

GW – 028

**2015 Annual Discharge
Permit Report**

PART 9 OF 16

March 2016

Chain-of-Custody Record

Client: Navajo Refinery

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QAVQC Package:

X Standard

☐ Level 4 (Full Validation)

☐ Other

☐ EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

Monthly Temporary R.O. Reject

Project #: P.O. # 167796

Project Manager:

Robert Combs

Sampler: Elizabeth Salsberry

On Ice: X Yes ☐ No

Sample Temperature: 5.2°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.	8260B WQCC List VOCs	8270C: WQCC list SVOCs	6010B WQCC Metals	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO, ORO	8082: PCBs	Radactivity (Ra-226+Ra-228)	Sulfate Chloride	Phenols	Fluoride	Nitrate/Nitrite	Total Dissolved Solids	PH	504.1:EDB
8-3-15	0930	liquid	Temporary R.O. Reject	2 - 500ml P	1-unpres H2SO4	1508063 -001															
8-3-15	0930	liquid	Temporary R.O. Reject	3-40ml VOA	HCL		X								X		X	X	X	X	
8-3-15	0930	liquid	Temporary R.O. Reject	1-500ml P	HNO3						X										
8-3-15	0930	liquid	Temporary R.O. Reject	1-125ml P	HNO3				X												
8-3-15	0930	liquid	Temporary R.O. Reject	1-500ml P	NaOH					X											
8-3-15	0930	liquid	Temporary R.O. Reject	2- 1L P	HNO3									X							
8-3-15	0930	liquid	Temporary R.O. Reject	3-40ml VOA	Na2S2O3																X
8-3-15	0930	liquid	Temporary R.O. Reject	2- 1L Glass	unpres								X								
8-3-15	0930	liquid	Temporary R.O. Reject	1- 1L Glass	unpres		X														
8-3-15	0930	liquid	Temporary R.O. Reject	3-40ml VOA	HCl							X									
8-3-15	0930	liquid	Temporary R.O. Reject	1-250ml Glas	unpres							X									
8-3-15	0930	liquid	Temporary R.O. Reject	1- 1L Glass	H2SO4																
8-3-15	0930	liquid	Trip Blank	2-40ml VOA	HCL											X					

Date: 8-3-15 Time: 10:30 Relinquished by: Elizabeth Salsberry Received by: Rebecca Simon Date: 08/04/15 Time: 0913

Remarks:

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

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This record is for internal use only.



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

Monthly RO Reject Sample Details Attachment


HOLLYFRONTIER
The HollyFrontier Companies

Project Name	Biannual RO Reject
Samplers Name	Elizabeth Salsberry
Samplers Affiliation	Navajo Refining Co. LLC
Start Date and Time	8/3/2015 @ 09:25
End Date and Time	8/3/2015 @ 9:41

Sample Type
Grab <input checked="" type="checkbox"/>
Time Weighted Composite <input type="checkbox"/>
Flow Weighted Composite <input type="checkbox"/>

Parts / Sample Intervals	One
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Physical Property
Solid <input type="checkbox"/>
Liquid <input checked="" type="checkbox"/>
Sludge <input type="checkbox"/>

Type of Sampler	Directly to sample jars
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Outfall / Sample Location:	<input type="checkbox"/> North Field R.O. Reject Discharge	<input checked="" type="checkbox"/> South Field R.O. Reject Discharge
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Container	Size	Material	# of Containers	Preservatives								Analysis and/or Method Requested
				Neat (None)	HCl	HNO3	H2SO4	NaOH	Na2S2O3	NaHSO4	Other	
1	500ml	Plastic	2	X			X					pH, Cl F, SO4, NO2/NO3, TDS
2	40ml	VOA	3		X							8015 GRO
3	500ml	Plastic	1			X						6020 total metals, 7470 Hg
4	125ml	Plastic	1			X						6020 Dissolved Metals
5	500ml	Plastic	2					X				Cyanide
6	1L	Plastic	3			X						Radium 226/228
7	40ml	VOA	2		X							8260 see attached list
8	1L	Glass	1	X								8270 see attached list
9	1L	Glass	2	X								8082 PCBs
10	40ml	VOA	2	X								8015 DRC
11	40ml	VOA	2		X							Radium 226/228

Field Data (Weather, Observations, Etc.)	8/3/2015 Temp: 80.6 °F, Humidity 56%, Wind Dir: NW, Wind Speed 4.0 mph, Conditions Clear
Date and Time:	
Field Temp: 26.1°C	Field pH: 7.77

Storage Method
Ice <input checked="" type="checkbox"/>
Refrigerated <input type="checkbox"/>
Other <input type="checkbox"/>

Shipping Media
Ice <input checked="" type="checkbox"/>
Other <input type="checkbox"/>



*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 R.O. Reject

OrderNo.: 1508065

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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1508065

Date Reported: 8/26/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 8/3/2015 10:10:00 AM

Lab ID: 1508065-001

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 8:24:51 PM	D28151
Lead	ND	0.0050		mg/L	1	8/11/2015 9:43:20 PM	R28115
Selenium	0.0067	0.0010		mg/L	1	8/11/2015 9:43:20 PM	R28115
Uranium	0.0047	0.0050		mg/L	1	8/11/2015 9:43:20 PM	R28115
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	0.144	0.867		pCi/L	1	8/18/2015	R28452
Radium-226 ±	0.448	0.867		pCi/L	1	8/18/2015	R28452
Radium-228	0.151	0.690		pCi/L	1	8/18/2015	R28452
Radium-228 ±	0.313	0.690		pCi/L	1	8/18/2015	R28452
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	2.4	0.10		mg/L	1	8/4/2015 7:37:13 PM	R27968
Chloride	230	10		mg/L	20	8/4/2015 7:49:37 PM	R27968
Nitrogen, Nitrate (As N)	1.6	0.10		mg/L	1	8/4/2015 7:37:13 PM	R27968
Sulfate	1400	25		mg/L	50	8/14/2015 3:09:51 AM	R28192
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2860	20.0	*	mg/L	1	8/6/2015 8:33:00 PM	20626
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	8/12/2015	R28452
SM4500-H+B: PH							Analyst: JRR
pH	8.09	1.68	H	pH units	1	8/6/2015 8:11:30 PM	R28029
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Barium	0.056	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Boron	0.083	0.040		mg/L	1	8/5/2015 9:52:54 PM	R27986
Cadmium	ND	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Chromium	ND	0.0060		mg/L	1	8/5/2015 9:52:54 PM	R27986
Cobalt	ND	0.0060		mg/L	1	8/5/2015 9:52:54 PM	R27986
Copper	ND	0.0060		mg/L	1	8/6/2015 3:44:28 PM	C28013
Iron	ND	0.020		mg/L	1	8/7/2015 2:07:43 PM	R28044
Manganese	ND	0.0020		mg/L	1	8/5/2015 9:52:54 PM	R27986
Molybdenum	ND	0.0080		mg/L	1	8/5/2015 9:52:54 PM	R27986
Nickel	ND	0.010		mg/L	1	8/5/2015 9:52:54 PM	R27986
Silver	ND	0.0050		mg/L	1	8/5/2015 9:52:54 PM	R27986
Zinc	0.051	0.010		mg/L	1	8/6/2015 3:44:28 PM	C28013
EPA METHOD 245.1: MERCURY							Analyst: JLF
Mercury	ND	0.00020		mg/L	1	8/7/2015 2:04:07 PM	20665

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1508065

Date Reported: 8/26/2015

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 8/3/2015 10:10:00 AM

Lab ID: 1508065-001

Matrix: AQUEOUS

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

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	0.072	0.050		mg/L	1	8/5/2015 8:34:25 PM	R27991
Surr: BFB	103	70-130		%REC	1	8/5/2015 8:34:25 PM	R27991
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	8/7/2015 12:22:21 PM	20627
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1221	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1232	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1242	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1248	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1254	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Aroclor 1260	ND	1.0		µg/L	1	8/10/2015 12:08:32 PM	20661
Surr: Decachlorobiphenyl	90.0	44.5-110		%REC	1	8/10/2015 12:08:32 PM	20661
Surr: Tetrachloro-m-xylene	108	31.8-95.7	S	%REC	1	8/10/2015 12:08:32 PM	20661
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	8/5/2015 11:43:27 PM	20617
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	8/5/2015 11:43:27 PM	20617
Surr: DNOP	102	72-136		%REC	1	8/5/2015 11:43:27 PM	20617
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	8/10/2015 10:49:51 AM	20677
1-Methylnaphthalene	ND	2.0		µg/L	1	8/10/2015 10:49:51 AM	20677
2-Methylnaphthalene	ND	2.0		µg/L	1	8/10/2015 10:49:51 AM	20677
Benzo(a)pyrene	ND	0.070		µg/L	1	8/10/2015 10:49:51 AM	20677
Surr: Benzo(e)pyrene	75.6	37.2-136		%REC	1	8/10/2015 10:49:51 AM	20677
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Toluene	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Ethylbenzene	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Chloroform	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Methylene Chloride	ND	3.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991

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

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

Analytical Report

Lab Order 1508065

Date Reported: 8/26/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company

Client Sample ID: R.O. Reject

Project: Monthly R.O. Reject

Collection Date: 8/3/2015 10:10:00 AM

Lab ID: 1508065-001

Matrix: AQUEOUS

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

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Vinyl chloride	ND	1.0		µg/L	1	8/5/2015 8:34:25 PM	R27991
Xylenes, Total	ND	1.5		µg/L	1	8/5/2015 8:34:25 PM	R27991
Surr: 1,2-Dichloroethane-d4	96.6	70-130		%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: 4-Bromofluorobenzene	112	70-130		%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: Dibromofluoromethane	107	70-130		%REC	1	8/5/2015 8:34:25 PM	R27991
Surr: Toluene-d8	104	70-130		%REC	1	8/5/2015 8:34:25 PM	R27991
TOTAL PHENOLICS BY SW-846 9067							Analyst: SCC
Phenolics, Total Recoverable	ND	2.5		µg/L	1	8/6/2015	20629

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1508065

Date Reported: 8/26/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1508065-002

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 RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/5/2015 9:02:06 PM	R27991
Surr: BFB	97.5	70-130		%REC	1	8/5/2015 9:02:06 PM	R27991
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	8/7/2015 1:04:28 PM	20627
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Toluene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Ethylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Naphthalene	ND	2.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
2-Methylnaphthalene	ND	4.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Acetone	ND	10		µg/L	1	8/5/2015 9:02:06 PM	R27991
Bromobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Bromodichloromethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Bromoform	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Bromomethane	ND	3.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
2-Butanone	ND	10		µg/L	1	8/5/2015 9:02:06 PM	R27991
Carbon disulfide	ND	10		µg/L	1	8/5/2015 9:02:06 PM	R27991
Carbon Tetrachloride	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Chlorobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Chloroethane	ND	2.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Chloroform	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Chloromethane	ND	3.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
2-Chlorotoluene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
4-Chlorotoluene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
cis-1,2-DCE	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Dibromochloromethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Dibromomethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1508065

Date Reported: 8/26/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly R.O. Reject

Collection Date:

Lab ID: 1508065-002

Matrix: TRIP BLANK

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

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1-Dichloroethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1-Dichloroethene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2-Dichloropropane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,3-Dichloropropane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
2,2-Dichloropropane	ND	2.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1-Dichloropropene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Hexachlorobutadiene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
2-Hexanone	ND	10		µg/L	1	8/5/2015 9:02:06 PM	R27991
Isopropylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
4-Isopropyltoluene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
4-Methyl-2-pentanone	ND	10		µg/L	1	8/5/2015 9:02:06 PM	R27991
Methylene Chloride	ND	3.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
n-Butylbenzene	ND	3.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
n-Propylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
sec-Butylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Styrene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
tert-Butylbenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
trans-1,2-DCE	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Trichlorofluoromethane	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Vinyl chloride	ND	1.0		µg/L	1	8/5/2015 9:02:06 PM	R27991
Xylenes, Total	ND	1.5		µg/L	1	8/5/2015 9:02:06 PM	R27991
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	8/5/2015 9:02:06 PM	R27991
Surr: 4-Bromofluorobenzene	106	70-130		%REC	1	8/5/2015 9:02:06 PM	R27991
Surr: Dibromofluoromethane	109	70-130		%REC	1	8/5/2015 9:02:06 PM	R27991
Surr: Toluene-d8	102	70-130		%REC	1	8/5/2015 9:02:06 PM	R27991

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842241	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842242	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	104	85	115			
Barium	0.49	0.0020	0.5000	0	98.4	85	115			
Boron	0.51	0.040	0.5000	0	102	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.2	85	115			
Chromium	0.49	0.0060	0.5000	0	98.1	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.6	85	115			
Manganese	0.48	0.0020	0.5000	0	95.6	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.47	0.010	0.5000	0	94.3	85	115			
Silver	0.10	0.0050	0.1000	0	99.7	85	115			

Sample ID	LLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842243	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	115	50	150			
Barium	ND	0.0020	0.002000	0	85.0	50	150			
Boron	ND	0.040	0.04000	0	97.3	50	150			
Cadmium	ND	0.0020	0.002000	0	95.5	50	150			
Chromium	0.0062	0.0060	0.006000	0	104	50	150			
Cobalt	ND	0.0060	0.006000	0	99.3	50	150			
Manganese	0.0026	0.0020	0.002000	0	131	50	150			
Molybdenum	0.0087	0.0080	0.008000	0	109	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842243	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nickel	ND	0.010	0.005000	0	93.4	50	150			
Silver	ND	0.0050	0.005000	0	93.8	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842244	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842245	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.52	0.020	0.5000	0	103	85	115			
Barium	0.50	0.0020	0.5000	0	99.0	85	115			
Boron	0.51	0.040	0.5000	0	103	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.2	85	115			
Chromium	0.49	0.0060	0.5000	0	98.2	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.6	85	115			
Manganese	0.48	0.0020	0.5000	0	96.3	85	115			
Molybdenum	0.51	0.0080	0.5000	0	103	85	115			
Nickel	0.47	0.010	0.5000	0	94.8	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842246	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R27986	RunNo:	27986					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842246	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	112	50	150			
Barium	ND	0.0020	0.002000	0	98.5	50	150			
Boron	ND	0.040	0.04000	0	99.7	50	150			
Cadmium	ND	0.0020	0.002000	0	77.5	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	ND	0.0060	0.006000	0	99.8	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Molybdenum	0.0093	0.0080	0.008000	0	116	50	150			
Nickel	ND	0.010	0.005000	0	97.4	50	150			
Silver	ND	0.0050	0.005000	0	95.4	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	C28013	RunNo:	28013					
Prep Date:		Analysis Date:	8/6/2015	SeqNo:	843253	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.0060								
Zinc	ND	0.010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	C28013	RunNo:	28013					
Prep Date:		Analysis Date:	8/6/2015	SeqNo:	843254	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.50	0.0060	0.5000	0	99.7	85	115			
Zinc	0.50	0.010	0.5000	0	101	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	C28013	RunNo:	28013					
Prep Date:		Analysis Date:	8/6/2015	SeqNo:	843255	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.0063	0.0060	0.006000	0	105	50	150			
Zinc	ND	0.010	0.005000	0	128	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844435	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844435	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844436	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.51	0.020	0.5000	0	102	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844437	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.026	0.020	0.02000	0	131	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844438	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844439	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	99.0	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R28044	RunNo:	28044					
Prep Date:		Analysis Date:	8/7/2015	SeqNo:	844440	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.020	0.020	0.02000	0	101	50	150			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	1508065-001GMS		SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	R.O. Reject		Batch ID:	R28115		RunNo:	28115				
Prep Date:			Analysis Date:	8/11/2015		SeqNo:	847552		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	107	70	130				
Selenium	0.031	0.0010	0.02500	0.006711	99.1	70	130				
Uranium	0.019	0.00050	0.01250	0.004729	117	70	130				

Sample ID	1508065-001GMSD		SampType:	MSD		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	R.O. Reject		Batch ID:	R28115		RunNo:	28115				
Prep Date:			Analysis Date:	8/11/2015		SeqNo:	847553		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	105	70	130	2.13	20		
Selenium	0.032	0.0010	0.02500	0.006711	100	70	130	0.805	20		
Uranium	0.019	0.00050	0.01250	0.004729	115	70	130	1.42	20		

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R28115		RunNo: 28115					
Prep Date:			Analysis Date: 8/11/2015		SeqNo: 847560		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	99.5	85	115			
Selenium	0.025	0.0010	0.02500	0	101	85	115			
Uranium	0.012	0.00050	0.01250	0	99.9	85	115			

Sample ID	LCS			SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW			Batch ID:	R28115		RunNo:	28115			
Prep Date:				Analysis Date:	8/11/2015		SeqNo:	847561		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	98.8	85	115				
Selenium	0.025	0.0010	0.02500	0	101	85	115				
Uranium	0.012	0.00050	0.01250	0	99.1	85	115				

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R28115	RunNo:	28115					
Prep Date:		Analysis Date:	8/11/2015	SeqNo:	847562	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00051	0.00050	0.0005000	0	103	50	150			
Selenium	0.0010	0.0010	0.001000	0	103	50	150			
Uranium	0.00051	0.00050	0.0005000	0	103	50	150			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	R28115	RunNo:	28115					
Prep Date:		Analysis Date:	8/11/2015	SeqNo:	847563	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.00053	0.00050	0.0005000	0	105	50	150			
Selenium	0.0011	0.0010	0.001000	0	113	50	150			
Uranium	0.00052	0.00050	0.0005000	0	104	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R28115	RunNo:	28115					
Prep Date:		Analysis Date:	8/11/2015	SeqNo:	847564	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:	R28115	RunNo:	28115					
Prep Date:		Analysis Date:	8/11/2015	SeqNo:	847565	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	1508065-001GMS	SampType:	MS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	R.O. Reject	Batch ID:	D28151	RunNo:	28151					
Prep Date:		Analysis Date:	8/12/2015	SeqNo:	848111	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.12	0.0050	0.1250	0.001284	97.9	70	130			

Sample ID	LCS	SampType:	LCS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID:	D28151	RunNo:	28151					
Prep Date:		Analysis Date:	8/12/2015	SeqNo:	848117	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	97.0	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	LLLCS	SampType	LCSLL	TestCode	EPA 200.8: Dissolved Metals					
Client ID	BatchQC	Batch ID	D28151	RunNo	28151					
Prep Date:		Analysis Date	8/12/2015	SeqNo	848119	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	104	50	150			

Sample ID	MB	SampType	MBLK	TestCode	EPA 200.8: Dissolved Metals					
Client ID	PBW	Batch ID	D28151	RunNo	28151					
Prep Date:		Analysis Date	8/12/2015	SeqNo	848122	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-20665	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	20665	RunNo:	28038					
Prep Date:	8/7/2015	Analysis Date:	8/7/2015	SeqNo:	844199	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-20665	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	20665	RunNo:	28038					
Prep Date:	8/7/2015	Analysis Date:	8/7/2015	SeqNo:	844200	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.8	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

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

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R27968	RunNo:	27968					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	841567	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.8	0.50	5.000	0	96.4	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			

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

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

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-20627	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	20627	RunNo:	28045					
Prep Date:	8/6/2015	Analysis Date:	8/7/2015	SeqNo:	844775	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Sample ID	LCS-20627	SampType:	LCS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	LCSW	Batch ID:	20627	RunNo:	28045					
Prep Date:	8/6/2015	Analysis Date:	8/7/2015	SeqNo:	844776	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.11	0.010	0.1000	0	110	70	130			

Sample ID	1508065-001BMS	SampType:	MS	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	R.O. Reject	Batch ID:	20627	RunNo:	28045					
Prep Date:	8/6/2015	Analysis Date:	8/7/2015	SeqNo:	844786	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.13	0.010	0.1000	0	127	45.7	164			

Sample ID	1508065-001BMSD	SampType:	MSD	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	R.O. Reject	Batch ID:	20627	RunNo:	28045					
Prep Date:	8/6/2015	Analysis Date:	8/7/2015	SeqNo:	844787	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.14	0.010	0.1000	0	135	45.7	164	6.11	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

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

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-20661	SampType: MBLK			TestCode: EPA Method 8082: PCB's					
Client ID:	PBW	Batch ID: 20661			RunNo: 28049					
Prep Date:	8/7/2015	Analysis Date: 8/10/2015			SeqNo: 845110		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.8		2.500		73.6	44.5	110			
Surr: Tetrachloro-m-xylene	2.3		2.500		90.4	31.8	95.7			

Sample ID	LCS-20661	SampType:	LCS	TestCode:	EPA Method 8082: PCB's					
Client ID:	LCSW	Batch ID:	20661	RunNo:	28049					
Prep Date:	8/7/2015	Analysis Date:	8/10/2015	SeqNo:	845133	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	5.9	1.0	5.000	0	117	9.01	142			
Aroclor 1260	6.0	1.0	5.000	0	119	25.6	164			
Surr: Decachlorobiphenyl	2.2		2.500		89.2	44.5	110			
Surr: Tetrachloro-m-xylene	2.7		2.500		107	31.8	95.7			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R27991	RunNo:	27991					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842681	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID RB	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R27991		RunNo: 27991							
Prep Date:	Analysis Date: 8/5/2015		SeqNo: 842681		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	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	12		10.00		116	70	130			
Surr: Toluene-d8	9.7		10.00		97.0	70	130			

Sample ID 100ng lcs	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: LCSW	Batch ID: R27991		RunNo: 27991							
Prep Date:	Analysis Date: 8/5/2015		SeqNo: 842682		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	98.4	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R27991	RunNo:	27991					
Prep Date:		Analysis Date:	8/5/2015	SeqNo:	842682	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-20677	SampType:	MBLK	TestCode:	EPA Method 8310: PAHs					
Client ID:	PBW	Batch ID:	20677	RunNo:	28051					
Prep Date:	8/10/2015	Analysis Date:	8/10/2015	SeqNo:	844835	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	14		20.00		68.8	37.2	136			

Sample ID	LCS-20677	SampType:	LCS	TestCode:	EPA Method 8310: PAHs					
Client ID:	LCSW	Batch ID:	20677	RunNo:	28051					
Prep Date:	8/10/2015	Analysis Date:	8/10/2015	SeqNo:	845107	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	71	2.0	80.00	0	89.4	57.8	83.9			S
1-Methylnaphthalene	74	2.0	80.20	0	91.8	43.5	88.5			S
2-Methylnaphthalene	72	2.0	80.00	0	89.4	34.2	94.5			
Benzo(a)pyrene	0.44	0.070	0.5020	0	87.6	56.3	98.6			
Surr: Benzo(e)pyrene	14		20.00		70.8	37.2	136			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-20629	SampType:	MBLK	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	PBW	Batch ID:	20629	RunNo:	27992					
Prep Date:	8/6/2015	Analysis Date:	8/6/2015	SeqNo:	842690	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	ND	2.5								

Sample ID	LCS-20629	SampType:	LCS	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSW	Batch ID:	20629	RunNo:	27992					
Prep Date:	8/6/2015	Analysis Date:	8/6/2015	SeqNo:	842691	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	21	2.5	20.00	0	104	64.4	135			

Sample ID	LCSD-20629	SampType:	LCSD	TestCode:	Total Phenolics by SW-846 9067					
Client ID:	LCSS02	Batch ID:	20629	RunNo:	27992					
Prep Date:	8/6/2015	Analysis Date:	8/6/2015	SeqNo:	842692	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Recoverable	18	2.5	20.00	0	91.6	64.4	135	12.7	21.4	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	MB-R28452	SampType	MBLK	TestCode	EPA 335.4: Total Cyanide Subbed					
Client ID	PBW	Batch ID	R28452	RunNo	28452					
Prep Date		Analysis Date	8/12/2015	SeqNo	859841	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	LCS-R28452	SampType	LCS	TestCode	EPA 335.4: Total Cyanide Subbed					
Client ID	LCSW	Batch ID	R28452	RunNo	28452					
Prep Date		Analysis Date	8/12/2015	SeqNo	859842	Units	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.521		0.5000	0	104	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

Sample ID	RB	SampType	MBLK	TestCode	EPA Method 8015D: Gasoline Range						
Client ID	PBW	Batch ID	R27991	RunNo	27991						
Prep Date:		Analysis Date	8/5/2015	SeqNo	842759	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	11		10.00		110	70	130				

Sample ID	2.5ug gro lcs	SampType	LCS	TestCode	EPA Method 8015D: Gasoline Range						
Client ID	LCSW	Batch ID	R27991	RunNo	27991						
Prep Date:		Analysis Date	8/5/2015	SeqNo	842760	Units	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	100	80.6	122				
Surr: BFB	10		10.00		103	70	130				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

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

Sample ID	MB-R28452	SampType:	MBLK	TestCode:	EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW	Batch ID:	R28452	RunNo:	28452					
Prep Date:		Analysis Date:	8/18/2015	SeqNo:	859847	Units:	pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.556	0.599								
Radium-226 ±	0.441	0.599								
Radium-228	0.314	0.882								
Radium-228 ±	0.412	0.882								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1508065

26-Aug-15

Client: Navajo Refining Company

Project: Monthly R.O. Reject

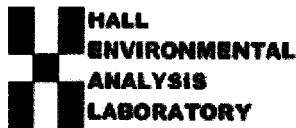
Sample ID	MB-20626	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	20626	RunNo:	28016					
Prep Date:	8/5/2015	Analysis Date:	8/6/2015	SeqNo:	843340	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-20626	SampType:	LCS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW	Batch ID:	20626	RunNo:	28016					
Prep Date:	8/5/2015	Analysis Date:	8/6/2015	SeqNo:	843341	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Qualifiers:

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

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



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

Sample Log-In Check List

Client Name: NAVAJO REFINING CO

Work Order Number: 1508065

RcptNo: 1

Received by/date:

CS

08/04/15

Logged By: Ashley Gallegos

8/4/2015 9:13:00 AM

AG

Completed By: Ashley Gallegos

8/4/2015 10:09:41 AM

AG

Reviewed By:

AG

08/04/15

Chain of Custody

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

Log In

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

Special Handling (if applicable)

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

Person Notified

Date

By Whom

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good	Not Present			



October 12, 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 – September 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 October 2015 monthly report, for the period of September 1-30, under the Order.

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

Navajo has calculated a penalty of \$3,000 for September 2015. The daily discharge volume exceeded the 10,000 barrels/day (bbl/day) limit, but was under 15,000 barrels total, on 30 days in September. 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 September 3, 2015. The analytical lab report for these samples is provided in Attachment 3.

Updates Regarding Treatment and Disposal of RO Reject Fluid

As described in the Order, Navajo is working to enhance its water management system and reduce the total volume of RO reject fluid that is discharged pursuant to its groundwater discharge permit. Navajo is currently preparing a permit modification request to Discharge Permit GW-028 for installation of a third permanent primary RO unit to replace the temporary RO unit and the installation of a secondary RO unit to improve recovery of water as part of Navajo's water conservation effort.

Navajo is also evaluating options for the underground injection of RO reject fluid.

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. Navajo submitted an *Evaluation of Groundwater Quality – RO Reject Fields* memo on August 27, 2015, and the *Background Groundwater Investigation Report* on September 2, 2015, in support of this modification request.

OCD notified Navajo that the application for the requested permit modification is administratively complete by letter dated July 1, 2015. 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 Reports

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	
	SOUTH	NORTH					
9/1/2015	128	119	247	8,469	45	1,546	10,015
9/2/2015	200	168	368	12,617	57	1,944	14,561
9/3/2015	109	175	284	9,737	57	1,954	11,691
9/4/2015	110	182	292	10,011	57	1,954	11,965
9/5/2015	112	179	291	9,977	60	2,054	12,031
9/6/2015	112	178	290	9,943	59	2,027	11,970
9/7/2015	115	177	292	10,011	58	1,998	12,009
9/8/2015	114	181	295	10,114	60	2,046	12,160
9/9/2015	106	171	277	9,497	61	2,104	11,601
9/10/2015	115	178	293	10,046	63	2,159	12,205
9/11/2015	113	177	290	9,943	66	2,261	12,204
9/12/2015	114	178	292	10,011	65	2,231	12,242
9/13/2015	115	180	295	10,114	68	2,328	12,442
9/14/2015	116	179	295	10,114	69	2,358	12,472
9/15/2015	115	179	294	10,080	68	2,332	12,412
9/16/2015	120	180	300	10,286	71	2,432	12,718
9/17/2015	117	175	292	10,011	65	2,243	12,254
9/18/2015	115	177	292	10,011	69	2,383	12,394
9/19/2015	111	178	289	9,909	72	2,467	12,376
9/20/2015	115	179	294	10,080	63	2,173	12,253
9/21/2015	116	174	290	9,943	49	1,680	11,623
9/22/2015	115	176	291	9,977	51	1,763	11,740
9/23/2015	120	178	298	10,217	67	2,297	12,514
9/24/2015	116	176	292	10,011	72	2,465	12,476
9/25/2015	116	177	293	10,046	91	3,124	13,170
9/26/2015	121	164	285	9,771	73	2,490	12,261
9/27/2015	125	162	287	9,840	74	2,527	12,367
9/28/2015	126	163	289	9,909	73	2,507	12,416
9/29/2015	125	102	227	7,783	94	3,223	11,006
9/30/2015	123	100	223	7,646	73	2,510	10,156

Attachment 2
Stipulated Penalty Calculation

Calculation of Stipulated Penalties - October 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	30	\$3,000
2.b.i.2	- If the daily volume exceeds 15,000 barrels after Navajo submits discharge permit modification application	\$500		\$0
2.b.ii	Failure to conduct sampling as required in Exhibit A of Order	\$2,000		\$0
2.b.iii	Failure to timely submit any report or notifications as required in Exhibit A of Order	\$1,000		\$0
2.b.iv	Failure to record the daily discharge flow from the permanent and the temporary RO units	\$1,000		\$0
Total Amount:				\$3,000

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

October 06, 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.: 1509214

Dear Robert Combs:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/4/2015 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 qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman'.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 9/3/2015 8:50:00 AM

Lab ID: 1509214-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: DBD
Arsenic	ND	0.0050		mg/L	5	9/18/2015 2:59:55 PM	B28981
Lead	ND	0.0025		mg/L	5	9/18/2015 2:59:55 PM	B28981
Selenium	0.0086	0.0050		mg/L	5	9/18/2015 2:59:55 PM	B28981
Uranium	0.0056	0.0025		mg/L	5	9/18/2015 2:59:55 PM	B28981
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED							Analyst: SUB
Radium-226	1.7	0.563		pCi/L	1	9/28/2015	R29270
Radium-226 ±	0.701	0.563		pCi/L	1	9/28/2015	R29270
Radium-228	0.308	0.574		pCi/L	1	9/28/2015	R29270
Radium-228 ±	0.283	0.574		pCi/L	1	9/28/2015	R29270
EPA METHOD 300.0: ANIONS							Analyst: LGT
Fluoride	3.2	2.0		mg/L	20	9/4/2015 11:00:00 PM	R28686
Chloride	300	10		mg/L	20	9/4/2015 11:00:00 PM	R28686
Nitrogen, Nitrate (As N)	2.0	0.10		mg/L	1	9/4/2015 10:47:35 PM	R28686
Sulfate	1800	50		mg/L	100	9/15/2015 12:07:52 AM	R28852
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3720	20.0	*	mg/L	1	9/10/2015 5:38:00 PM	21204
EPA 335.4: TOTAL CYANIDE SUBBED							Analyst: SUB
Cyanide	ND	0.0100		mg/L	1	9/15/2015	R29270
SM4500-H+B: PH							Analyst: JRR
pH	7.89	1.68	H	pH units	1	9/8/2015 6:24:49 PM	R28726
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Aluminum	ND	0.020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Barium	0.059	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Boron	0.098	0.040		mg/L	1	9/10/2015 2:52:57 PM	B28759
Cadmium	ND	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Chromium	0.0067	0.0060		mg/L	1	9/11/2015 1:33:20 PM	A28781
Cobalt	0.0061	0.0060		mg/L	1	9/11/2015 1:33:20 PM	A28781
Copper	ND	0.0060		mg/L	1	9/10/2015 2:52:57 PM	B28759
Iron	0.048	0.020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Manganese	ND	0.0020		mg/L	1	9/10/2015 2:52:57 PM	B28759
Molybdenum	ND	0.0080		mg/L	1	9/11/2015 1:33:20 PM	A28781
Nickel	ND	0.010		mg/L	1	9/10/2015 2:52:57 PM	B28759
Silver	ND	0.0050		mg/L	1	9/11/2015 1:33:20 PM	A28781
Zinc	0.019	0.010		mg/L	1	9/11/2015 1:33:20 PM	A28781
EPA METHOD 245.1: MERCURY							Analyst: JLF
Mercury	ND	0.00020		mg/L	1	9/15/2015 3:50:01 PM	21298

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Temporary R.O. Reject

Project: Monthly Temporary R.O. Reject

Collection Date: 9/3/2015 8:50:00 AM

Lab ID: 1509214-001

Matrix: AQUEOUS

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB							Analyst: JME
1,2-Dibromoethane	ND	0.010		µg/L	1	9/9/2015 2:48:42 PM	21198
EPA METHOD 8082: PCB'S							Analyst: SCC
Aroclor 1016	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1221	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1232	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1242	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1248	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1254	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Aroclor 1260	ND	1.0		µg/L	1	9/11/2015 10:58:41 AM	21192
Surr: Decachlorobiphenyl	74.0	17.7-151		%REC	1	9/11/2015 10:58:41 AM	21192
Surr: Tetrachloro-m-xylene	67.6	20.6-151		%REC	1	9/11/2015 10:58:41 AM	21192
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/9/2015 4:47:41 PM	21183
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/9/2015 4:47:41 PM	21183
Surr: DNOP	108	72-136		%REC	1	9/9/2015 4:47:41 PM	21183
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/10/2015 1:16:54 PM	R28761
Surr: BFB	94.5	57.8-137		%REC	1	9/10/2015 1:16:54 PM	R28761
EPA METHOD 8310: PAHS							Analyst: SCC
Naphthalene	ND	2.0		µg/L	1	9/11/2015 8:09:56 AM	21193
1-Methylnaphthalene	ND	2.0		µg/L	1	9/11/2015 8:09:56 AM	21193
2-Methylnaphthalene	ND	2.0		µg/L	1	9/11/2015 8:09:56 AM	21193
Benzo(a)pyrene	ND	0.070		µg/L	1	9/11/2015 8:09:56 AM	21193
Surr: Benzo(e)pyrene	41.3	37.2-136		%REC	1	9/11/2015 8:09:56 AM	21193
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Toluene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Ethylbenzene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Carbon Tetrachloride	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Chloroform	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Methylene Chloride	ND	3.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1509214**Date Reported: **10/6/2015****CLIENT:** Navajo Refining Company**Client Sample ID:** Temporary R.O. Reject**Project:** Monthly Temporary R.O. Reject**Collection Date:** 9/3/2015 8:50:00 AM**Lab ID:** 1509214-001**Matrix:** AQUEOUS**Received Date:** 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES				Analyst: AG			
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Vinyl chloride	ND	1.0		µg/L	1	9/8/2015 2:48:27 PM	R28707
Xylenes, Total	ND	1.5		µg/L	1	9/8/2015 2:48:27 PM	R28707
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: 4-Bromofluorobenzene	99.5	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: Dibromofluoromethane	97.9	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
Surr: Toluene-d8	99.1	70-130		%REC	1	9/8/2015 2:48:27 PM	R28707
TOTAL PHENOLICS BY SW-846 9067				Analyst: SCC			
Phenolics, Total Recoverable	ND	2.5		µg/L	1	9/30/2015	21585

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1509214-002

Matrix: TRIP BLANK

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/10/2015 1:42:19 PM	R28761
Surr: BFB	93.2	57.8-137		%REC	1	9/10/2015 1:42:19 PM	R28761
EPA METHOD 8260B: VOLATILES							Analyst: AG
Benzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Toluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Ethylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Naphthalene	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1-Methylnaphthalene	ND	4.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Methylnaphthalene	ND	4.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Acetone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromodichloromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromoform	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Bromomethane	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Butanone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Carbon disulfide	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Carbon Tetrachloride	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloroethane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloroform	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Chloromethane	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Chlorotoluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Chlorotoluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
cis-1,2-DCE	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Dibromochloromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Dibromomethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,4-Dichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Dichlorodifluoromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloroethene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707

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

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1509214

Date Reported: 10/6/2015

CLIENT: Navajo Refining Company

Client Sample ID: Trip Blank

Project: Monthly Temporary R.O. Reject

Collection Date:

Lab ID: 1509214-002

Matrix: TRIP BLANK

Received Date: 9/4/2015 10:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: AG
1,2-Dichloropropane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,3-Dichloropropane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2,2-Dichloropropane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Hexachlorobutadiene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
2-Hexanone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Isopropylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Isopropyltoluene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
4-Methyl-2-pentanone	ND	10		µg/L	1	9/8/2015 3:17:15 PM	R28707
Methylene Chloride	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
n-Butylbenzene	ND	3.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
n-Propylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
sec-Butylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Styrene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
tert-Butylbenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
trans-1,2-DCE	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,1-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,1,2-Trichloroethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Trichloroethene (TCE)	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Trichlorofluoromethane	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
1,2,3-Trichloropropane	ND	2.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Vinyl chloride	ND	1.0		µg/L	1	9/8/2015 3:17:15 PM	R28707
Xylenes, Total	ND	1.5		µg/L	1	9/8/2015 3:17:15 PM	R28707
Surr: 1,2-Dichloroethane-d4	93.0	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707
Surr: 4-Bromofluorobenzene	98.0	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707
Surr: Dibromofluoromethane	97.2	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707
Surr: Toluene-d8	100	70-130		%REC	1	9/8/2015 3:17:15 PM	R28707

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-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: B28759		RunNo: 28759							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 871972		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.50	0.020	0.5000	0	99.8	85	115			
Barium	0.49	0.0020	0.5000	0	98.9	85	115			
Boron	0.53	0.040	0.5000	0	105	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Copper	0.47	0.0060	0.5000	0	94.2	85	115			
Iron	0.53	0.020	0.5000	0	107	85	115			
Manganese	0.49	0.0020	0.5000	0	97.9	85	115			
Nickel	0.48	0.010	0.5000	0	95.4	85	115			

Sample ID LLCS	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: B28759		RunNo: 28759							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 871973		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	104	50	150			
Barium	ND	0.0020	0.002000	0	90.0	50	150			
Boron	ND	0.040	0.04000	0	95.7	50	150			
Cadmium	ND	0.0020	0.002000	0	93.5	50	150			
Copper	ND	0.0060	0.006000	0	98.2	50	150			
Iron	0.021	0.020	0.02000	0	105	50	150			
Manganese	0.0022	0.0020	0.002000	0	108	50	150			
Nickel	ND	0.010	0.005000	0	119	50	150			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: B28759		RunNo: 28759							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 871977		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								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

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

Sample ID	1509214-001IMS		SampType:	MS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B28759		RunNo:	28759			
Prep Date:			Analysis Date:	9/10/2015		SeqNo:	872105		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0.004060	106	70	130			
Barium	0.50	0.0020	0.5000	0.05899	88.1	70	130			
Boron	0.64	0.040	0.5000	0.09823	108	70	130			
Cadmium	0.47	0.0020	0.5000	0	93.9	70	130			
Copper	0.47	0.0060	0.5000	0	94.4	70	130			
Iron	0.50	0.020	0.5000	0.04757	90.7	70	130			
Manganese	0.46	0.0020	0.5000	0.001650	91.3	70	130			
Nickel	0.41	0.010	0.5000	0	82.0	70	130			

Sample ID	1509214-001IMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B28759		RunNo:	28759			
Prep Date:			Analysis Date:	9/10/2015		SeqNo:	872106		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.53	0.020	0.5000	0.004060	106	70	130	0.150	20	
Barium	0.50	0.0020	0.5000	0.05899	88.6	70	130	0.493	20	
Boron	0.65	0.040	0.5000	0.09823	110	70	130	1.05	20	
Cadmium	0.47	0.0020	0.5000	0	94.6	70	130	0.694	20	
Copper	0.47	0.0060	0.5000	0	94.4	70	130	0.0890	20	
Iron	0.51	0.020	0.5000	0.04757	92.7	70	130	1.99	20	
Manganese	0.46	0.0020	0.5000	0.001650	91.8	70	130	0.605	20	
Nickel	0.41	0.010	0.5000	0	82.1	70	130	0.178	20	

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	A28781		RunNo:	28781			
Prep Date:			Analysis Date:	9/11/2015		SeqNo:	872822		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	98.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.7	85	115			
Molybdenum	0.50	0.0080	0.5000	0	99.3	85	115			
Silver	0.089	0.0050	0.1000	0	89.1	85	115			
Zinc	0.49	0.010	0.5000	0	97.9	85	115			

Sample ID	LLLCS		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	A28781		RunNo:	28781			
Prep Date:			Analysis Date:	9/11/2015		SeqNo:	872823		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060	0.006000	0	82.5	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

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

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A28781	RunNo:	28781					
Prep Date:		Analysis Date:	9/11/2015	SeqNo:	872823	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.0060	0.006000	0	86.0	50	150			
Molybdenum	ND	0.0080	0.008000	0	53.8	50	150			
Silver	ND	0.0050	0.005000	0	86.8	50	150			
Zinc	ND	0.010	0.005000	0	103	50	150			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	A28781	RunNo:	28781					
Prep Date:		Analysis Date:	9/11/2015	SeqNo:	872843	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Molybdenum	ND	0.0080								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	1509214-001IMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	Temporary R.O. Rej	Batch ID:	A28781	RunNo:	28781					
Prep Date:		Analysis Date:	9/11/2015	SeqNo:	873630	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0.006680	96.5	70	130			
Cobalt	0.46	0.0060	0.5000	0.006090	91.2	70	130			
Molybdenum	0.47	0.0080	0.5000	0	93.9	70	130			
Silver	0.072	0.0050	0.1000	0	71.5	70	130			
Zinc	0.50	0.010	0.5000	0.01942	97.0	70	130			

Sample ID	1509214-001IMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	Temporary R.O. Rej	Batch ID:	A28781	RunNo:	28781					
Prep Date:		Analysis Date:	9/11/2015	SeqNo:	873631	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.0060	0.5000	0.006680	98.3	70	130	1.84	20	
Cobalt	0.47	0.0060	0.5000	0.006090	93.3	70	130	2.27	20	
Molybdenum	0.47	0.0080	0.5000	0	93.6	70	130	0.403	20	
Silver	0.074	0.0050	0.1000	0	74.4	70	130	3.93	20	
Zinc	0.50	0.010	0.5000	0.01942	97.0	70	130	0.0436	20	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	1509214-001IMS		SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	Temporary R.O. Rej		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879521		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.001661	99.8	70	130			
Lead	0.061	0.0025	0.06250	0	97.7	70	130			
Selenium	0.12	0.0050	0.1250	0.008634	92.3	70	130			
Uranium	0.072	0.0025	0.06250	0.005627	106	70	130			

Sample ID	LCS		SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	LCSW		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879546		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	95.3	85	115			
Lead	0.012	0.00050	0.01250	0	99.4	85	115			
Selenium	0.023	0.0010	0.02500	0	91.2	85	115			
Uranium	0.013	0.00050	0.01250	0	100	85	115			

Sample ID	LLLCS		SampType:	LCSLL		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879550		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	93.3	50	150			
Lead	0.00054	0.00050	0.0005000	0	109	50	150			
Selenium	ND	0.0010	0.001000	0	89.0	50	150			
Uranium	0.00052	0.00050	0.0005000	0	104	50	150			

Sample ID	MB		SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	PBW		Batch ID:	B28981		RunNo:	28981			
Prep Date:			Analysis Date:	9/18/2015		SeqNo:	879554		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21298	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	21298	RunNo:	28872					
Prep Date:	9/15/2015	Analysis Date:	9/15/2015	SeqNo:	875782	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-21298	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	21298	RunNo:	28872					
Prep Date:	9/15/2015	Analysis Date:	9/15/2015	SeqNo:	875785	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	95.4	80	120			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28686	RunNo:	28686					
Prep Date:		Analysis Date:	9/4/2015	SeqNo:	869229	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride
Chloride
Nitrogen, Nitrate (As N)

ND
ND
ND

0.10
0.50
0.10

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R28686	RunNo:	28686					
Prep Date:		Analysis Date:	9/4/2015	SeqNo:	869230	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride
Chloride
Nitrogen, Nitrate (As N)

0.49
4.9
2.6

0.10
0.50
0.10

0.5000
5.000
2.500

0
0
0

97.5
98.5
104

90
90
90

110
110
110

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R28852	RunNo:	28852					
Prep Date:		Analysis Date:	9/14/2015	SeqNo:	875093	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:	R28852	RunNo:	28852					
Prep Date:		Analysis Date:	9/14/2015	SeqNo:	875094	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Sulfate

9.8

0.50

10.00

0

98.4

90

110

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21198	SampType:	MBLK	TestCode:	EPA Method 8011/504.1: EDB					
Client ID:	PBW	Batch ID:	21198	RunNo:	28723					
Prep Date:	9/9/2015	Analysis Date:	9/9/2015	SeqNo:	870483	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-21198		SampType:	LCS		TestCode:	EPA Method 8011/504.1: EDB				
Client ID:	LCSW		Batch ID:	21198		RunNo:	28723				
Prep Date:	9/9/2015		Analysis Date:	9/9/2015		SeqNo:	870484		Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
1,2-Dibromoethane	0.078	0.010	0.1000	0	78.0	70	130				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

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

Sample ID	MB-21183	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID:	21183	RunNo:	28717					
Prep Date:	9/8/2015	Analysis Date:	9/9/2015	SeqNo:	870900	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	72	136			

Sample ID	LCS-21183	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW	Batch ID:	21183	RunNo:	28717					
Prep Date:	9/8/2015	Analysis Date:	9/9/2015	SeqNo:	870912	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	52.4	154			
Surr: DNOP	0.52		0.5000		104	72	136			

Sample ID	1509214-001BMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	Temporary R.O. Rej	Batch ID:	21183	RunNo:	28717					
Prep Date:	9/8/2015	Analysis Date:	9/9/2015	SeqNo:	870914	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	6.1	1.0	5.000	0	123	41.3	177			
Surr: DNOP	0.61		0.5000		122	72	136			

Sample ID	1509214-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	Temporary R.O. Rej	Batch ID:	21183	RunNo:	28717					
Prep Date:	9/8/2015	Analysis Date:	9/9/2015	SeqNo:	870915	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	-94.6	317	18.0	22.1	
Surr: DNOP	0.54		0.5000		108	72	136	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

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

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: R28761		RunNo: 28761							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 872128		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.2	57.8	137			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R28761		RunNo: 28761							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 872129		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.9	80	120			
Surr: BFB	19		20.00		94.5	57.8	137			

Sample ID 1509214-001AMS	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: Temporary R.O. Rej	Batch ID: R28761		RunNo: 28761							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 872139		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.43	0.050	0.5000	0	85.6	70	130			
Surr: BFB	20		20.00		99.4	57.8	137			

Sample ID 1509214-001AMSD	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: Temporary R.O. Rej	Batch ID: R28761		RunNo: 28761							
Prep Date:	Analysis Date: 9/10/2015		SeqNo: 872140		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.0	70	130	9.31	20	
Surr: BFB	21		20.00		104	57.8	137	0	0	

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21192		SampType: MBLK		TestCode: EPA Method 8082: PCB's					
Client ID:	PBW		Batch ID: 21192		RunNo: 28758					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 872597		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	1.6		2.500		62.8	17.7	151			
Surr: Tetrachloro-m-xylene	1.3		2.500		50.4	20.6	151			

Sample ID	LCS-21192		SampType:	LCS		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSW		Batch ID:	21192		RunNo:	28758				
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	873603		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	2.2	1.0	5.000	0	44.8	9.01	142				
Aroclor 1260	3.3	1.0	5.000	0	65.3	25.6	164				
Surr: Decachlorobiphenyl	1.4		2.500		58.0	17.7	151				
Surr: Tetrachloro-m-xylene	1.3		2.500		52.0	20.6	151				

Sample ID	LCSD-21192		SampType:	LCSD		TestCode:	EPA Method 8082: PCB's				
Client ID:	LCSS02		Batch ID:	21192		RunNo:	28758				
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	873604		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aroclor 1016	2.0	1.0	5.000	0	39.0	9.01	142	13.7	26.9		
Aroclor 1260	3.0	1.0	5.000	0	59.2	25.6	164	9.84	29.1		
Surr: Decachlorobiphenyl	1.3		2.500		53.2	17.7	151	0	0		
Surr: Tetrachloro-m-xylene	1.1		2.500		42.8	20.6	151	0	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

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

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R28707			RunNo: 28707					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870059		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	21	1.0	20.00	0	104	70	130			
1,1-Dichloroethene	23	1.0	20.00	0	117	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28707			RunNo: 28707					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870063		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R28707			RunNo: 28707					
Prep Date:		Analysis Date: 9/8/2015			SeqNo: 870063	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R28707	RunNo:	28707					
Prep Date:		Analysis Date:	9/8/2015	SeqNo:	870063	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.5	70	130			
Surr: Dibromofluoromethane	10		10.00		105	70	130			
Surr: Toluene-d8	9.0		10.00		90.4	70	130			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

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

Sample ID	MB-21193		SampType:	MBLK		TestCode:	EPA Method 8310: PAHs				
Client ID:	PBW		Batch ID:	21193		RunNo:	28760				
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872124		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	7.7		20.00		38.7	37.2	136				

Sample ID	LCS-21193		SampType:	LCS		TestCode:	EPA Method 8310: PAHs				
Client ID:	LCSW		Batch ID:	21193		RunNo:	28760				
Prep Date:	9/9/2015		Analysis Date:	9/11/2015		SeqNo:	872224		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Naphthalene	60	2.0	80.00	0	74.8	57.8	83.9				
1-Methylnaphthalene	60	2.0	80.20	0	75.2	43.5	88.5				
2-Methylnaphthalene	60	2.0	80.00	0	74.6	34.2	94.5				
Benzo(a)pyrene	0.38	0.070	0.5020	0	75.7	56.3	98.6				
Surr: Benzo(e)pyrene	9.9		20.00		49.3	37.2	136				

Sample ID	LCSD-21193		SampType: LCSD		TestCode: EPA Method 8310: PAHs					
Client ID:	LCSS02		Batch ID: 21193		RunNo: 28760					
Prep Date:	9/9/2015		Analysis Date: 9/11/2015		SeqNo: 872225		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	59	2.0	80.00	0	73.6	57.8	83.9	1.55	20	
1-Methylnaphthalene	59	2.0	80.20	0	73.8	43.5	88.5	1.94	20	
2-Methylnaphthalene	58	2.0	80.00	0	72.8	34.2	94.5	2.46	20	
Benzo(a)pyrene	0.37	0.070	0.5020	0	73.7	56.3	98.6	2.67	20	
Surr: Benzo(e)pyrene	9.3		20.00		46.4	37.2	136	0		

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21585		SampType:	MBLK		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	PBW		Batch ID:	21585		RunNo:	29183				
Prep Date:	9/30/2015		Analysis Date:	9/30/2015		SeqNo:	886370		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-21585		SampType:	LCS		TestCode:	Total Phenolics by SW-846 9067				
Client ID:	LCSW		Batch ID:	21585		RunNo:	29183				
Prep Date:	9/30/2015		Analysis Date:	9/30/2015		SeqNo:	886371		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Phenolics, Total Recoverable	17	2.5	20.00	0	83.6	64.4	135				

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R29270		SampType:	MBLK		TestCode:	EPA 335.4: Total Cyanide Subbed				
Client ID:	PBW		Batch ID:	R29270		RunNo:	29270				
Prep Date:			Analysis Date:	9/15/2015		SeqNo:	889324	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cyanide	ND	0.0100									

Sample ID	LCS-R29270		SampType: LCS		TestCode: EPA 335.4: Total Cyanide Subbed					
Client ID:	LCSW		Batch ID: R29270		RunNo: 29270					
Prep Date:			Analysis Date: 9/15/2015		SeqNo: 889325		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.478		0.5000	0	95.6	90	110			

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-R29270		SampType: MBLK		TestCode: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed					
Client ID:	PBW		Batch ID: R29270		RunNo: 29270					
Prep Date:			Analysis Date: 9/28/2015		SeqNo: 889327		Units: pCi/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.461	0.612								
Radium-226 ±	0.431	0.612								
Radium-228	0.202	0.549								
Radium-228 ±	0.259	0.549								

Qualifiers:

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1509214

06-Oct-15

Client: Navajo Refining Company

Project: Monthly Temporary R.O. Reject

Sample ID	MB-21204		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW		Batch ID:	21204		RunNo:	28757				
Prep Date:	9/9/2015		Analysis Date:	9/10/2015		SeqNo:	871932		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-21204		SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW		Batch ID:	21204		RunNo:	28757				
Prep Date:	9/9/2015		Analysis Date:	9/10/2015		SeqNo:	871933		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Dissolved Solids	1020	20.0	1000	0	102	80	120				

Qualifiers:

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

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