.50	0.0020	0.5000	0	99.2	85	115				
Chromium	0.49	0.0060	0.5000	0	98.2	85	115				
Cobalt	0.47	0.0060	0.5000	0	94.6	85	115				
Manganese	0.48	0.0020	0.5000	0	96.3	85	115				
Molybdenum	0.51	0.0080	0.5000	. 0	103	85	115				
Nickel	0.47	0.010	0.5000	0	94.8	85	115				
Silver	0.10	0.0050	0.1000	0	100	85	115				

Sample ID LLLCS	SampType:	LCSLL	Tes	tCode: El	PA Method	200.7: Dissol	ved Metal	ls	
Client ID: BatchQC	Batch ID:	F	RunNo: 27986						
Prep Date:	Analysis Date:	SeqNo: 842246			Units: mg/L				
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits

Page 7 of 25

- P Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

	11101101										
Sample ID	LLLCS	Samp	Гуре: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	İs	
Client ID:	BatchQC	Batc	h ID: R2	7986	F	RunNo: 2	7986				
Prep Date:		Analysis [Date: 8/	5/2015	S	SeqNo: 8	42246	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum		ND	0.020	0.01000	0	112	50	150			
Barium		ND	0.0020	0.002000	0	98.5	50	150			
Boron		ND	0.040	0.04000	0	99.7	50	150			
Cadmium		ND	0.0020	0.002000	0	77.5	50	150			
Chromium		0.0062	0.0060	0.006000	0	103	50	150			
Cobalt		ND	0.0060	0.006000	0	99.8	50	150			
Manganese		0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum		0.0093	0.0080	0.008000	0	116	50	150			
Nickel		ND	0.010	0.005000	0	97.4	50	150			
Silver		ND	0.0050	0.005000	0	95.4	50	150			
Sample ID	МВ	Samp	Туре: МЕ	BLK	Tes	TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batc	h ID: C2	8013	F	RunNo: 2	8013				
Prep Date:		Analysis [Date: 8/	6/2015	8	SeqNo: 8	43253	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc		ND	0.010								
Sample ID	LCS	Samp	Туре: LC	s	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	LCSW	Batc	h ID: C2	8013	F	RunNo: 2					
Prep Date:		Analysis [Date: 8/	6/2015	\$	SeqNo: 8	43254	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc		0.50	0.010	0.5000	0	101	85	115			
Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	BatchQC	Batc	h ID: C2	8013	F	RunNo: 2	8013				
Prep Date:		Analysis [Date: 8/	6/2015	5	SeqNo: 8	43255	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc		ND	0.010	0.005000	0	128	50	150			
Sample ID	MB	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	200.7: Dissol	ved Meta	ls	
Client ID:	PBW	Batc	h ID: R2	8044	F	RunNo: 2	8044				
Prep Date:		Analysis [Date: 8/	7/2015	5	SeqNo: 8	44435	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron		ND	0.020								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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 duc 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

Page 8 of 25

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063 26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID LCS

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

Client ID: LCSW

Batch ID: R28044

RunNo: 28044

Prep Date:

Analysis Date: 8/7/2015

SeqNo: 844436

Units: mg/L

Analyte Result PQL SPK value SPK Ref Val %REC LowLimit 0.020 102

HighLimit

50

%RPD **RPDLimit** Qual

Iron

0.51

0.5000

Sample ID LLLCS

SampType: LCSLL

RunNo: 28044

TestCode: EPA Method 200.7: Dissolved Metals

%RPD

%RPD

%RPD

%RPD

Prep Date:

Client ID: **BatchQC**

Batch ID: R28044

Units: mg/L

150

Analyte

Analysis Date: 8/7/2015

SeqNo: 844437

Qual

Iron

Result 0.026

PQL SPK value SPK Ref Val 0.020 0.02000

%REC Low imit 131

HighLimit

RPDLimit

Sample ID MB

SampType: MBLK

TestCode: EPA Method 200.7: Dissolved Metals

Client ID:

Batch ID: R28044

Analysis Date: 8/7/2015

RunNo: 28044 SeqNo: 844438

Units: mg/L

Analyte

Prep Date:

PQL ND 0.020 SPK value SPK Ref Val %REC

HighLimit LowLimit

RPDLimit

Qual

Sample ID LCS

SampType: LCS

TestCode: EPA Method 200.7: Dissolved Metals

LowLimit

85

Client ID: **LCSW** Prep Date:

Batch ID: R28044 Analysis Date: 8/7/2015 RunNo: 28044

Analyte

Result POL SPK value SPK Ref Val

SeqNo: 844439 %REC

Units: mg/L HighLimit

RPDLimit Qual

Iron

0.49 0.020

99.0 TestCode: EPA Method 200.7: Dissolved Metals

115

Sample ID LLLCS Client ID:

BatchQC

SampType: LCSLL Batch ID: R28044

RunNo: 28044

Prep Date:

Analysis Date: 8/7/2015

SeqNo: 844440

101

Units: mg/L

Page 9 of 25

RPDLimit Qual

Analyte

0.020 0.020 SPK value SPK Ref Val 0.02000

0.5000

%REC

LowLimit

50

HighLimit 150

Qualifiers:

ND

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

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508063

26-Aug-15

Client:	
D	

Navajo Refining Company

Project:		Monthly Tempora	ıry R.O. I	Reject							
Sample ID	LCS	Sam	pType: LC	s	Tes	tCode: El	PA 200.8: I	Dissolved Me	tals		
Client ID:	LCSW	Bat	tch ID: D2	8151	F	RunNo: 2	8151				
Prep Date:		Analysis	Date: 8	12/2015	S	SeqNo: 8	48117	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	97.0	85	115		,	
Lead		0.012	0.00050	0.01250	0	99.4	85	115			
Selenium		0.025	0.0010	0.02500	0	99.7	85	115			
Uranium		0.012	0.00050	0.01250	0	98.6	85	115			
Sample ID	LLLCS	Sam	pType: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	BatchQ	Bat	ich ID: D2	8151	F	RunNo: 2	8151				
Prep Date:		Analysis	Date: 8	12/2015	S	SeqNo: 8	48119	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.0010	0.0010	0.001000	0	104	50	150			
Lead		0.00052	0.00050	0.0005000	0	105	50	150			
Selenium		0.0010	0.0010	0.001000	0	105	50	150			
Uranium		0.00053	0.00050	0.0005000	0	105	50	150			
Sample ID	МВ	Sam	рТуре: М	BĽK	Tes	tCode: El	PA 200.8: [Dissolved Me	tals		
Client ID:	PBW	Bat	tch ID: D2	8151	F	8151					
Prep Date:		Analysis	Date: 8/	12/2015	S	SeqNo: 8	48122	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.0010								
Lead		ND	0.00050					-			
Selenium		ND	0.0010								
Uranium		ND	0.00050								
Sample ID	LCS	Samı	рТуре: LC	s	Tes	tCode: El	PA 200.8: [Dissolved Met	tals		
Client ID:	LCSW	Bat	ich ID: B2	8323	F	RunNo: 2	8323				
Prep Date:		Analysis	Date: 8/	19/2015	s	SeqNo: 8	55090	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper		0.024	0.0010	0.02500	0	95.4	85	115			
Sample ID	LLLCS	Samı	рТуре: LC	SLL	Tes	tCode: El	PA 200.8: [Dissolved Met	tals		
Client ID:	BatchQ	Bat	tch ID: B2	8323	· F	RunNo: 2	8323				
Prep Date:	-		Date: 8/			SeqNo: 8		Units: mg/L			
								_			

Qualifiers:

Analyte

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

HighLimit

%RPD

- Value above quantitation range
- Analyte detected below quantitation limits
- P Sample pH Not In Range

SPK value SPK Ref Val %REC

0.0010

0.001000

RL Reporting Detection Limit

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RPDLimit

Qual

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB

SampType: MBLK

TestCode: EPA 200.8: Dissolved Metals

Prep Date:

Client ID: **PBW** Batch ID: **B28323**

RunNo: 28323

SPK value SPK Ref Val %REC LowLimit

Analysis Date: 8/19/2015

SeqNo: 855094

Units: mg/L

HighLimit

RPDLimit

%RPD

Qual

Analyte Copper

Result **PQL** ND 0.0010

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

SampType: MBLK

TestCode: EPA Method 245.1: Mercury

Client ID: PBW

Batch ID: 20665

RunNo: 28038

Prep Date: 8/7/2015

Sample ID MB-20665

Analysis Date: 8/7/2015

SeqNo: 844199

Units: mg/L

%RPD

Analyte

PQL

SPK value SPK Ref Val %REC LowLimit

HighLimit %RPD **RPDLimit**

Qual

Mercury

ND 0.00020

Sample ID LCS-20665

Client ID: LCSW

SampType: LCS Batch ID: 20665 TestCode: EPA Method 245.1: Mercury

RunNo: 28038

LowLimit

Analyte

Prep Date: 8/7/2015

Analysis Date: 8/7/2015

SeqNo: 844200 %REC

Units: mg/L

RPDLimit

Qual

SPK value SPK Ref Val

HighLimit 120

PQL

Mercury

0.0050 0.00020 0.005000 99.8

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- J Analyte detected below quantitation limits
- Page 12 of 25
- P Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID 1508063-001EMS

SampType: MS

TestCode: EPA Method 300.0: Anions

75.3

Client ID:

Temporary R.O. Rej

Batch ID: R27968

RunNo: 27968

SeqNo: 841509

Prep Date:

Analysis Date: 8/4/2015

Units: mg/L HighLimit

111

Analyte

Result POL 3.9 0.10 SPK value SPK Ref Val 0.5000 3.578

%REC LowLimit 64.8

%RPD **RPDLimit**

2.20

Qual

Fluoride

SampType: MSD

TestCode: EPA Method 300.0: Anions

s

Sample ID 1508063-001EMSD

Temporary R.O. Rej

Batch ID: R27968

0.10

RunNo: 27968

Client ID: Prep Date:

Analyte

Analysis Date: 8/4/2015

SeqNo: 841510 %REC

Units: mg/L

RPDLimit Qual

Fluoride

Result PQL 3.8

SPK value SPK Ref Val 0.5000 3.578

478 75.3

LowLimit

%RPD HighLimit 111

20 S

Sample ID MB

SampType: MBLK

TestCode: EPA Method 300.0: Anions

Client ID:

Batch ID: R27968

RunNo: 27968

Prep Date: Analyte

Analysis Date: 8/5/2015

Result

Result

0.52

ND

ND

SeqNo: 841566

Units: mg/L

Fluoride

0.10

SPK value SPK Ref Val %REC

LowLimit

PQL

HighLimit

RPDLimit

Qual

Chloride

SPK value SPK Ref Val

%RPD

0.50

TestCode: EPA Method 300.0: Anions

Sample ID LCS Client ID: LCSW Prep Date:

SampType: LCS Batch ID: R27968

0

0

RunNo: 27968

110

110

Analyte

Analysis Date: 8/5/2015

0.5000

5.000

SeqNo: 841567 %REC

104

90

90

Units: mg/L

HighLimit

RPDLimit Qual

Fluoride Chloride

4.8 0.50

SampType: MBLK

PQL

0.10

96.4

TestCode: EPA Method 300.0: Anions

Client ID: Prep Date: **PBW**

Batch ID: R28192

RunNo: 28192

Qual

Analysis Date: 8/13/2015

Result

Result

9.9

3.5

SeqNo: 849498

Units: mg/L

Analyte

Sample ID MB

PQL

0.50

SPK value SPK Ref Val %REC

LowLimit

HighLimit

Sulfate Nitrate+Nitrite as N

Client ID: LCSW

ND ND 0.20

%RPD **RPDLimit**

%RPD

%RPD

Sample ID LCS

Prep Date:

SampType: LCS

Analysis Date: 8/13/2015

PQL

0.50

0.20

Batch ID: R28192

10.00

3.500

SPK value SPK Ref Val

 \mathbf{E}

RunNo: 28192

SeqNo: 849499

%REC

99.0

101

Value above quantitation range

TestCode: EPA Method 300.0: Anions

LowLimit

90

90

Units: mg/L

HighLimit

110

110

RPDLimit Qual

Nitrate+Nitrite as N

Analyte

Sulfate

Qualifiers:

Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Analyte detected in the associated Method Blank

Page 13 of 25

Not Detected at the Reporting Limit ND

В

0

0

P Sample pH Not In Range

Holding times for preparation or analysis exceeded Н

R RPD outside accepted recovery limits % Recovery outside of range due to dilution or matrix 1 Analyte detected below quantitation limits

Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20627

SampType: MBLK

TestCode: EPA Method 8011/504.1: EDB

Client ID:

PBW

Batch ID: 20627

RunNo: 28045

Prep Date: 8/6/2015

Analysis Date: 8/7/2015

SeqNo: 844775

Units: µg/L

HighLimit

Analyte

%RPD

%RPD

RPDLimit

Qual

1,2-Dibromoethane

Result ND 0.010

Sample ID LCS-20627

SampType: LCS

SPK value SPK Ref Val %REC LowLimit

TestCode: EPA Method 8011/504.1: EDB

Client ID: LCSW

Batch ID: 20627

RunNo: 28045

Prep Date: 8/6/2015

Analysis Date: 8/7/2015

Units: µg/L

Analyte

SeqNo: 844776

RPDLimit Qual

Result **PQL**

130

SPK value SPK Ref Val %REC LowLimit HighLimit 1,2-Dibromoethane 0.11 0.1000 0.010 110

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Ε Value above quantitation range
- Analyte detected below quantitation limits
- Page 14 of 25

- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID LCS-20617	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Die	sel Rang	e	
Client ID: LCSW	Batch	1D: 20	617	F	RunNo: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	s	SeqNo: 8	42448	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.9	1.0	5.000	0	118	60.1	156			
Surr: DNOP	0.52		0.5000		104	72	136			

Sample ID 1508063-001KI	∕IS Samp⊺	ype: MS	3	Tes	tCode: El	PA Method	8015M/D: Die	sel Rang	e ·	
Client ID: Temporary R.C). Rej Batcl	n ID: 20	617	F	RunNo: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	\$	SeqNo: 8	42451	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	116	75.9	164			
Surr: DNOP	0.51		0.5000		103	72	136			

Sample ID 1508063-001KI	VISD SampT	уре: М	SD	Tes	tCode: E	PA Method	8015M/D: Die	sel Rang	e	
Client ID: Temporary R.C	D. Rej Batch	n ID: 20	617	F	RunNo: 2	7 957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	S	SeqNo: 8	42452	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	112	75.9	164	3.46	22.1	
Surr: DNOP	0.51		0.5000		101	72	136	0	0	

Sample ID MB-20617	SampT	ype: ME	BLK	TestCode: EPA Method 8015M/D: Diesel Range						
Client ID: PBW	Batch	1D: 20	617	F	RunNo: 2	7957				
Prep Date: 8/5/2015	Analysis D	ate: 8/	5/2015	S	SeqNo: 8	42468	Units: mg/L	ī		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.95		1.000		95.5	72	136			

Qualifiers:

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

Sample pH Not In Range

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Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

s

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

2.7

Sample ID MB-20661 Client ID: PBW Prep Date: 8/7/2015	•	ype: ME	21 K							
	Dotak		JLN	les	tCode: El	PA Method	8082: PCB's			
Prep Date: 8/7/2015	Batcr	1D: 20	661	F	RunNo: 2	8049				
'	Analysis D	ate: 8/	10/2015	S	SeqNo: 8	45110				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit .	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		73.6	44.5	110			
Surr: Tetrachloro-m-xylene	2.3		2.500		90.4	31.8	95.7			
Sample ID LCS-20661	SampT	ype: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 20	661	F	RunNo: 28	8049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015	S	SeqNo: 84	45133	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.9	1.0	5.000	0	117	9.01	142			
Aroclor 1260	6.0	1.0	5.000	0	119	25.6	164			

Sample ID 1508063-001DN	//S SampT	ype: MS	3	Tes	tCode: E	PA Method	8082: PCB's			
Client ID: Temporary R.O	. Rej Batch	1D: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015	S	SeqNo: 8	45724	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.7	1.0	5.000	0	94.4	14.5	105		*	
Aroclor 1260	5.7	1.0	5.000	0	113	21.4	125			
Surr: Decachlorobiphenyl	2.4		2.500		96.4	44.5	110			
Surr: Tetrachloro-m-xylene	2.8		2.500		112	31.8	95.7			s

107

31.8

95.7

2.500

Sample ID 1508063-001DM	I SD SampT	ype: MS	3D	Tes	tCode: El					
Client ID: Temporary R.O.	. Rej Batch	1D: 20	661	F	RunNo: 2	8049				
Prep Date: 8/7/2015	Analysis D	ate: 8/	10/2015		SeqNo: 8	45725	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.3	1.0	5.000	0	86.6	14.5	105	8.66	20	
Aroclor 1260	5.2	1.0	5.000	0	104	21.4	125	8.17	27.6	
Surr: Decachlorobiphenyl	2.2		2.500		88.8	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	2.5		2.500		100	31.8	95.7	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Surr: Tetrachloro-m-xylene

- 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project: Month	ly Temporary	R.O. F	Reject	-						
Sample ID rb	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	7954	F	RunNo: 2	7954				
Prep Date:	Analysis D	ate: 8/	4/2015	5	SeqNo: 8	41101	Units: %RE	C		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	1 1		10.00		107	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130		<u>.</u>	
Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: R2	7954	F	RunNo: 2	7954				
Prep Date:	Analysis D	ate: 8/	4/2015		SeqNo: 8	41102	Units: %RE	С		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		99.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		109	70	130			
Surr: Toluene-d8	9.5		10.00		95.2	70	130			
Sample ID 100ng Ics	SampT	ype: LC	s	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batch	ID: R2	7952	F	RunNo: 2	7952				
Prep Date:	Analysis D	ate: 8/	4/2015		SeqNo: 8	41117	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	. 0	111	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	93.8	70	130			
1,1-Dichloroethene	25	1.0	20.00	0	127	70	130			
Trichloroethene (TCE)	22	1.0	20.00	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		97.9	70	130		*****	
Sample ID VSB deli	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	ID: R2	7952	F	RunNo: 2	7952				
Prep Date:	Analysis D	ate: 8/	4/2015	\$	SeqNo: 8	41118	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								

Qualifiers:

1,2,4-Trimethylbenzene

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded

ND

1.0

- Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits

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- Sample pH Not In Range
- Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID VSB deli	SampT	ype: MBLK	Tes	stCode: EPA Method	8260B: VOLATILES	
Client ID: PBW	Batch	n ID: R27952		Run N o: 27952		
Prep Date:	Analysis D	Date: 8/4/2015	;	SeqNo: 841118	Units: µg/L	
Analyte	Result	PQL SPK valu	e SPK Ref Val	%REC LowLimit	HighLimit %RPD	RPDLimit Qual
1,3,5-Trimethylbenzene	ND	1.0				
1,2-Dichloroethane (EDC)	ND	1.0				
1,2-Dibromoethane (EDB)	ND	1.0				
Naphthalene	ND	2.0				
1-Methylnaphthalene	ND	4.0				
2-Methylnaphthalene	ND	4.0				
Acetone	ND	10				
Bromobenzene	ND	1.0				
Bromodichloromethane	ND	1.0				
Bromoform	ND	1.0				
Bromomethane	ND	3.0				
2-Butanone	ND	10				
Carbon disulfide	ND	10				
Carbon Tetrachloride	ND	1.0				
Chlorobenzene	ND	1.0				
Chloroethane	ND	2.0				
Chloroform	ND	1.0				
Chloromethane	ND	3.0				
2-Chlorotoluene	ND	1.0				
4-Chlorotoluene	ND	1.0				
cis-1,2-DCE	ND	1.0				
cis-1,3-Dichloropropene	ND	1.0				
1,2-Dibromo-3-chloropropane	ND	2.0				
Dibromochloromethane	ND	1.0				
Dibromomethane	ND	1.0				
1,2-Dichlorobenzene	ND	1.0				
1,3-Dichlorobenzene	ND	1.0				
1,4-Dichlorobenzene	ND	1.0				
Dichlorodifluoromethane	ND	1.0				
1,1-Dichloroethane	ND	1.0				
1,1-Dichloroethene	ND	1.0				
1,2-Dichloropropane	ND	1.0				
1,3-Dichloropropane	ND	1.0				
2,2-Dichloropropane	ND	2.0				
1,1-Dichloropropene	ND	1.0				
Hexachlorobutadiene	ND	1.0				
2-Hexanone	ND	10				
isopropylbenzene	ND	1.0				
4-Isopropyltoluene	ND	1.0				

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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
 - Sample pH Not In Range
- RL Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID VSB deli	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	1D: R2	7952	. F	RunNo: 2	7952				
Prep Date:	Analysis D	ate: 8/	4/2015	s	SeqNo: 8	41118	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr. 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
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- 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

62

13

0.40

2.0

0.070

80.00

20.00

0.5020

		<i>J</i>	,							
Sample ID MB-20677	Samp	Гуре: МЕ	BLK	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: PBW	Batcl	h ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis D	Date: 8/	10/2015	\$	SeqNo: 8	44835	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0			-					
1-Methylnaphthalene	- ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	14		20.00		68.8	37.2	136			
Sample ID LCS-20677	Samp	Гуре: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batcl	h ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis [Date: 8/	10/2015	5	SeqNo: 8	45107	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.4	57.8	83.9			S
1-Methylnaphthalene	74	2.0	80.20	0	91.8	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	89.4	34.2	94.5			
Benzo(a)pyrene	0.44	0.070	0.5020	0	87.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.8	37.2	136			<u>.</u>
Sample ID 1508063-001DMS	S Samp1	Гуре: М\$	3	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: Temporary R.O.	Rej Batcl	h ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis [Date: 8 /	10/2015		SeqNo: 8	45141	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	63	2.0	80.00	0	78.8	21.6	109			
i-Methylnaphthalene	64	2.0	80.20	0	79.7	15.8	102			

Sample ID 1508063-001DMS	SD SampT	ype: MS	SD	TestCode: EPA Method 8310: PAHs						
Client ID: Temporary R.O.	Rej Batch	ID: 20	677	F	RunNo: 2	8051				
Prep Date: 8/10/2015	Analysis D	ate: 8/	10/2015	S	SeqNo: 8	45142	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	54	2.0	80.00	0	67.5	21.6	109	15.5	20	
1-Methylnaphthalene	55	2.0	80.20	0	68.8	15.8	102	14.7	20	
2-Methylnaphthalene	54	2.0	80.00	0	67.6	11.4	99	14.3	20	
Benzo(a)pyrene	0.34	0.070	0.5020	0	67.7	25	123	16.2	20	
Surr: Benzo(e)pyrene	12		20.00		58.0	37.2	136	0		

0

0

78.0

79.7

67.3

11.4

37.2

25

99

123

136

Qualifiers:

2-Methylnaphthalene

Surr: Benzo(e)pyrene

Benzo(a)pyrene

- * 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

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- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20629

SampType: MBLK

TestCode: Total Phenolics by SW-846 9067

LowLimit

Client ID:

PBW

Batch ID: 20629

PQL

2.5

RunNo: 27992

Prep Date: 8/6/2015

SeqNo: 842690

Units: µg/L

Analyte

Result

Analysis Date: 8/6/2015

SPK value SPK Ref Val %REC

HighLimit

RPDLimit

RPDLimit

Qual

Qual

Phenolics, Total Recoverable

Sample ID LCS-20629

LCSW

SampType: LCS Batch ID: 20629

TestCode: Total Phenolics by SW-846 9067 RunNo: 27992

Prep Date: 8/6/2015

Client ID:

Analyte

Analysis Date: 8/6/2015

Result

Result

18

ND

SeqNo: 842691

%REC

Units: µg/L HighLimit

SPK value SPK Ref Val

Phenolics, Total Recoverable Sample ID LCSD-20629

SampType: LCSD Batch ID: 20629

PQL

2.5

TestCode: Total Phenolics by SW-846 9067

SegNo: 842692

RunNo: 27992

Units: µg/L

Analyte

Prep Date: 8/6/2015 Analysis Date: 8/6/2015

SPK value SPK Ref Val %REC

0

HighLimit I owLimit

%RPD

%RPD

%RPD

RPDLimit Qual

Phenolics, Total Recoverable

Client ID: LCSS02

PQL 2.5

20.00

91.6

64.4

135 12.7

21.4

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RPD outside accepted recovery limits R

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits Page 21 of 25

P Sample pH Not In Range

Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-R28452

SampType: MBLK

TestCode: EPA 335.4: Total Cyanide Subbed

TestCode: EPA 335.4: Total Cyanide Subbed

LowLimit

Client ID: PBW

Batch ID: R28452

0.0100

Analysis Date: 8/12/2015

PQL

RunNo: 28452

Analysis Date: 8/12/2015

SeqNo: 859841

Units: mg/L

Analyte Cyanide

Prep Date:

Result **PQL**

ND

SPK value SPK Ref Val %REC

LowLimit HighLimit %RPD

RPDLimit

Qual

Client ID: LCSW

Sample ID LCS-R28452

SampType: LCS

Batch ID: R28452

%REC

RunNo: 28452 SeqNo: 859842

Units: mg/L

HighLimit

Analyte

Result

SPK value SPK Ref Val

104

%RPD **RPDLimit** Qual

110

Cyanide

Prep Date:

0.521

0.5000 0

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н 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 Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits

P Sample pH Not In Range

Reporting Detection Limit

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Hall Environmental Analysis Laboratory, Inc.

WO#: 1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID rb

SampType: MBLK

TestCode: EPA Method 8015D: Gasoline Range

Client ID: **PBW**

Batch ID: R27954

0.050

RunNo: 27954

Prep Date:

Surr: BFB

Analysis Date: 8/4/2015

SeqNo: 841369

Analyte

Result PQL

Units: mg/L HighLimit

RPDLimit

Qual

Gasoline Range Organics (GRO)

ND 10

10.00

SPK value SPK Ref Val %REC

101

70

%RPD

Sample ID 2.5ug gro Ics

SampType: LCS

TestCode: EPA Method 8015D: Gasoline Range

130

Client ID: **LCSW**

Batch ID: R27954

RunNo: 27954

LowLimit

HighLimit

Prep Date:

Analysis Date: 8/4/2015

SeqNo: 841371 %REC

0

Units: mg/L

Analyte Gasoline Range Organics (GRO) Result PQL

SPK value SPK Ref Val 0.5000

100

RPDLimit

0.50 0.050 9.9

10.00

99.4

80.6

122

%RPD

Qual

Surr: BFB

70

LowLimit

130

Qualifiers:

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

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Hall Environmental Analysis Laboratory, Inc.

WO#:

RPDLimit

Qual

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-R28452	SampType: MBLK Batch ID: R28452 Analysis Date: 8/18/2015		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed							
Client ID: PBW			RunNo: 28452 SeqNo: 859845 U							
Prep Date:						Units: pCi/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	ND	0.551								
Radium-226 ±	0.342	0.551								
Radium-228	0.014	0.860								
Radium-228 ±	0.371	0.860							·	
Sample ID MB-R28452	SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed				ed			
Client ID: PBW	Batch ID: R28452		RunNo: 28452							
Prep Date:	Analysis Date: 8/18/2015		5	eaNo: 8	59847	Units: pCi/L				

LowLimit

HighLimit

SPK value SPK Ref Val %REC

Analyte	Result	PQL
Radium-226	0.556	0.599
Radium-226 ±	0.441	0.599
Radium-228	0.314	0.882
Radium-228 ±	0.412	0.882

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- 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

Page 24 of 25

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

WO#:

1508063

26-Aug-15

Client:

Navajo Refining Company

Project:

Monthly Temporary R.O. Reject

Sample ID MB-20614

SampType: MBLK

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID:

PBW

Batch ID: 20614

RunNo: 28014

Prep Date: 8/5/2015 Analysis Date: 8/6/2015

SeqNo: 843310

Units: mg/L

Analyte

Result PQL

SampType: LCS

20.0

SPK value SPK Ref Val %REC LowLimit

HighLimit

%RPD

RPDLimit

Qual

Total Dissolved Solids Sample ID LCS-20614

Prep Date: 8/5/2015

ND

RunNo: 28014

TestCode: SM2540C MOD: Total Dissolved Solids

Client ID: LCSW

Batch ID: 20614

Analysis Date: 8/6/2015

SeqNo: 843311

Units: mg/L

Analyte

Result

PQL SPK value SPK Ref Val

102

%REC LowLimit HighLimit

RPDLimit Qual

Total Dissolved Solids

1000

%RPD

1020

20.0

120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

Sample pH Not In Range

Reporting Detection Limit

P

Page 25 of 25



4901 Hawkins NE Albuquerque, NM 87109 TEL: 503-345-3975 FAX: 505-345-4107

Sample Log-In Check List

	21011	Website www.ha	llenvironmento	il.com		
Client Name	NAVAJO REFINING CO	Work Order Number	1508063		RcptNo:	1
Received by/date	· CS	08/04/15				ergene e waxaya a saasaya aya
Logged By	Ashley Gallegos	8/4/2015 9:13:00 AM		A		
Completed By:	Ashley Gallegos	8/4/2015 9:27:44 AM		A		
Reviewed By:	CS CS	08/04/15		V		
Chain of Cust	<u>ody</u>	-,01,1				The above the section of the state of the st
1. Custody seals	s intact on sample bottles?		Yes 🗀	No 🗀	Not Present 🗸	
2. Is Chain of Cu	ustody complete?		Yes 🗹	No 🗀	Not Present	
3. How was the r	sample delivered?		Courier			
<u>Log In</u>						
4. Was an atten	npt made to cool the samples	7	Yes 🗹	No access	NA []	
5. Were all samp	ples received at a temperatur	e of >0° C to 6.0°C	Yes 🗸	No M	NA []	
6. Sample(s) in p	proper container(s)?		Yes 🗸	No 🗌		
7. Sufficient sam	ple volume for indicated test	(s)?	Yes 🗹	No 🔲		
8. Are samples (except VOA and ONG) properly preserved?			Yes 🗹	No 🗍		
9. Was preservat	tive added to bottles?		Yes 🗌	No 🗹	NA 1	
10. VOA vials have	e zero headspace?		Yes 🗸	No 🗔	No VOA Vials	
11. Were any sample containers received broken?		Yes	No 🗹	· · · · · · · · · · · · · · · · · · ·		
					# of preserved bottles checked /	1
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)			Yes 🗹	No 🗌	for pH	A man
13. Are matrices correctly identified on Chain of Custody?			Yes 🗸	No 🗀	Adjusted?	(£12/unless noted)
14, Is it clear what	analyses were requested?	·	Yes 🗹	No 🗌		to a district relation dentity and
	ng times able to be met? Istomer for authorization.)		Yes 🗹	No 🗔	Checked by:	99
Special Handlij	ng (if applicable)					•
16. Was client noti	ified of all discrepancies with	this order?	Yes 🗌	No 🗌	NA 🔀	
Person N	Notified.	Date			e de la companya del companya de la companya del companya de la co	
By Whon	1	Via:	eMail	Phone Fax	In Person	
Regardin	The state of the s					
	structions;				· ·	
17. Additional rem	rarks:					
18. Cooler inform	1		4			
Cooler No		aal Intact Seal No Sea	oal Date	Signed By		
-				1		