

**GW – 028**

**Annual DP  
Report  
(Part 6 of 16)**

**2015**





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

May 13, 2015

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

RE: Monthly RO Reject

OrderNo.: 1504C24

Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/29/2015 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504C24

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O.

Project: Monthly RO Reject

Collection Date: 4/28/2015 8:45:00 AM

Lab ID: 1504C24-001

Matrix: AQUEOUS

Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8011/504.1: EDB</b>							Analyst: <b>JME</b>
1,2-Dibromoethane	ND	0.010		µg/L	1	4/30/2015 5:33:16 PM	18974
<b>EPA METHOD 8082: PCB'S</b>							Analyst: <b>SCC</b>
Aroclor 1016	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1221	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1232	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1242	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1248	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1254	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Aroclor 1260	ND	1.0		µg/L	1	5/5/2015 3:50:42 PM	18997
Surr: Decachlorobiphenyl	115	44.5-110	S	%REC	1	5/5/2015 3:50:42 PM	18997
Surr: Tetrachloro-m-xylene	126	31.8-95.7	S	%REC	1	5/5/2015 3:50:42 PM	18997
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/29/2015 4:57:42 PM	18947
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/29/2015 4:57:42 PM	18947
Surr: DNOP	113	76.5-150		%REC	1	4/29/2015 4:57:42 PM	18947
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2015 4:01:53 PM	R25939
Surr: BFB	87.5	80-120		%REC	1	5/4/2015 4:01:53 PM	R25939
<b>EPA METHOD 8310: PAHS</b>							Analyst: <b>SCC</b>
Naphthalene	ND	2.0		µg/L	1	5/5/2015 11:32:18 AM	18998
1-Methylnaphthalene	ND	2.0		µg/L	1	5/5/2015 11:32:18 AM	18998
2-Methylnaphthalene	ND	2.0		µg/L	1	5/5/2015 11:32:18 AM	18998
Benzo(a)pyrene	ND	0.070		µg/L	1	5/5/2015 11:32:18 AM	18998
Surr: Benzo(e)pyrene	81.0	30.8-125		%REC	1	5/5/2015 11:32:18 AM	18998
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Fluoride	2.2	0.10		mg/L	1	4/29/2015 3:25:23 PM	R25872
Chloride	37	10		mg/L	20	4/29/2015 4:02:38 PM	R25872
Nitrogen, Nitrate (As N)	1.1	0.10		mg/L	1	4/29/2015 3:25:23 PM	R25872
Sulfate	1100	25		mg/L	50	5/6/2015 12:59:46 AM	R25994
<b>EPA METHOD 200.7: DISSOLVED METALS</b>							Analyst: <b>JLF</b>
Aluminum	ND	0.020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Barium	0.041	0.0020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Boron	0.089	0.040		mg/L	1	4/29/2015 6:14:42 PM	R25851
Cadmium	ND	0.0020		mg/L	1	4/30/2015 1:05:27 PM	R25881
Chromium	ND	0.0060		mg/L	1	4/29/2015 6:14:42 PM	R25851
Cobalt	ND	0.0060		mg/L	1	4/29/2015 6:14:42 PM	R25851

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504C24

Date Reported: 5/13/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O.

Project: Monthly RO Reject

Collection Date: 4/28/2015 8:45:00 AM

Lab ID: 1504C24-001

Matrix: AQUEOUS

Received Date: 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 200.7: DISSOLVED METALS</b>							Analyst: <b>JLF</b>
Copper	ND	0.0060		mg/L	1	4/29/2015 6:14:42 PM	R25851
Iron	ND	0.020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Manganese	ND	0.0020		mg/L	1	4/29/2015 6:14:42 PM	R25851
Molybdenum	ND	0.0080		mg/L	1	4/30/2015 1:05:27 PM	R25881
Nickel	ND	0.010		mg/L	1	4/29/2015 6:14:42 PM	R25851
Silver	ND	0.0050		mg/L	1	4/30/2015 1:05:27 PM	R25881
Zinc	0.075	0.010		mg/L	1	4/29/2015 6:14:42 PM	R25851
<b>EPA 200.8: DISSOLVED METALS</b>							Analyst: <b>DBD</b>
Arsenic	ND	0.0050		mg/L	5	5/7/2015 2:35:40 PM	R26042
Lead	ND	0.0010		mg/L	1	5/5/2015 11:04:05 AM	R25950
Selenium	0.0053	0.0010		mg/L	1	5/5/2015 11:04:05 AM	R25950
Uranium	0.0042	0.0010		mg/L	1	5/5/2015 11:04:05 AM	R25950
<b>EPA METHOD 245.1: MERCURY</b>							Analyst: <b>MED</b>
Mercury	ND	0.00020		mg/L	1	5/4/2015 2:01:49 PM	18982
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>cadg</b>
Benzene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Toluene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Ethylbenzene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Carbon Tetrachloride	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Chloroform	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1-Dichloroethane	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1-Dichloroethene	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Methylene Chloride	ND	3.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Vinyl chloride	ND	1.0		µg/L	1	4/29/2015 6:01:15 PM	R25860
Xylenes, Total	ND	1.5		µg/L	1	4/29/2015 6:01:15 PM	R25860
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: 4-Bromofluorobenzene	99.8	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: Dibromofluoromethane	92.8	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
Surr: Toluene-d8	103	70-130		%REC	1	4/29/2015 6:01:15 PM	R25860
<b>TOTAL PHENOLICS BY SW-846 9067</b>							Analyst: <b>SCC</b>

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504C24

Date Reported: 5/13/2015

**CLIENT:** Navajo Refining Company

**Client Sample ID:** R.O.

**Project:** Monthly RO Reject

**Collection Date:** 4/28/2015 8:45:00 AM

**Lab ID:** 1504C24-001

**Matrix:** AQUEOUS

**Received Date:** 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>TOTAL PHENOLICS BY SW-846 9067</b>							Analyst: <b>SCC</b>
Phenolics, Total Recoverable	ND	2.5		µg/L	1	4/30/2015	18972
<b>EPA 335.4: TOTAL CYANIDE SUBBED</b>							Analyst: <b>SUB</b>
Cyanide	ND	0.0100		mg/L	1	5/5/2015	R26153
<b>SM4500-H+B: PH</b>							Analyst: <b>JRR</b>
pH	8.09	1.68	H	pH units	1	5/5/2015 5:57:25 PM	R25990
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>
Total Dissolved Solids	2190	20.0	*	mg/L	1	5/1/2015 3:30:00 PM	18979

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504C24

Date Reported: 5/13/2015

**CLIENT:** Navajo Refining Company

**Client Sample ID:** Trip Blank

**Project:** Monthly RO Reject

**Collection Date:**

**Lab ID:** 1504C24-002

**Matrix:** TRIP BLANK

**Received Date:** 4/29/2015 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8011/504.1: EDB</b>							Analyst: <b>JME</b>
1,2-Dibromoethane	ND	0.010		µg/L	1	4/30/2015 5:46:54 PM	18974
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>cadg</b>
Benzene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Toluene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Ethylbenzene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Carbon Tetrachloride	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Chloroform	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1-Dichloroethane	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1-Dichloroethene	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Methylene Chloride	ND	3.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1,1-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
1,1,2-Trichloroethane	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Trichloroethene (TCE)	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Vinyl chloride	ND	1.0		µg/L	1	4/29/2015 6:29:57 PM	R25860
Xylenes, Total	ND	1.5		µg/L	1	4/29/2015 6:29:57 PM	R25860
Surr: 1,2-Dichloroethane-d4	94.6	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860
Surr: Dibromofluoromethane	99.0	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860
Surr: Toluene-d8	98.0	70-130		%REC	1	4/29/2015 6:29:57 PM	R25860

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

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

**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: 1504C24  
Pace Project No.: 30147057

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.75 ± 0.849 (0.976)</b> C:NA T:60%	pCi/L	05/13/15 10:06	13982-63-3	
Radium-228	EPA 904.0	<b>0.398 ± 0.412 (0.851)</b> C:72% T:77%	pCi/L	05/11/15 17:31	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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without the written consent of Pace Analytical Services, Inc..

**QUALITY CONTROL - RADIOCHEMISTRY**

Project: 1504C24  
Pace Project No.: 30147057

---

QC Batch: RADC/24384	Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0	Analysis Description: 904.0 Radium 228
Associated Lab Samples: 30147057001	

---

METHOD BLANK: 890250	Matrix: Water
Associated Lab Samples: 30147057001	

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.437 ± 0.426 (0.869) C:70% T:70%	pCi/L	05/11/15 17:33	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: 1504C24  
Pace Project No.: 30147057

---

QC Batch: RADC/24322	Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1	Analysis Description: 903.1 Radium-226
Associated Lab Samples: 30147057001	

---

METHOD BLANK: 888781	Matrix: Water
Associated Lab Samples: 30147057001	

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.256 ± 0.438 (0.767) C:NA T:98%	pCi/L	05/13/15 09:55	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 200.7: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R25851</b>		RunNo: <b>25851</b>							
Prep Date:	Analysis Date: <b>4/29/2015</b>		SeqNo: <b>766029</b>		Units: <b>mg/L</b>					
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								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Zinc	ND	0.010								

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 200.7: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R25851</b>		RunNo: <b>25851</b>							
Prep Date:	Analysis Date: <b>4/29/2015</b>		SeqNo: <b>766030</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.51	0.020	0.5000	0	103	85	115			
Barium	0.47	0.0020	0.5000	0	93.0	85	115			
Boron	0.49	0.040	0.5000	0	97.9	85	115			
Chromium	0.48	0.0060	0.5000	0	95.5	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.4	85	115			
Copper	0.47	0.0060	0.5000	0	94.3	85	115			
Iron	0.47	0.020	0.5000	0	94.6	85	115			
Manganese	0.44	0.0020	0.5000	0	88.9	85	115			
Nickel	0.48	0.010	0.5000	0	96.6	85	115			
Zinc	0.48	0.010	0.5000	0	95.6	85	115			

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 200.7: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R25881</b>		RunNo: <b>25881</b>							
Prep Date:	Analysis Date: <b>4/30/2015</b>		SeqNo: <b>767040</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	ND	0.0020								
Molybdenum	ND	0.0080								
Silver	ND	0.0050								

**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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID:	R25881		RunNo:	25881				
Prep Date:			Analysis Date:	4/30/2015		SeqNo:	767041		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cadmium	0.51	0.0020	0.5000	0	103	85	115				
Molybdenum	0.49	0.0080	0.5000	0	97.4	85	115				
Silver	0.088	0.0050	0.1000	0	87.9	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
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- B Analyte detected in the associated Method Blank
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- RL Reporting Detection Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R25950</b>		RunNo: <b>25950</b>							
Prep Date:	Analysis Date: <b>5/5/2015</b>		SeqNo: <b>769414</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.024	0.0010	0.02500	0	96.4	85	115			
Selenium	0.024	0.0010	0.02500	0	94.9	85	115			
Uranium	0.025	0.0010	0.02500	0	98.7	85	115			

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R25950</b>		RunNo: <b>25950</b>							
Prep Date:	Analysis Date: <b>5/5/2015</b>		SeqNo: <b>769415</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R26042</b>		RunNo: <b>26042</b>							
Prep Date:	Analysis Date: <b>5/7/2015</b>		SeqNo: <b>772040</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.4	85	115			

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R26042</b>		RunNo: <b>26042</b>							
Prep Date:	Analysis Date: <b>5/7/2015</b>		SeqNo: <b>772041</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	<b>MB-18982</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 245.1: Mercury</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>18982</b>	RunNo:	<b>25930</b>					
Prep Date:	<b>4/30/2015</b>	Analysis Date:	<b>5/4/2015</b>	SeqNo:	<b>768647</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	<b>LCS-18982</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 245.1: Mercury</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>18982</b>	RunNo:	<b>25930</b>					
Prep Date:	<b>4/30/2015</b>	Analysis Date:	<b>5/4/2015</b>	SeqNo:	<b>768648</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R25872</b>		RunNo: <b>25872</b>							
Prep Date:	Analysis Date: <b>4/29/2015</b>		SeqNo: <b>766806</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R25872</b>		RunNo: <b>25872</b>							
Prep Date:	Analysis Date: <b>4/29/2015</b>		SeqNo: <b>766807</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	0.46	0.10	0.5000	0	92.4	90	110			
Chloride	4.5	0.50	5.000	0	91.0	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.2	90	110			

Sample ID <b>1504C24-001EMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>R.O.</b>	Batch ID: <b>R25872</b>		RunNo: <b>25872</b>							
Prep Date:	Analysis Date: <b>4/29/2015</b>		SeqNo: <b>766822</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	2.5	0.10	0.5000	2.238	55.2	66.1	113			S
Nitrogen, Nitrate (As N)	3.3	0.10	2.500	1.147	86.1	84	109			

Sample ID <b>1504C24-001EMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>R.O.</b>	Batch ID: <b>R25872</b>		RunNo: <b>25872</b>							
Prep Date:	Analysis Date: <b>4/29/2015</b>		SeqNo: <b>766823</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	2.4	0.10	0.5000	2.238	30.4	66.1	113	5.06	20	S
Nitrogen, Nitrate (As N)	3.3	0.10	2.500	1.147	86.6	84	109	0.363	20	

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R25994</b>		RunNo: <b>25994</b>							
Prep Date:	Analysis Date: <b>5/5/2015</b>		SeqNo: <b>770620</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sulfate	ND	0.50								
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**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 300.0: Anions</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>R25994</b>	RunNo:	<b>25994</b>					
Prep Date:		Analysis Date:	<b>5/5/2015</b>	SeqNo:	<b>770621</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	97.2	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID <b>MB-18974</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8011/504.1: EDB</b>							
Client ID: <b>PBW</b>	Batch ID: <b>18974</b>		RunNo: <b>25898</b>							
Prep Date: <b>4/30/2015</b>	Analysis Date: <b>4/30/2015</b>		SeqNo: <b>767691</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID <b>LCS-18974</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8011/504.1: EDB</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>18974</b>		RunNo: <b>25898</b>							
Prep Date: <b>4/30/2015</b>	Analysis Date: <b>4/30/2015</b>		SeqNo: <b>767692</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	114	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID: <b>MB-18947</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>18947</b>	RunNo: <b>25835</b>								
Prep Date: <b>4/29/2015</b>	Analysis Date: <b>4/29/2015</b>	SeqNo: <b>766304</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		109	76.5	150			

Sample ID: <b>LCS-18947</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>18947</b>	RunNo: <b>25835</b>								
Prep Date: <b>4/29/2015</b>	Analysis Date: <b>4/29/2015</b>	SeqNo: <b>766305</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2	1.0	5.000	0	104	60.1	156			
Surr: DNOP	0.57		0.5000		115	76.5	150			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID: <b>5ML RB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R25939</b>		RunNo: <b>25939</b>							
Prep Date:	Analysis Date: <b>5/4/2015</b>		SeqNo: <b>768862</b>		Units: <b>mg/L</b>					
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		88.4	80	120			

Sample ID: <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R25939</b>		RunNo: <b>25939</b>							
Prep Date:	Analysis Date: <b>5/4/2015</b>		SeqNo: <b>768863</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	92.2	80	120			
Surr: BFB	18		20.00		91.1	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	MB-18997	SampType:	MBLK	TestCode:	EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID:	18997	RunNo:	25944					
Prep Date:	5/1/2015	Analysis Date:	5/5/2015	SeqNo:	769049	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	2.2		2.500		87.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.4		2.500		97.6	31.8	95.7			S

Sample ID	LCS-18997	SampType:	LCS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	18997	RunNo:	25944					
Prep Date:	5/1/2015	Analysis Date:	5/5/2015	SeqNo:	769942	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.9	1.0	5.000	0	98.7	22.6	127			
Aroclor 1260	5.1	1.0	5.000	0	102	20.4	122			
Surr: Decachlorobiphenyl	2.9		2.500		114	44.5	110			S
Surr: Tetrachloro-m-xylene	4.2		2.500		169	31.8	95.7			S

Sample ID	LCSD-18997	SampType:	LCSD	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSS02	Batch ID:	18997	RunNo:	25944					
Prep Date:	5/1/2015	Analysis Date:	5/5/2015	SeqNo:	769944	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.6	1.0	5.000	0	93.0	22.6	127	6.03	26.9	
Aroclor 1260	5.3	1.0	5.000	0	107	20.4	122	4.45	29.1	
Surr: Decachlorobiphenyl	3.0		2.500		118	44.5	110	0	0	S
Surr: Tetrachloro-m-xylene	3.8		2.500		150	31.8	95.7	0	0	S

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company  
**Project:** Monthly RO Reject

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R25860	RunNo:	25860					
Prep Date:		Analysis Date:	4/29/2015	SeqNo:	766354					
				Units:	µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.6	70	130			
Toluene	20	1.0	20.00	0	98.9	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	108	75.6	144			
Trichloroethene (TCE)	20	1.0	20.00	0	98.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R25860	RunNo:	25860					
Prep Date:		Analysis Date:	4/29/2015	SeqNo:	766361					
				Units:	µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Carbon Tetrachloride	ND	1.0								
Chloroform	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
Methylene Chloride	ND	3.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.9		10.00		99.2	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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	MB-18998	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	18998	RunNo:	25938					
Prep Date:	5/1/2015	Analysis Date:	5/5/2015	SeqNo:	769391	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	14		20.00		71.8	30.8	125			

Sample ID	LCS-18998	SampType:	LCS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID:	18998	RunNo:	25938					
Prep Date:	5/1/2015	Analysis Date:	5/5/2015	SeqNo:	769392	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	55	2.0	80.00	0	69.3	41	76.8			
1-Methylnaphthalene	57	2.0	80.20	0	71.0	24.7	81			
2-Methylnaphthalene	56	2.0	80.00	0	70.4	17.4	81.9			
Acenaphthylene	60	2.5	80.20	0	75.4	50.3	77.5			
Acenaphthene	57	2.0	80.00	0	71.8	27.7	81.1			
Fluorene	5.8	0.80	8.020	0	72.8	34.2	75.1			
Phenanthrene	2.9	0.60	4.020	0	72.4	44.6	88.3			
Anthracene	2.9	0.60	4.020	0	72.1	41.9	85.3			
Fluoranthene	6.1	0.30	8.020	0	76.2	40.6	88			
Pyrene	6.6	0.30	8.020	0	82.8	41	86.6			
Benz(a)anthracene	0.62	0.070	0.8020	0	77.3	43.8	86.7			
Chrysene	3.1	0.20	4.020	0	76.9	44.5	80.7			
Benzo(b)fluoranthene	0.81	0.10	1.002	0	80.8	44.3	87.1			
Benzo(k)fluoranthene	0.39	0.070	0.5000	0	78.0	39.9	94.3			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	LCS-18998		SampType: LCS	TestCode: EPA Method 8310: PAHs						
Client ID:	LCSW		Batch ID: 18998	RunNo: 25938						
Prep Date:	5/1/2015		Analysis Date: 5/5/2015	SeqNo: 769392	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	0.39	0.070	0.5020	0	77.7	44	86.5			
Dibenz(a,h)anthracene	0.78	0.12	1.002	0	77.8	48.8	83.6			
Benzo(g,h,i)perylene	0.83	0.12	1.000	0	83.0	43.6	84.5			
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	77.3	49.2	91.1			
Surr: Benzo(e)pyrene	21		20.00		106	30.8	125			

Sample ID	LCSD-18998		SampType: LCSD	TestCode: EPA Method 8310: PAHs						
Client ID:	LCSS02		Batch ID: 18998	RunNo: 25938						
Prep Date:	5/1/2015		Analysis Date: 5/5/2015	SeqNo: 769393	Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	58	2.0	80.00	0	72.7	41	76.8	4.75	20	
1-Methylnaphthalene	60	2.0	80.20	0	74.4	24.7	81	4.68	20	
2-Methylnaphthalene	59	2.0	80.00	0	73.8	17.4	81.9	4.70	20	
Acenaphthylene	63	2.5	80.20	0	78.7	50.3	77.5	4.29	20	S
Acenaphthene	60	2.0	80.00	0	74.9	27.7	81.1	4.26	20	
Fluorene	6.1	0.80	8.020	0	75.7	34.2	75.1	3.86	20	S
Phenanthrene	3.1	0.60	4.020	0	76.1	44.6	88.3	5.03	24	
Anthracene	3.0	0.60	4.020	0	75.9	41.9	85.3	5.04	20	
Fluoranthene	6.4	0.30	8.020	0	79.9	40.6	88	4.79	20.9	
Pyrene	7.0	0.30	8.020	0	86.8	41	86.6	4.71	20.8	S
Benzo(a)anthracene	0.65	0.070	0.8020	0	81.0	43.8	86.7	4.72	20	
Chrysene	3.3	0.20	4.020	0	80.8	44.5	80.7	5.05	20	S
Benzo(b)fluoranthene	0.84	0.10	1.002	0	83.8	44.3	87.1	3.64	20.6	
Benzo(k)fluoranthene	0.41	0.070	0.5000	0	82.0	39.9	94.3	5.00	20.8	
Benzo(a)pyrene	0.41	0.070	0.5020	0	81.7	44	86.5	5.00	20	
Dibenz(a,h)anthracene	0.83	0.12	1.002	0	82.8	48.8	83.6	6.21	20	
Benzo(g,h,i)perylene	0.87	0.12	1.000	0	87.0	43.6	84.5	4.71	20	S
Indeno(1,2,3-cd)pyrene	1.6	0.25	2.004	0	81.3	49.2	91.1	5.03	20	
Surr: Benzo(e)pyrene	22		20.00		112	30.8	125	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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID <b>MB-18972</b>	SampType: <b>MBLK</b>		TestCode: <b>Total Phenolics by SW-846 9067</b>							
Client ID: <b>PBW</b>	Batch ID: <b>18972</b>		RunNo: <b>25901</b>							
Prep Date: <b>4/30/2015</b>	Analysis Date: <b>4/30/2015</b>		SeqNo: <b>767792</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID <b>LCS-18972</b>	SampType: <b>LCS</b>		TestCode: <b>Total Phenolics by SW-846 9067</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>18972</b>		RunNo: <b>25901</b>							
Prep Date: <b>4/30/2015</b>	Analysis Date: <b>4/30/2015</b>		SeqNo: <b>767793</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	22	2.5	20.00	0	109	75.7	126			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID	<b>MB-R26153</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA 335.4: Total Cyanide Subbed</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>R26153</b>	RunNo:	<b>26153</b>					
Prep Date:		Analysis Date:	<b>5/5/2015</b>	SeqNo:	<b>775896</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	<b>LCS-R26153</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA 335.4: Total Cyanide Subbed</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>R26153</b>	RunNo:	<b>26153</b>					
Prep Date:		Analysis Date:	<b>5/5/2015</b>	SeqNo:	<b>775897</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.500		0.5000	0	100	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1504C24

13-May-15

**Client:** Navajo Refining Company

**Project:** Monthly RO Reject

Sample ID <b>MB-18979</b>	SampType: <b>MBLK</b>		TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>							
Client ID: <b>PBW</b>	Batch ID: <b>18979</b>		RunNo: <b>25912</b>							
Prep Date: <b>4/30/2015</b>	Analysis Date: <b>5/1/2015</b>		SeqNo: <b>768004</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID <b>LCS-18979</b>	SampType: <b>LCS</b>		TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>18979</b>		RunNo: <b>25912</b>							
Prep Date: <b>4/30/2015</b>	Analysis Date: <b>5/1/2015</b>		SeqNo: <b>768005</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	999	20.0	1000	0	99.9	80	120			

**Qualifiers:**

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



# Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1504C24

RcptNo: 1

Received by/date: CS 04/29/15

Logged By: Lindsay Mangin 4/29/2015 9:15:00 AM *Lindsay Mangin*

Completed By: Lindsay Mangin 4/29/2015 10:14:50 AM *Lindsay Mangin*

Reviewed By: *JM* 04/29/15

**Chain of Custody**

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

**Log In**

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

*CS 04/29/15 Sample 002A*  
 No VOA Vials  *(2 of 2) has a bubble*

# of preserved bottles checked for pH: 5/1  
 (<2 or >12 unless noted)

Adjusted? NO

Checked by: CS

**Special Handling (if applicable)**

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

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_

By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

# Chain-of-Custody Record

Client: Navajo Refining Co.

Mailing Address: P O Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

Standard  Level 4 (Full Validation)

Accreditation:

NELAP  Other

EDD (Type) \_\_\_\_\_

Turn-Around Time:

Standard  Rush

Project Name:

Monthly RO Reject

Project #: P.O. # 167796

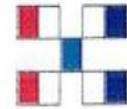
Project Manager:

Scott Denton / Robert Combs

Sampler: Elizabeth Salisbury

On Ice:  Yes  No

Sample Temperature: 100 C



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/28/15	8:45AM	Ag	R.O.	2 - 500ml P	1-unpres H2SO4	1524/0221 -001
4/28/15	8:45AM			3-40ml VOA	HCL	-001
4/28/15	8:45AM			1-500ml P	HNO3	-001
4/28/15	8:45AM			1-125ml P	HNO3	-001
4/28/15	8:45AM			1-500ml P	NaOH	-001
4/28/15	8:45AM			2- 1L P	HNO3	-001
4/28/15	8:45AM			3-40ml VOA	HCL	-001
4/28/15	8:45AM			2- 1L Glass	unpres	-001
4/28/15	8:45AM			1- 1L Glass	unpres	-001
4/28/15	8:45AM			2-40ml VOA	unpres	-001
4/28/15	8:45AM		Trip Blank	2-40ml VOA	HCL	-002

Date:	4/28/15	Time:	10:45 am	Relinquished by:	Elizabeth Salisbury
Date:		Time:		Relinquished by:	Elizabeth Salisbury

Received by: *Elaine Sinner* Date: 04/29/15 Time: 0915

Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

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

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







July 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 – June 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 July 2015 monthly report, for the period of June 1-30, under the Order.

Specifically, this report covers the June 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 June 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 June 1 through June 30.
- \$500 per day for each daily RO reject fluid discharge volume that exceeds 15,000 barrels from June 1 through June 30.

Navajo has calculated a penalty of \$2,600 for June 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 26 days in June. 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 June 5, 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 is conducting 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.

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 is currently evaluating alternative locations for the permitting and construction of a new non-hazardous waste injection well for use in disposal of Refinery fluids, including RO reject water. Navajo previously submitted an application for a Discharge Permit for the new injection well (WDW-4) on November 7, 2014. OCD notified Navajo that the application was administratively complete by letter dated April 23, 2015. On June 25, 2015, Navajo withdrew the OCD permit application to allow for further technical review regarding well locations and injection zones to confirm sufficient injection capacity to meet the refinery's needs. Navajo will provide a new application to OCD when the review is complete, and well location(s) are selected.

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

Sincerely,



Scott M. Denton  
Environmental Manager

Enclosures:

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

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

Attachment 1  
Daily Discharge Flow Rates

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

	Permanent RO Units				Temporary Unit		Daily Discharge Volume
	Metered Data		Combined RO Reject Discharge (Calculated)		Total RO Reject Discharge (Calculated from Log Data)		
	GPM	GPM	GPM	BBL/DAY	GPM	BBL/DAY	BBL
	SOUTH	NORTH					
6/1/2015	142	107	249	8537	61	2096	10633
6/2/2015	139	106	245	8400	60	2069	10469
6/3/2015	139	114	253	8674	60	2065	10739
6/4/2015	137	104	241	8263	79	2709	10972
6/5/2015	101	83	184	6309	116	3962	10271
6/6/2015	0	124	124	4251	70	2387	6638
6/7/2015	130	108	238	8160	62	2137	10297
6/8/2015	132	95	227	7783	63	2147	9930
6/9/2015	135	113	248	8503	59	2022	10525
6/10/2015	129	109	238	8160	51	1735	9895
6/11/2015	133	117	250	8571	52	1783	10354
6/12/2015	139	108	247	8469	52	1799	10268
6/13/2015	133	107	240	8229	56	1911	10140
6/14/2015	130	109	239	8194	57	1961	10155
6/15/2015	132	111	243	8331	59	2027	10358
6/16/2015	140	112	252	8640	60	2057	10697
6/17/2015	135	114	249	8537	60	2057	10594
6/18/2015	141	112	253	8674	61	2081	10755
6/19/2015	135	104	239	8194	61	2091	10285
6/20/2015	131	117	248	8503	64	2200	10703
6/21/2015	137	115	252	8640	64	2196	10836
6/22/2015	133	103	236	8091	65	2241	10332
6/23/2015	137	107	244	8366	60	2049	10415
6/24/2015	125	107	232	7954	55	1902	9856
6/25/2015	131	106	237	8126	59	2031	10157
6/26/2015	123	111	234	8023	63	2156	10179
6/27/2015	131	114	245	8400	63	2160	10560
6/28/2015	123	110	233	7989	63	2160	10149
6/29/2015	122	109	231	7920	64	2179	10099
6/30/2015	129	105	234	8023	64	2194	10217

Attachment 2  
Stipulated Penalty Calculation

### Calculation of Stipulated Penalties - June 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	- <b>Prior</b> 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 <b>after</b> Navajo submits discharge permit modification application	\$100	26	\$2,600
2.b.i.2	- If the daily volume exceeds 15,000 barrels <b>after</b> 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
<b>Total Amount:</b>				<b>\$2,600</b>

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](http://www.hallenvironmental.com)

June 22, 2015

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

RE: Monthly Temporary RO Reject

OrderNo.: 1506316

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 6/6/2015 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1506316

Date Reported: 6/22/2015

**CLIENT:** Navajo Refining Company

**Client Sample ID:** South Field RO Reject Discharge

**Project:** Monthly Temporary RO Reject

**Collection Date:** 6/5/2015 1:54:00 PM

**Lab ID:** 1506316-001

**Matrix:** AQUEOUS

**Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA 200.8: DISSOLVED METALS</b>							Analyst: <b>DBD</b>
Arsenic	ND	0.0050		mg/L	5	6/17/2015 7:44:15 PM	R26904
Lead	ND	0.0010		mg/L	1	6/16/2015 7:43:36 PM	R26876
Selenium	0.0099	0.0010		mg/L	1	6/16/2015 7:43:36 PM	R26876
Uranium	0.0082	0.0010		mg/L	1	6/16/2015 7:43:36 PM	R26876
<b>EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED</b>							Analyst: <b>SUB</b>
Radium-226	2.04	0.578		pCi/L	1	6/16/2015	R26972
Radium-226 ±	0.849	0.578		pCi/L	1	6/16/2015	R26972
Radium-228	0.384	0.696		pCi/L	1	6/16/2015	R26972
Radium-228 ±	0.345	0.696		pCi/L	1	6/16/2015	R26972
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Fluoride	4.6	2.0	*	mg/L	20	6/8/2015 1:22:42 PM	R26695
Chloride	460	50		mg/L	100	6/10/2015 1:28:53 AM	R26721
Sulfate	2300	50		mg/L	100	6/10/2015 1:28:53 AM	R26721
Nitrate+Nitrite as N	1.8	1.0		mg/L	5	6/9/2015 4:16:18 AM	R26695
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>
Total Dissolved Solids	4710	20.0	*	mg/L	1	6/10/2015 12:32:00 PM	19636
<b>EPA 335.4: TOTAL CYANIDE SUBBED</b>							Analyst: <b>SUB</b>
Cyanide	ND	0.0100		mg/L	1	6/18/2015	R26972
<b>SM4500-H+B: PH</b>							Analyst: <b>JRR</b>
pH	8.03	1.68	H	pH units	1	6/9/2015 9:57:39 PM	R26740
<b>EPA METHOD 200.7: DISSOLVED METALS</b>							Analyst: <b>JLF</b>
Aluminum	ND	0.020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Barium	0.080	0.0020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Boron	0.098	0.040		mg/L	1	6/16/2015 5:05:13 PM	R26882
Cadmium	ND	0.0020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Chromium	0.0067	0.0060		mg/L	1	6/16/2015 5:05:13 PM	R26882
Cobalt	ND	0.0060		mg/L	1	6/16/2015 5:05:13 PM	R26882
Copper	ND	0.0060		mg/L	1	6/16/2015 5:05:13 PM	R26882
Iron	0.040	0.020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Manganese	0.012	0.0020		mg/L	1	6/16/2015 5:05:13 PM	R26882
Molybdenum	ND	0.0080		mg/L	1	6/16/2015 5:05:13 PM	R26882
Nickel	ND	0.010		mg/L	1	6/16/2015 5:05:13 PM	R26882
Silver	ND	0.0050		mg/L	1	6/16/2015 5:05:13 PM	R26882
Zinc	0.030	0.010		mg/L	1	6/16/2015 5:05:13 PM	R26882
<b>EPA METHOD 245.1: MERCURY</b>							Analyst: <b>MED</b>
Mercury	ND	0.00020		mg/L	1	6/9/2015 3:13:06 PM	19630

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1506316

Date Reported: 6/22/2015

CLIENT: Navajo Refining Company

Client Sample ID: South Field RO Reject Discharge

Project: Monthly Temporary RO Reject

Collection Date: 6/5/2015 1:54:00 PM

Lab ID: 1506316-001

Matrix: AQUEOUS

Received Date: 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8011/504.1: EDB</b>							Analyst: <b>JME</b>
1,2-Dibromoethane	ND	0.010		µg/L	1	6/11/2015 5:16:00 PM	19674
<b>EPA METHOD 8082: PCB'S</b>							Analyst: <b>SCC</b>
Aroclor 1016	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1221	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1232	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1242	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1248	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1254	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Aroclor 1260	ND	1.0		µg/L	1	6/12/2015 2:49:54 PM	19626
Surr: Decachlorobiphenyl	93.6	44.5-110		%REC	1	6/12/2015 2:49:54 PM	19626
Surr: Tetrachloro-m-xylene	82.8	31.8-95.7		%REC	1	6/12/2015 2:49:54 PM	19626
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/9/2015 10:08:27 PM	19616
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/9/2015 10:08:27 PM	19616
Surr: DNOP	105	76.5-150		%REC	1	6/9/2015 10:08:27 PM	19616
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/10/2015 6:06:50 PM	R26753
Surr: BFB	90.7	57.8-137		%REC	1	6/10/2015 6:06:50 PM	R26753
<b>EPA METHOD 8310: PAHS</b>							Analyst: <b>SCC</b>
Naphthalene	ND	2.0		µg/L	1	6/16/2015 12:08:51 PM	19627
1-Methylnaphthalene	ND	2.0		µg/L	1	6/16/2015 12:08:51 PM	19627
2-Methylnaphthalene	ND	2.0		µg/L	1	6/16/2015 12:08:51 PM	19627
Benzo(a)pyrene	ND	0.070		µg/L	1	6/16/2015 12:08:51 PM	19627
Surr: Benzo(e)pyrene	66.6	37.2-136		%REC	1	6/16/2015 12:08:51 PM	19627
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Toluene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Ethylbenzene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Carbon Tetrachloride	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Chloroform	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1-Dichloroethane	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1-Dichloroethene	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Methylene Chloride	ND	3.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1506316

Date Reported: 6/22/2015

**CLIENT:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject  
**Lab ID:** 1506316-001

**Client Sample ID:** South Field RO Reject Discharge  
**Collection Date:** 6/5/2015 1:54:00 PM  
**Received Date:** 6/6/2015 12:15:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>DJF</b>
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Vinyl chloride	ND	1.0		µg/L	1	6/13/2015 8:29:41 AM	R26817
Xylenes, Total	ND	1.5		µg/L	1	6/13/2015 8:29:41 AM	R26817
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
Surr: Dibromofluoromethane	96.9	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
Surr: Toluene-d8	100	70-130		%REC	1	6/13/2015 8:29:41 AM	R26817
<b>TOTAL PHENOLICS BY SW-846 9067</b>							Analyst: <b>SCC</b>
Phenolics, Total Recoverable	ND	2.5		µg/L	1	6/18/2015	19794

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1506316

Date Reported: 6/22/2015

**CLIENT:** Navajo Refining Company

**Client Sample ID:** Trip Blank

**Project:** Monthly Temporary RO Reject

**Collection Date:**

**Lab ID:** 1506316-002

**Matrix:** TRIP BLANK

**Received Date:** 6/6/2015 12:15:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Toluene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Ethylbenzene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Carbon Tetrachloride	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Chloroform	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1-Dichloroethane	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1-Dichloroethene	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Methylene Chloride	ND	3.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1,1-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
1,1,2-Trichloroethane	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Trichloroethene (TCE)	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Vinyl chloride	ND	1.0		µg/L	1	6/13/2015 9:25:05 AM	R26817
Xylenes, Total	ND	1.5		µg/L	1	6/13/2015 9:25:05 AM	R26817
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817
Surr: 4-Bromofluorobenzene	98.6	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817
Surr: Dibromofluoromethane	95.4	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817
Surr: Toluene-d8	98.5	70-130		%REC	1	6/13/2015 9:25:05 AM	R26817

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

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	Page 4 of 21
	O RSD is greater than RSDlimit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R26882	RunNo:	26882					
Prep Date:		Analysis Date:	6/16/2015	SeqNo:	802272	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R26882	RunNo:	26882					
Prep Date:		Analysis Date:	6/16/2015	SeqNo:	802273	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	107	85	115			
Barium	0.50	0.0020	0.5000	0	99.3	85	115			
Boron	0.53	0.040	0.5000	0	105	85	115			
Cadmium	0.54	0.0020	0.5000	0	107	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Cobalt	0.52	0.0060	0.5000	0	103	85	115			
Copper	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.50	0.020	0.5000	0	99.7	85	115			
Manganese	0.48	0.0020	0.5000	0	96.4	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.50	0.010	0.5000	0	100	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.51	0.010	0.5000	0	101	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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	LCSW		Batch ID:	R26876		RunNo:	26876				
Prep Date:			Analysis Date:	6/16/2015		SeqNo:	802096		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.013	0.00050	0.01250	0	101	85	115				
Selenium	0.025	0.0010	0.02500	0	99.4	85	115				
Uranium	0.013	0.00050	0.01250	0	102	85	115				

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	LCSW		Batch ID:	R26876		RunNo:	26876				
Prep Date:			Analysis Date:	6/16/2015		SeqNo:	802099		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.012	0.00050	0.01250	0	96.3	85	115				
Selenium	0.025	0.0010	0.02500	0	100	85	115				
Uranium	0.012	0.00050	0.01250	0	96.9	85	115				

Sample ID	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	PBW		Batch ID:	R26876		RunNo:	26876				
Prep Date:			Analysis Date:	6/16/2015		SeqNo:	802100		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.00050									
Selenium	ND	0.0010									
Uranium	ND	0.00050									

Sample ID	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	PBW		Batch ID:	R26876		RunNo:	26876				
Prep Date:			Analysis Date:	6/16/2015		SeqNo:	802101		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.00050									
Selenium	ND	0.0010									
Uranium	ND	0.00050									

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	LCSW		Batch ID:	R26904		RunNo:	26904				
Prep Date:			Analysis Date:	6/17/2015		SeqNo:	803447		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	97.9	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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R26904</b>		RunNo: <b>26904</b>							
Prep Date:	Analysis Date: <b>6/17/2015</b>		SeqNo: <b>803448</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.8	85	115			

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R26904</b>		RunNo: <b>26904</b>							
Prep Date:	Analysis Date: <b>6/17/2015</b>		SeqNo: <b>803449</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA 200.8: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R26904</b>		RunNo: <b>26904</b>							
Prep Date:	Analysis Date: <b>6/17/2015</b>		SeqNo: <b>803450</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID	<b>MB-19630</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 245.1: Mercury</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>19630</b>	RunNo:	<b>26705</b>					
Prep Date:	<b>6/9/2015</b>	Analysis Date:	<b>6/9/2015</b>	SeqNo:	<b>795807</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	<b>LCS-19630</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 245.1: Mercury</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>19630</b>	RunNo:	<b>26705</b>					
Prep Date:	<b>6/9/2015</b>	Analysis Date:	<b>6/9/2015</b>	SeqNo:	<b>795808</b>	Units:	<b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	80	120			

**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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R26695</b>		RunNo: <b>26695</b>							
Prep Date:	Analysis Date: <b>6/8/2015</b>		SeqNo: <b>795454</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Nitrate+Nitrite as N	ND	0.20								

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R26695</b>		RunNo: <b>26695</b>							
Prep Date:	Analysis Date: <b>6/8/2015</b>		SeqNo: <b>795455</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	95.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Sample ID <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R26721</b>		RunNo: <b>26721</b>							
Prep Date:	Analysis Date: <b>6/9/2015</b>		SeqNo: <b>796475</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R26721</b>		RunNo: <b>26721</b>							
Prep Date:	Analysis Date: <b>6/9/2015</b>		SeqNo: <b>796476</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0	103	90	110			
Sulfate	11	0.50	10.00	0	106	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID <b>MB-19674</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8011/504.1: EDB</b>							
Client ID: <b>PBW</b>	Batch ID: <b>19674</b>		RunNo: <b>26780</b>							
Prep Date: <b>6/11/2015</b>	Analysis Date: <b>6/11/2015</b>		SeqNo: <b>798570</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID <b>LCS-19674</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8011/504.1: EDB</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>19674</b>		RunNo: <b>26780</b>							
Prep Date: <b>6/11/2015</b>	Analysis Date: <b>6/11/2015</b>		SeqNo: <b>798571</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	109	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID: <b>MB-19616</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>19616</b>	RunNo: <b>26673</b>								
Prep Date: <b>6/8/2015</b>	Analysis Date: <b>6/9/2015</b>	SeqNo: <b>796030</b>	Units: <b>mg/L</b>							
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	0.94		1.000		94.1	76.5	150			

Sample ID: <b>LCS-19616</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>19616</b>	RunNo: <b>26673</b>								
Prep Date: <b>6/8/2015</b>	Analysis Date: <b>6/9/2015</b>	SeqNo: <b>796031</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.3	60.1	156			
Surr: DNOP	0.45		0.5000		89.8	76.5	150			

**Qualifiers:**

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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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID: <b>5ML RB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R26753</b>	RunNo: <b>26753</b>								
Prep Date:	Analysis Date: <b>6/10/2015</b>	SeqNo: <b>797263</b>	Units: <b>mg/L</b>							
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		88.9	57.8	137			

Sample ID: <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R26753</b>	RunNo: <b>26753</b>								
Prep Date:	Analysis Date: <b>6/10/2015</b>	SeqNo: <b>797264</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.5	80	120			
Surr: BFB	21		20.00		103	57.8	137			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID	<b>MB-19626</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8082: PCB's</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>19626</b>	RunNo:	<b>26808</b>					
Prep Date:	<b>6/9/2015</b>	Analysis Date:	<b>6/12/2015</b>	SeqNo:	<b>799539</b>	Units:	<b>µg/L</b>			
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		72.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.6		2.500		63.2	31.8	95.7			

Sample ID	<b>MB-19672</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EPA Method 8082: PCB's</b>					
Client ID:	<b>PBW</b>	Batch ID:	<b>19672</b>	RunNo:	<b>26808</b>					
Prep Date:	<b>6/11/2015</b>	Analysis Date:	<b>6/12/2015</b>	SeqNo:	<b>799540</b>	Units:	<b>%REC</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.3		2.500		92.0	44.5	110			
Surr: Tetrachloro-m-xylene	1.9		2.500		75.2	31.8	95.7			

Sample ID	<b>LCS-19672</b>	SampType:	<b>LCS</b>	TestCode:	<b>EPA Method 8082: PCB's</b>					
Client ID:	<b>LCSW</b>	Batch ID:	<b>19672</b>	RunNo:	<b>26808</b>					
Prep Date:	<b>6/11/2015</b>	Analysis Date:	<b>6/12/2015</b>	SeqNo:	<b>799541</b>	Units:	<b>%REC</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Decachlorobiphenyl	2.0		2.500		82.0	44.5	110			
Surr: Tetrachloro-m-xylene	1.8		2.500		70.4	31.8	95.7			

Sample ID	<b>LCSD-19626</b>	SampType:	<b>LCSD</b>	TestCode:	<b>EPA Method 8082: PCB's</b>					
Client ID:	<b>LCSS02</b>	Batch ID:	<b>19626</b>	RunNo:	<b>26808</b>					
Prep Date:	<b>6/9/2015</b>	Analysis Date:	<b>6/12/2015</b>	SeqNo:	<b>799543</b>	Units:	<b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	3.1	1.0	5.000	0	61.8	22.6	127	4.98	26.9	
Aroclor 1260	4.7	1.0	5.000	0	94.3	20.4	122	8.96	29.1	
Surr: Decachlorobiphenyl	1.7		2.500		69.2	44.5	110	0	0	
Surr: Tetrachloro-m-xylene	1.5		2.500		58.4	31.8	95.7	0	0	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1506316

22-Jun-15

**Client:** Navajo Refining Company  
**Project:** Monthly Temporary RO Reject

Sample ID: <b>LCS-19626</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8082: PCB's</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>19626</b>		RunNo: <b>26808</b>							
Prep Date: <b>6/9/2015</b>	Analysis Date: <b>6/12/2015</b>		SeqNo: <b>799548</b>				Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.9	1.0	5.000	0	58.8	22.6	127			
Aroclor 1260	5.2	1.0	5.000	0	103	20.4	122			
Surr: Decachlorobiphenyl	1.9		2.500		74.8	44.5	110			
Surr: Tetrachloro-m-xylene	1.7		2.500		66.4	31.8	95.7			

**Qualifiers:**

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