### Chavez, Carl J, EMNRD

From:Chavez, Carl J, EMNRDSent:Thursday, April 13, 2017 11:34 AMTo:'Dade, Lewis (Randy)'Subject:RE: Emailing: 2017-02-15 GW-028 Monthly Report

Randy:

Yes, this is it. Don't know why my Jan. 2017 version was missing the lab data?

Anyway, I have reviewed the RO Reject discharge data from 1/9/17, and it looks good with the exception of the usual exceedances, i.e., F, SO4, and TDS. It is interesting Chlorides are well below the 250 ppm. Will get it into the Admin. Record.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490 E-mail: CarlJ.Chavez@state.nm.us "Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

-----Original Message-----From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com] Sent: Thursday, April 13, 2017 10:57 AM To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us> Cc: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com> Subject: FW: Emailing: 2017-02-15 GW-028 Monthly Report

Carl,

Here is the GW-28 Report from 02-15-2017 with attached Analytical Data from 01/09/2017. If there is anything else you need, let me know. Have a great week and weekend. Thanks, Randy

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### Chavez, Carl J, EMNRD

From: Sent: To: Subject: Attachments: Chavez, Carl J, EMNRD Thursday, April 13, 2017 9:44 AM 'Dade, Lewis (Randy)' RE: GW-28 March Report GW-28 March 2017 Report.pdf

Randy:

Good morning. I was reviewing the above subject report, the section with the following paragraph:

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the first quarter, samples were collected for the RO reject streams from the permanent units on January 9, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the monthly report submitted on February 15, 2017, for the January 2017 reporting period.

OCD did not receive the environmental analytical laboratory data results in the submitted February 15, 2017 monthly report. HollyFrontier should have conducted sampling again around April 9, 2017?

Could you please submit the January 9, 2017 environmental analytical data results to OCD by COB on Friday, April 21, 2017. Also, OCD should be receiving the next quarterly sampling data results with the April 2017 submittal.

Please contact me if you have questions. Thank you.

Mr. Carl J. Chavez, CHMM (#13099) New Mexico Oil Conservation Division Energy Minerals and Natural Resources Department 1220 South St Francis Drive Santa Fe, New Mexico 87505 Ph. (505) 476-3490 E-mail: <u>CarlJ.Chavez@state.nm.us</u>

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: <u>http://www.emnrd.state.nm.us/OCD</u> and see "Publications")

From: Dade, Lewis (Randy) [mailto:Lewis.Dade@HollyFrontier.com]
Sent: Wednesday, April 12, 2017 11:33 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>;
McWatters, Denise <Denise.McWatters@HollyFrontier.com>; O'Brien, Robert (Bob) K.
<Robert.OBrien@HollyFrontier.com>; Holder, Mike <Michael.Holder@hollyfrontier.com>; Marks, Allison, EMNRD
<AllisonR.Marks@state.nm.us>; Brancard, Bill, EMNRD <bill.brancard@state.nm.us>
Cc: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Subject: GW-28 March Report

Here is the monthly GW-28 Discharge Permit Report for March 2017. If there are any questions, please contact me. Thanks, Randy.



April 12, 2017

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: Discharge Permit GW-028 Monthly Report – March 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's March 2017 monthly report, for the period of March 1-31, 2017, under the Permit.

Specifically, this report covers the March 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the first quarter, samples were collected for the RO reject streams from the permanent units on January 9, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results were provided in the monthly report submitted on February 15, 2017, for the January 2017 reporting period.

HollyFrontier Navajo Refining LLC 501 East Main • Artesia, NM 88210 (575) 748-3311 • <u>http://www.hollyfrontier.com</u> Name Date April 12, 2017 Page 2

Navajo is committed to proactively meeting the requirements of the Permit 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 Flowrates and Volumes

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

> HollyFrontier Navajo Refining LLC 501 East Main • Artesia, NM 88210 (575) 748-3311 • <u>http://www.hollyfrontier.com</u>

Attachment 1 Daily Discharge Flowrates and Volumes

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		Permaner	nt RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
F	GPM	GPM	GPM	GPM	BBL/DAY
	SOUTH	NORTH	MIDDLE		
3/1/2017	0.00	7.24	4.55	11.79	404.23
3/2/2017	0.00	0.13	0.03	0.16	5.49
3/3/2017	63.74	8.93	0.03	72.70	2,492.57
3/4/2017	13.12	0.06	18.37	31.55	1,081.71
3/5/2017	0.00	0.07	126.94	127.01	4,354.63
3/6/2017	0.00	0.08	106.72	106.80	3,661.71
3/7/2017	0.00	0.08	53.24	53.32	1,828.11
3/8/2017	0.00	0.08	0.04	0.12	4.11
3/9/2017	0.00	0.08	0.02	0.10	3.43
3/10/2017	0.00	0.08	0.02	0.10	3.43
3/11/2017	0.00	0.08	0.02	0.10	3.43
3/12/2017	0.00	0.08	0.02	0.10	3.43
3/13/2017	0.00	0.08	0.02	0.10	3.43
3/14/2017	0.00	0.08	0.02	0.10	3.43
3/15/2017	0.00	0.09	0.02	0.11	3.77
3/16/2017	0.00	0.08	0.02	0.10	3.43
3/17/2017	0.00	0.09	0.02	0.11	3.77
3/18/2017	85.92	4.81	0.02	90.75	3,111.43
3/19/2017	136.32	0.09	0.02	136.43	4,677.60
3/20/2017	138.28	0.09	0.02	138.39	4,744.80
3/21/2017	139.22	0.09	0.02	139.33	4,777.03
3/22/2017	138.66	30.51	0.02	169.19	5,800.80
3/23/2017	139.98	110.37	0.02	250.37	8,584.11
3/24/2017	140.95	110.13	0.02	251.10	8,609.14
3/25/2017	141.30	110.57	0.02	251.89	8,636.23
3/26/2017	140.80	111.31	0.02	252.13	8,644.46
3/27/2017	140.95	111.81	0.02	252.78	8,666.74
3/28/2017	140.32	110.36	0.02	250.70	8,595.43
3/29/2017	141.72	105.80	0.02	247.54	8,487.09
3/30/2017	132.85	109.43	0.02	242.30	8,307.43
3/31/2017	142.58	119.88	0.02	262.48	8,999.31
OTAL (bbls/mor	nth)	An ann an Anna an Anna Anna Anna Anna A			114,505.71

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

### Chavez, Carl J, EMNRD

From:Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>Sent:Thursday, April 13, 2017 10:57 AMTo:Chavez, Carl J, EMNRDCc:Dade, Lewis (Randy)Subject:FW: Emailing: 2017-02-15 GW-028 Monthly ReportAttachments:2017-02-15 GW-028 Monthly Report.pdf

Carl,

Here is the GW-28 Report from 02-15-2017 with attached Analytical Data from 01/09/2017. If there is anything else you need, let me know. Have a great week and weekend. Thanks, Randy

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February 15, 2017

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: Discharge Permit GW-028 Monthly Report – January 2017 Reporting Period

Dear Sirs:

In accordance with Condition 4.B.7 of Discharge Permit GW-028 (the Permit), the HollyFrontier Navajo Refining LLC (Navajo), Artesia, New Mexico, Refinery (the Refinery) hereby submits the required monthly report to the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). This letter and all attachments provided herein constitute Navajo's January 2016 monthly report, for the period of January 1-31, 2017, under the Permit.

Specifically, this report covers the January 2017 reporting period and includes the following data and information as required by Condition 4.B.7:

• Daily discharge flow measurements for each reverse osmosis (RO) unit, which were collected as required by Condition 4.B.4.

Flow rates, volumes, and discharge locations for the RO reject fluid is monitored from the three permanent RO units on a daily basis. Daily discharge rates and volumes are provided in Attachment 1. Per Mr. Chavez' request, the total discharge for the month is also shown in Attachment 1.

To satisfy the quarterly sampling requirement of Condition 4.B.1 of the Permit for the fourth quarter, samples were collected for the RO reject streams from the permanent units on January 5, 2017. The samples were analyzed for the constituents listed in sections 20.6.2.3103A, B, and C of the New Mexico Administrative Code (NMAC) and using the methods specified in Navajo's Facility Wide Groundwater Monitoring Program (FWGWMP). The corresponding analytical results are provided in Attachment 2.

OCD Febuary 15, 2017 Page 2 of 2

On October 21, 2016, Navajo notified OCD of its selection of a Class 1 disposal well as an alternative disposal method for the RO reject. Navajo submitted a revised application to renew and modify Discharge Permit GW-028 on January 13, 2017, to reflect this selection.

Navajo is committed to proactively meeting the requirements of the Permit 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 Flowrates and Volumes Attachment 2: Analytical Lab Report

cc. HFC: D. McWatters, R. O'Brien, M. Holder OCD: A. Marks, B. Brancard Attachment 1 Daily Discharge Flowrates and Volumes

		Permanen	t RO Units		Daily Discharge Volume
		Metered Data		Combined RO Reject Discharge (Calculated)	
	GPM	GPM	GPM	GPM	BBL/DAY
F	SOUTH	NORTH	MIDDLE		
1/1/2017	0.00	128.70	125.72	254.42	8,722.97
1/2/2017	0.00	128.90	125.67	254.57	8,728.11
1/3/2017	0.00	128.73	125.77	254.50	8,725.71
1/4/2017	0.00	128.72	125.61	254.33	8,719.89
1/5/2017	0.15	128.90	125.86	254.90	8,739.43
1/6/2017	0.00	126.99	125.41	252.40	8,653.71
1/7/2017	0.00	124.68	124.50	249.19	8,543.66
1/8/2017	0.00	124.60	124.03	248.63	8,524.46
1/9/2017	0.00	115.64	116.60	232.25	7,962.86
1/10/2017	0.00	121.95	125.59	247.54	8,487.09
1/11/2017	0.00	122.38	126.03	248.41	8,516.91
1/12/2017	0.00	122.27	127.79	250.06	8,573.49
1/13/2017	21.23	107.10	128.94	257.27	8,820.69
1/14/2017	134.75	38.19	129.63	302.57	10,373.83
1/15/2017	136.47	39.28	130.72	306.47	10,507.54
1/16/2017	135.08	38.13	130.27	303.48	10,405.03
1/17/2017	135.69	38.65	130.06	304.40	10,436.57
1/18/2017	138.87	10.23	132.21	281.31	9,644.91
1/19/2017	123.39	64.66	131.14	319.18	10,943.31
1/20/2017	100.50	123.69	129.28	353.46	12,118.63
1/21/2017	97.46	122.80	129.00	349.26	11,974.63
1/22/2017	110.04	72.43	130.03	312.49	10,713.94
1/23/2017	125.38	42.27	131.51	299.15	10,256.57
1/24/2017	126.09	44.09	131.21	301.39	10,333.37
1/25/2017	126.86	43.15	131.16	301.16	10,325.49
1/26/2017	127.32	42.46	131.19	300.98	10,319.31
1/27/2017	127.20	42.55	130.96	300.72	10,310.40
1/28/2017	127.16	40.74	130.99	298.89	10,247.66
1/29/2017	127.49	16.81	131.11	275.41	9,442.63
1/30/2017	127.90	0.10	131.11	259.11	8,883.77
1/31/2017	127.71	0.07	130.88	258.66	8,868.34
TOTAL (bbls/mor	nth)				297,824.91

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

Attachment 2 Analytical Lab Report

## HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 14, 2017

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

RE: Quarterly R.O. Reject

OrderNo.: 1701253

Dear Mike Holder:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/9/2017 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued February 06, 2017.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> or the state specific web sites. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,

andig

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

CLIENT: Navajo Refi	ning Company		ſ	lient Sample	D.R.	) Reject		
Project: Quarterly R	0 1 5		C	-		/2017 4:30:00 PM		
Lab ID: 1701253-00	·	AQUEOUS				/2017 9:20:00 AM		
Analyses	Result	PQL (				Date Analyzed	Batch	
EPA 200.8: DISSOLV			2					
	· · · · · · · · · · · · · · · · · · ·				_	Analyst		
Arsenic Lead	ND ND	0.0050		mg/L	5	1/13/2017 5:17:37 PM	C40026	
Selenium	0.010	0.0025 0.0050		mg/L mg/L	5 5	1/13/2017 5:17:37 PM 1/13/2017 5:17:37 PM	C4002	
Uranium	0.0052	0.0030		mg/L	5 5	1/13/2017 5:17:37 PM 1/13/2017 5:17:37 PM	C40026 C40026	
	ND EPA 904.0: RA 228-SUBBEI			ing/L	0			
Radium-226	1.29	0.662			1	Analyst		
Radium-226 ±	0.644	0.662		pCi/L pCi/L	1 1	2/2/2017 2/2/2017	R40526	
Radium-228	0.624	1.02		pCi/L pCi/L	1	2/2/2017	R40526 R40526	
Radium-228 ±	0.507	1.02		pCi/L	1	2/2/2017	R40526	
EPA METHOD 300.0:				pone	•	Analyst		
Fluoride	3.5	2.0		mg/L	20	1/9/2017 10:08:12 PM	R39919	
Chloride	74	2.0 10		mg/L	20	1/9/2017 10:08:12 PM	R39919	
Sulfate	1400	50		mg/L		1/11/2017 1:08:20 AM	R39952	
Nitrate+Nitrite as N	2.3	1.0		mg/L	5	1/10/2017 12:12:18 AM		
SM2540C MOD: TOTA	L DISSOLVED SOLIDS			U		Analyst		
Total Dissolved Solids	3410	20.0	*	mg/L	1	1/11/2017 5:59:00 PM	29623	
EPA 335.4: TOTAL C		20.0		mg/L				
Cyanide	ND	0.0100		m m //	4	Analyst:		
-		0.0100		mg/L	1	1/16/2017	R40523	
SM4500-H+B: PH	7.07	4.00				Analyst		
рН	7.87	1.68	Н	pH units	1	1/9/2017 3:34:06 PM	R39934	
EPA METHOD 200.7:	DISSOLVED METALS					Analyst	TES	
Aluminum	ND	0.020		mg/L	1	1/22/2017 9:55:24 PM	A40181	
Barium	0.066	0.0020		mg/L	1	1/24/2017 11:12:53 AM	A40223	
Boron	0.10	0.040		mg/L	1	1/24/2017 11:12:53 AM		
Cadmium	ND	0.0020		mg/L	1	1/24/2017 11:12:53 AM		
Chromium Cobalt	ND	0.0060		mg/L	1	1/24/2017 11:12:53 AM		
Copper	ND	0.0060		mg/L	1	1/24/2017 11:12:53 AM		
Iron	ND ND	0.0060 0.020		mg/L mg/L	1 1	1/26/2017 9:36:42 AM	A40288	
Manganese	ND	0.0020		mg/L	1	1/24/2017 11:12:53 AM 1/24/2017 11:12:53 AM		
Molybdenum	0.0088	0.0020		mg/L	1	1/24/2017 11:12:53 AM		
Nickel	ND	0.010		mg/L	1	1/24/2017 11:12:53 AM		
Silver	ND	0.0050		mg/L	1	1/24/2017 11:12:53 AM		
Zinc	0.023	0.010		mg/L	1	1/24/2017 11:40:30 AM		
EPA METHOD 245.1:	MERCURY			•		Analyst:		
Mercury	ND	0.00020		mg/L	1	1/10/2017 12:14:44 PM		
-	Summary report and sample log		for fl	-				
	e exceeds Maximum Contaminant Level					he associated Method Blank		
	ele Diluted Due to Matrix	aadad	E Value above quantitation range					
	Detected at the Reporting Limit	ceaea	<ul> <li>J Analyte detected below quantitation limits Page 1 of 22</li> <li>P Sample pH Not In Range</li> <li>RL Reporting Detection Limit</li> </ul>					
	outside accepted recovery limits							
	covery outside of range due to dilution of	r matrix				n Limit emperature is out of limit as specified		

#### tal Analysia I ak Hall Engin **.**w.

CLIENT: Navajo Refining Company Project: Quarterly R.O. Reject			Client Samp Collection		O. Reject 5/2017 4:30:00 PM	
Lab ID: 1701253-001	Matrix:	AQUEOUS			9/2017 9:20:00 AM	
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst:	DJF
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/12/2017 2:15:17 PM	G39990
Surr: BFB	87.6	70-130	%Rec	1	1/12/2017 2:15:17 PM	G39990
EPA METHOD 8011/504.1: EDB					Analyst:	IME
1.2-Dibromoethane	ND	0.010	uo/I	1	1/10/2017 10:10:43 AM	
•	ND	0.010	µg/L	1		
EPA METHOD 8082: PCB'S					Analyst:	
Aroclor 1016	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	29618
Aroclor 1221	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	29618
Aroclor 1232	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	
Aroclor 1242	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	
Aroclor 1248	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	
Aroclor 1254	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	
Aroclor 1260	ND	1.0	µg/L	1	1/11/2017 10:44:00 AM	
Surr: Decachlorobiphenyl	60.4	26.1-140	%Rec	1	1/11/2017 10:44:00 AM	
Surr: Tetrachloro-m-xylene	53.2	15-123	%Rec	1	1/11/2017 10:44:00 AM	29618
EPA METHOD 8015M/D: DIESEL RANG	E				Analyst:	TOM
Diesel Range Organics (DRO)	ND	1.0	mg/L	1	1/12/2017 4:33:48 PM	29657
Motor Oil Range Organics (MRO)	ND	5.0	mg/L	1	1/12/2017 4:33:48 PM	29657
Surr: DNOP	115	77.1-144	%Rec	1	1/12/2017 4:33:48 PM	29657
EPA METHOD 8310: PAHS					Analyst:	SCC
Naphthalene	ND	2.0	µg/L	1	1/11/2017 12:16:05 PM	
1-Methylnaphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PM	
2-Methylnaphthalene	ND	2.0	μg/L	1	1/11/2017 12:16:05 PM	
Benzo(a)pyrene	ND	0.070	µg/L	1	1/11/2017 12:16:05 PM	29615
Surr: Benzo(e)pyrene	81.0	24.4-130	%Rec	1	1/11/2017 12:16:05 PM	29615
EPA METHOD 8260B: VOLATILES					Analyst:	DJF
Benzene	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912
Toluene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Ethylbenzene	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,2-Dichloroethane (EDC)	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912
Carbon Tetrachloride	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Chloroform	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1-Dichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
1,1-Dichloroethene	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912
Methylene Chloride	ND	3.0	µg/L	1	1/9/2017 5:53:01 PM	W39912
1,1,2,2-Tetrachloroethane	ND	2.0	μg/L	1	1/9/2017 5:53:01 PM	W39912
Tetrachloroethene (PCE)	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912

## Hall Environmental Analysis Laboratory, Inc.

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 22
	ND	Not Detected at the Reporting Limit	Р	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	W	Sample container temperature is out of limit as specified

Analytical Report Lab Order 1701253 Date Reported: 2/14/2017

CLIENT: Navajo Refining CompanyProject:Quarterly R.O. RejectLab ID:1701253-001	Client Sample ID: R.O. RejectCollection Date: 1/5/2017 4:30:00 PMMatrix: AQUEOUSReceived Date: 1/9/2017 9:20:00 AM									
Analyses	Result	PQL Que	ıl Units	DF	Date Analyzed	Batch				
EPA METHOD 8260B: VOLATILES					Analys	t: DJF				
1,1,1-Trichloroethane	ND	1.0	μg/L	1	1/9/2017 5:53:01 PM	W39912				
1,1,2-Trichloroethane	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912				
Trichloroethene (TCE)	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912				
Vinyl chloride	ND	1.0	µg/L	1	1/9/2017 5:53:01 PM	W39912				
Xylenes, Total	ND	1.5	μg/L	1	1/9/2017 5:53:01 PM	W39912				
Surr: 1,2-Dichloroethane-d4	107	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912				
Surr: 4-Bromofluorobenzene	86.6	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912				
Surr: Dibromofluoromethane	118	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912				
Surr: Toluene-d8	87.9	70-130	%Rec	1	1/9/2017 5:53:01 PM	W39912				
TOTAL PHENOLICS BY SW-846 9067					Analys	t: SCC				
Phenolics, Total Recoverable	ND	2.5	µg/L	1	1/25/2017	29866				

## Hall Environmental Analysis Laboratory, Inc.

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank						
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range						
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 22						
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not ln Range						
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit						
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified						
				1 f f f f f f f f f f f f f f f f f f f						

Lab Order 1701253 Date Reported: 2/14/2017

**Analytical Report** 

Hall Environmental Analys	ll Environmental Analysis Laboratory, Inc.									
CLIENT: Navajo Refining Company Project: Quarterly R.O. Reject	Client Sample ID: Trip Blank Collection Date:									
Lab ID: 1701253-002	Matrix:	TRIP BLANK	Received	Date: 1/9	/2017 9:20:00 AM					
Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch				
EPA METHOD 8015D: GASOLINE RAM	IGE				Analyst	DJF				
Gasoline Range Organics (GRO)	ND	0.050	mg/L	1	1/12/2017 3:43:50 PM	G39990				
Surr: BFB	83.7	70-130	%Rec	1	1/12/2017 3:43:50 PM	G39990				
EPA METHOD 8011/504.1: EDB					Analyst	JME				
1,2-Dibromoethane	ND	0.010	µg/L	1	1/10/2017 10:25:50 AM					
EPA METHOD 8260B: VOLATILES					Analyst	DJF				
Benzene	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991;				
Toluene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W3991				
Ethylbenzene	ND	1.0	μg/L	1	1/9/2017 6:22:09 PM	W3991				
1,2-Dichloroethane (EDC)	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
1,2-Dibromoethane (EDB)	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Carbon Tetrachloride	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Chloroform	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
1,1-Dichloroethane	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
1,1-Dichloroethene	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Methylene Chloride	ND	3.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
1,1,2,2-Tetrachloroethane	ND	2.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Tetrachloroethene (PCE)	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
1,1,1-Trichloroethane	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
1,1,2-Trichloroethane	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Trichloroethene (TCE)	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Vinyl chloride	ND	1.0	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Xylenes, Total	ND	1.5	µg/L	1	1/9/2017 6:22:09 PM	W3991				
Surr: 1,2-Dichloroethane-d4	103	70-130	%Rec	1	1/9/2017 6:22:09 PM	W3991				
Surr: 4-Bromofluorobenzene	86.8	70-130	%Rec	1	1/9/2017 6:22:09 PM	W3991				
Surr: Dibromofluoromethane	116	70-130	%Rec	1	1/9/2017 6:22:09 PM	W3991				
Surr: Toluene-d8	88.9	70-130	%Rec	1	1/9/2017 6:22:09 PM	W3991				

### Hall Environmental Analysis Laboratory, Inc.

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 22
	ND	Not Detected at the Reporting Limit	Р	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	W	Sample container temperature is out of limit as specified
				· · · · · · · · · · · · · · · · · · ·

Analytical Report
Lab Order 1701253

# **Client:**

Navajo Refining Company **Project:** Quarterly R.O. Reject

Sample ID	MB-A	SampType: MBLK	Te	stCode: EPA Method	200 7: Discol	und Motol			
Client ID:	PBW	Batch ID: A40181		RunNo: 40181					
Prep Date:		Analysis Date: 1/22/20	17		Lipito: mall				
		Analysis Date. 1122120	17	SeqNo: <b>1259966</b>	Units: <b>mg/L</b>				
Analyte			value SPK Ref Va	I %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		ND 0.020							
Sample ID	LLLCS-A	SampType: LCSLL	Te	stCode: EPA Method	200.7: Dissol	ved Metal	ls		
Client ID:	BatchQC	Batch ID: A40181		RunNo: 40181					
Prep Date:		Analysis Date: 1/22/20	17	SeqNo: 1259967	Units: mg/L				
Analyte		Result PQL SPK	value SPK Ref Va	I %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		ND 0.020 0.	01000 0	104 50	150			I	
Sample ID	LCS-A	SampType: LCS	Te	stCode: EPA Method	200.7: Dissol	ved Meta	ls		
Client ID:	LCSW	Batch ID: A40181		RunNo: 40181					
Prep Date:		Analysis Date: 1/22/20	17	SeqNo: 1259968	Units: mg/L				
Analyte		Result PQL SPK	value SPK Ref Va	I %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Aluminum		0.53 0.020	0.5000 0	106 85	115				
Sample ID	MB-A	SampType: <b>MBLK</b>	Te	stCode: EPA Method	200.7: Dissol	ved Meta	ls		
Client ID:	PBW	Batch ID: A40223		RunNo: 40223					
Prep Date:		Analysis Date: 1/24/20	17	SeqNo: 1261933	Units: mg/L				
Analyte		Result PQL SPK	value SPK Ref Va	I %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium		ND 0.0020							
Boron		ND 0.040							
Cadmium		ND 0.0020							
Chromium		ND 0.0060							
Cobalt		ND 0.0060							
Iron		ND 0.020							
Manganese		ND 0.0020							
Molybdenum		ND 0.0080							
Nickel		ND 0.010							
Silver		ND 0.0050							
Zinc		ND 0.010	A10-00-0000						
Sample ID	LCS-A	SampType: LCS	Te	stCode: EPA Method	200.7: Dissol	ved Meta	ls		
Client ID:	LCSW	Batch ID: A40223		RunNo: <b>40223</b>					
Prep Date:		Analysis Date: 1/24/20	17	SeqNo: <b>1261934</b>	Units: mg/L				
Analyte		Result PQL SPK	value SPK Ref Va	I %REC LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium		0.48 0.0020 (	0.5000 0	96.4 85	115				
Boron		0.50 0.040 (	0.5000 0	99.6 85	115				

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Holding times for preparation or analysis exceeded Н

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified Page 5 of 22

14-Feb-17

WO#: 1701253

### Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID LCS-A	SampType: LCS TestCode: EPA Method 200.7: Dissolved Metals										
Client ID: LCSW		ch ID: A4			unNo: 4		200.11 210001	irea meta	5		
Prep Date:		Analysis Date: 1/24/2017			SeqNo: 1261934						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Cadmium	0.49	0.0020	0.5000	0	97.1	85	115				
Chromium	0.48	0.0060	0.5000	0	95.4	85	115				
Cobalt	0.46	0.0060	0.5000	0	91.8	85	115				
Iron	0.47	0.020	0.5000	0	93.5	85	115				
Manganese	0.47	0.0020	0.5000	0	94.2	85	115				
Molybdenum	0.50	0.0080	0.5000	0	101	85	115				
Nickel	0.45	0.010	0.5000	0	90.4	85	115				
Silver	0.098	0.0050	0.1000	0	97.9	85	115				
Zinc	0.47	0.010	0.5000	0	93.5	85	115				
Sample ID LLLCS-A	Samp	Type: LC	SLL	Test	tCode: El	PA Method	200.7: Dissol	ved Meta	s		
Client ID: BatchQC	Bato	h ID: A4	0223	RunNo: <b>40223</b>							
Prep Date:	Analysis	Date: <b>1/</b>	24/2017	S	SeqNo: 1261935 Units:			Jnits: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	0.0022	0.0020	0.002000	0	112	50	150				
Boron	0.040	0.040	0.04000	0	101	50	150				
Cadmium	ND	0.0020	0.002000	0	98.5	50	150				
Chromium	0.0060	0.0060	0.006000	0	101	50	150				
Cobalt	ND	0.0060	0.006000	0	98.5	50	150				
Iron	ND	0.020	0.02000	0	99.3	50	150				
Manganese	ND	0.0020	0.002000	0	92.5	50	150				
Molybdenum	0.0092	0.0080	0.008000	0	115	50	150				
Nickel	ND	0.010	0.005000	0	110	50	150				
Silver	0.0050	0.0050	0.005000	0	105		450				
Citter	0.0052	0.0050	0.005000	0	105	50	150				
Zinc	0.0052 ND	0.0050	0.005000	0	105 109	50 50	150 150				

### 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
- W Sample container temperature is out of limit as specified

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WO#: 1701253

### Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Arsenic         0.14         0.0050         0.1250         0.002183         106         70         130         0.715         20           Lead         0.064         0.0025         0.00250         0         102         70         130         0.187         20           Salenium         0.014         0.0050         0.1250         0.01048         106         70         130         0.245         20           Sample ID         1701253-001GMSLL         SampType:         MS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1113/2017         SeqNo:         1224503         Units:         mg/L           Ansenic         0.14         0.0050         0.1250         0.00148         104         70         130           Lead         0.064         0.0025         0.06250         0.00148         104         70         130           Lead         0.064         0.0025         0.06250         0.0148         104         70         130           Lead         0.0625         0.06250         0.01048         104												
Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254502         Units:         mg/L           Analyte         Result         PQL         SPK Natue         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.14         0.0050         0.1250         0.002183         108         70         130         0.147         20           Selenium         0.14         0.0050         0.1250         0.00148         106         70         130         0.187         20           Selenium         0.14         0.0050         0.0225         0.005175         105         70         130         0.245         20           Ummim         0.071         0.0025         0.06250         0.05250         105         70         130         0.245         20           Sample ID         1701253-001GMSLL         SampType: MS         TestCode:         EPA 200.8:         Dissolved Metals         0.024           Client ID:         R.O. Reject         Batch ID:         C40026         RenNo:         4254503         Units:         mg/L           Analyte         Result         POL         SFK Kalue         SFK Ref Val<	Sample ID	1701253-001GMS	SD	TestCode: EPA 200.8: Dissolved Metals								
Analyte         Result         PGL         SPK value         SPK ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arseric         0.14         0.0025         0.0025         0.002183         108         70         130         0.715         20           Lad         0.064         0.0025         0.06250         0.1014         106         70         130         0.187         20           Selenium         0.0171         0.0025         0.06250         0.00144         106         70         130         0.245         20           Sample ID         1701253-001GMSLL         SampType: MS         TestCode:         EPA 200.8:         Dissolved Metals         20           Sample ID         1701253-001GMSLL         SampType: K3         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo: 40026         100         70         130         Arsenic           0.14         0.0025         0.06250         0.02180         0.012         70         130         Inal         Inal         Inal         Inal         Inal         Inal         Inal         Inal         In	Client ID:	R.O. Reject	Bat	ch ID: <b>C4</b>	0026	F	RunNo: 40026					
Atsenic         0.14         0.0050         0.1250         0.002183         108         70         130         0.715         20           Lad         0.064         0.0025         0.06250         0         102         70         130         0.187         20           Selenium         0.14         0.0025         0.06250         0.01048         106         70         130         0.245         20           Sample ID         1701253-001GMSLL         SampType: MS         TestCode: EPA 200.8: Dissolved Metals         20           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo: 40026         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo: 125403         Units: mg/L           Assenic         0.14         0.0050         0.1250         0.00148         104         70         130           Lead         0.064         0.0025         0.1250         0.01048         104         70         130           Lead         0.064         0.0025         0.06250         0.05175         105         70         130           Lead         0.0625         0.06250         0.05175         106         70         130	Prep Date:		Analysis	Date: 1/	13/2017	S	SeqNo: 1254502 Units: mg/L					
Lead         0.064         0.0025         0.06250         0         102         70         130         0.187         20           Selenium         0.071         0.0025         0.06250         0.001043         106         70         130         0.187         20           Sample ID         1701253-001GMSLL         SampType:         Maintain         TestCode:         EPA 200.8:         Dissolved Metals         20           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo:         40026         Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254503         Units:         mg/L         Qua           Analysis         0.14         0.0055         0.1250         0.002183         107         70         130         20         20           Lead         0.044         0.0055         0.1250         0.01243         104         70         130         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20         20	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium         0.14         0.0050         0.1250         0.01048         106         70         130         1.86         20           Sample ID         1701253-001GMSLL         SampType:         MS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254503         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.14         0.0050         0.1250         0.002183         107         70         130         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         100         10	Arsenic		0.14	0.0050	0.1250	0.002183	108	70	130	0.715	20	
Utanium         0.071         0.0025         0.06250         0.005175         105         70         130         0.245         20           Sample ID         1701253-001GMSLL         SampType: MS         TestCode:         EP4 200.3:         Dissolved Metals           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254503         Units:         mg/L           Analyte         Result         POL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.14         0.0050         0.1250         0.002183         107         70         130         Uainit           Lead         0.0054         0.0025         0.005250         0.00575         105         70         130         Uainit         Qua           Sample ID         LCS         SampType:         LCS         TestCode:         EPA 200.8:         Dissolved Metals         Qua           Analyte         Analysis Date:         1/13/2017         SeqNo:         1254506         Units:         mg/L           Analyte	Lead		0.064	0.0025	0.06250	0	102	70	130	0.187	20	
Sample ID         1701253-001GMSLL         SampType: MS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         R.O. Reject         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254503         Units:         mg/L           Analyte         Result         POL         SPK value         SP	Selenium		0.14	0.0050	0.1250	0.01048	106	70	130	1.86	20	
Client ID:         R.O. Reject         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analytis Date:         1/13/2017         SeqNo:         1254503         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.14         0.0050         0.1250         0.002183         107         70         130           Lead         0.064         0.0025         0.06250         0         102         70         130           Selenium         0.14         0.0050         0.1250         0.005175         105         70         130           Selenium         0.014         0.0025         0.06250         0.005175         105         70         130           Sample ID         LCS         SampType:         LCS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         LCSW         Batch ID:         C40026         RunNo: 40026         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimi	Uranium		0.071	0.0025	0.06250	0.005175	105	70	130	0.245	20	
Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254503       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       0.14       0.0050       0.1250       0.002183       107       70       130         Lead       0.064       0.0025       0.06250       0       102       70       130         Salenium       0.114       0.0050       0.1250       0.01048       104       70       130         Vanium       0.071       0.0025       0.06250       0.005175       105       70       130         Sample ID       LCS       SampType:       LCS       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       LCSW       Batch ID:       C40026       RunNo:       40026       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       0.026       0.0110       0.02500       0       98.8       85       115       Interm	Sample ID	1701253-001GMS	Tes	tCode: E	PA 200.8: [	Dissolved Met	tals					
Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.14         0.0050         0.1250         0.002183         107         70         130           Lead         0.064         0.0025         0.06250         0         102         70         130           Selenium         0.14         0.0050         0.1250         0.01048         104         70         130           Uranium         0.071         0.0025         0.06250         0.005175         105         70         130           Sample ID         LCS         SampType: LCS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         LCSW         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254506         Units:         mg/L           Arsenic         0.025         0.0010         0.02500         0         98.8         85         115           Lead         0.012         0.00050         0.01250         0         98.4         85         115	Client ID:	R.O. Reject Batch ID: C40026				F	RunNo: <b>4</b>	0026				
Arsenic       0.14       0.0050       0.1250       0.002183       107       70       130         Lead       0.064       0.0025       0.66250       0       102       70       130         Selenium       0.14       0.0050       0.1250       0.01048       104       70       130         Selenium       0.071       0.0025       0.66250       0.005175       105       70       130         Sample ID       LCS       SampType:       LCS       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       LCSW       Batch ID:       C40026       RunNo:       40026         Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254506       Units:       mg/L         Analyte       Result       POL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       0.026       0.0010       0.02500       0       98.8       85       115         Lead       0.012       0.00050       0.01250       0       98.4       85       115         Sample ID       LLCS       SampType:       LCSLL       TestCode: <td< td=""><td>Prep Date:</td><td></td><td>Analysis</td><td>Date: 1/</td><td>13/2017</td><td>S</td><td>GeqNo: 1</td><td>254503</td><td>Units: mg/L</td><td></td><td></td><td></td></td<>	Prep Date:		Analysis	Date: 1/	13/2017	S	GeqNo: 1	254503	Units: mg/L			
Lead         0.064         0.0025         0.06250         0         102         70         130           Selenium         0.14         0.0025         0.06250         0.01048         104         70         130           Uranium         0.071         0.0025         0.06250         0.005175         105         70         130           Sample ID         LCS         SampType:         LCS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         LCSW         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254506         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.025         0.0010         0.02500         0         98.8         85         115         Uranium         0.012         0.00050         0.01250         0         98.4         85         115         Uranium         Uranium         0.012         0.00050         0.01250         0         98.4         85         115         <	Analyte	1978-1976-1977-1977-1977-1977-1977-1977-1977	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium         0.14         0.0050         0.1250         0.00148         104         70         130           Uranium         0.071         0.0025         0.06250         0.005175         105         70         130           Sample ID         LCS         SampType:         LCS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         LCSW         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254506         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.025         0.0010         0.02500         0         98.4         85         115         115           Lead         0.013         0.00050         0.01250         0         98.4         85         115           Sample ID         LLLCS         SampType:         LCSLL         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         BatchQC         Batch ID:         C40026         RunNo:         40026	Arsenic			0.0050	0.1250	0.002183			130			
Uranium         0.071         0.0025         0.06250         0.005175         105         70         130           Sample ID         LCS         SampType:         LCS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         LCSW         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254506         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.025         0.0010         0.02500         0         98.8         85         115         5           Lead         0.013         0.00050         0.01250         0         100         85         115           Selenium         0.012         0.00050         0.01250         0         98.4         85         115           Sample ID         LLLCS         SampType: LCSLL         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         Batch QC         Batch ID:         C40026         RunNo: 40026         Prep Date:					0.06250	0	102		130			
Sample ID         LCS         SampType:         LCS         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         LCSW         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254506         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.025         0.0010         0.02500         0         98.8         85         115           Lead         0.013         0.00050         0.01250         0         100         85         115           Sample ID         LLLCS         SampType:         LCSLL         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         Batch ID:         C40026         RunNo:         40026         Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254507         Units:         mg/L           Arsenic         ND         0.0010         0.001000         0         98.2         50         150           Lead         0.00050	Selenium		0.14	0.0050	0.1250	0.01048	104	70	130			
Client ID:       LCSW       Batch ID:       C40026       RunNo:       40026         Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254506       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       0.025       0.0010       0.02500       0       98.8       85       115       115         Lead       0.013       0.00050       0.01250       0       100       85       115       115         Selenium       0.026       0.0010       0.02500       0       98.4       85       115       115         Vranium       0.012       0.00050       0.01250       0       98.4       85       115       115         Sample ID       LLLCS       SampType:       LCSLL       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       BatchQC       Batch ID:       C40026       RunNo:       40026         Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254507       Units:       mg/L         Analyte       Result       PQL	Uranium		0.071	0.0025	0.06250	0.005175	105	70	130			
Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254506       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       0.025       0.0010       0.02500       0       98.8       85       115       15         Lead       0.013       0.00050       0.01250       0       100       85       115       15         Selenium       0.012       0.00050       0.01250       0       98.4       85       115       15         Vanium       0.012       0.00050       0.01250       0       98.4       85       115       16       175         Sample ID       LLLCS       SampType: LCSLL       TestCode:       EPA 200.8:       Dissolved Metals       115       175         Client ID:       BatchQC       Batch ID:       C40026       RunNo: 40026       1254507       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       ND       0.0010 <td>Sample ID</td> <td>LCS</td> <td>Tes</td> <td>tCode: E</td> <td>PA 200.8: [</td> <td>Dissolved Me</td> <td>tals</td> <td></td> <td></td>	Sample ID	LCS	Tes	tCode: E	PA 200.8: [	Dissolved Me	tals					
Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         0.025         0.0010         0.02500         0         98.8         85         115         15         15         15         15         15         15         16         16         100         85         115         15         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16         16	Client ID:	LCSW Batch ID: C40026				F	RunNo: <b>4</b>	0026				
Arsenic       0.025       0.0010       0.02500       0       98.8       85       115         Lead       0.013       0.00050       0.01250       0       100       85       115         Selenium       0.026       0.0010       0.02500       0       103       85       115         Uranium       0.012       0.00050       0.01250       0       98.4       85       115         Sample ID       LLLCS       SampType:       LCSLL       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       BatchQC       Batch ID:       C40026       RunNo:       40026         Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254507       Units:       mg/L         Arsenic       ND       0.0010       0.001000       98.2       50       150         Lead       0.00052       0.000500       0       104       50       150         Lead       0.0010       0.00100       0       102       50       150         Lead       0.00052       0.000500       0       102       50       150         Selenium       0.0010       0.00100       0       102       50	Prep Date:		Analysis	Date: 1/	13/2017	5	SeqNo: 1	254506	Units: mg/L			
Lead       0.013       0.00050       0.01250       0       100       85       115         Selenium       0.026       0.0010       0.02500       0       103       85       115         Uranium       0.012       0.00050       0.01250       0       98.4       85       115         Sample ID       LLLCS       SampType: LCSLL       TestCode: EPA 200.8: Dissolved Metals       115         Client ID:       BatchQC       Batch ID: C40026       RunNo: 40026         Prep Date:       Analysis Date: 1/13/2017       SeqNo: 1254507       Units: mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       ND       0.0010       0.001000       0       98.2       50       150         Lead       0.00052       0.000500       0       104       50       150         Selenium       0.0010       0.00100       0       102       50       150         Lead       0.00050       0.000500       0       100       50       150         Sample ID       MB       SampType: MBLK       TestCode: EPA 200.8: Dissolved Met	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium         0.026         0.010         0.02500         0         103         85         115           Uranium         0.012         0.00050         0.01250         0         98.4         85         115           Sample ID         LLLCS         SampType:         LCSLL         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         BatchQC         Batch ID:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254507         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         ND         0.0010         0.001000         0         98.2         50         150           Lead         0.00052         0.000500         0         104         50         150           Vanium         0.00050         0.000500         0         100         50         150           Sample ID         MB         SampType:         MBLK         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:<					0.02500	0	98.8	85	115			
Uranium       0.012       0.00050       0.01250       0       98.4       85       115         Sample ID       LLLCS       SampType:       LCSLL       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       Batch QC       Batch ID:       C40026       RunNo:       40026         Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254507       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       ND       0.0010       0.001000       0       98.2       50       150         Lead       0.00052       0.000500       0       104       50       150         Selenium       0.0010       0.00100       0       102       50       150         Varianum       0.00050       0.000500       0       100       50       150         Sample ID       MB       SampType:       MBLK       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       PBW       Batch ID:       C40026       RunNo:       40026	Lead		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:         C40026         RunNo:         40026           Prep Date:         Analysis Date:         1/13/2017         SeqNo:         1254507         Units:         mg/L           Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         ND         0.0010         0.001000         0         98.2         50         150           Lead         0.00052         0.00050         0.0005000         0         104         50         150           Selenium         0.0010         0.00100         0         102         50         150           Varianium         0.00050         0.000500         0         100         50         150           Sample ID         MB         SampType:         MBLK         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         PBW         Batch ID:         C40026         RunNo:         40026	Selenium		0.026	0.0010	0.02500	0	103	85	115			
Client ID:       Batch QC       Batch ID:       C40026       RunNo:       40026         Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254507       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       ND       0.0010       0.001000       0       98.2       50       150         Lead       0.00052       0.000500       0       104       50       150         Selenium       0.0010       0.001000       0       102       50       150         Varianium       0.00050       0.000500       0       100       50       150         Sample ID       MB       SampType:       MBLK       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       PBW       Batch ID:       C40026       RunNo:       40026	Uranium		0.012	0.00050	0.01250	0	98.4	85	115			
Prep Date:       Analysis Date:       1/13/2017       SeqNo:       1254507       Units:       mg/L         Analyte       Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit       Qua         Arsenic       ND       0.0010       0.001000       0       98.2       50       150         Lead       0.00052       0.00050       0.001000       0       102       50       150         Selenium       0.0010       0.0010       0.001000       0       102       50       150         Varianum       0.00050       0.000500       0       100       50       150         Sample ID       MB       SampType:       MBLK       TestCode:       EPA 200.8:       Dissolved Metals         Client ID:       PBW       Batch ID:       C40026       RunNo:       40026	Sample ID	LLLCS	Samp	Type: LC	SLL	Tes	tCode: E	PA 200.8: [	Dissolved Me	tals		
Analyte         Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit         %RPD         RPDLimit         Qua           Arsenic         ND         0.0010         0.001000         0         98.2         50         150           Lead         0.00052         0.00050         0.0005000         0         104         50         150           Selenium         0.0010         0.00100         0         102         50         150           Uranium         0.00050         0.000500         0         100         50         150           Sample ID MB         SampType: MBLK         TestCode: EPA 200.8: Dissolved Metals         Client ID: PBW         Batch ID: C40026         RunNo: 40026	Client ID:	BatchQC	Bat	ch ID: C4	0026	F	RunNo: <b>4</b>	0026				
Arsenic         ND         0.0010         0.001000         0         98.2         50         150           Lead         0.00052         0.00050         0.0005000         0         104         50         150           Selenium         0.0010         0.0010         0.001000         0         102         50         150           Uranium         0.00050         0.0005000         0         100         50         150           Sample ID         MB         SampType:         MBLK         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         PBW         Batch ID:         C40026         RunNo:         40026	Prep Date:		Analysis	Date: 1/	13/2017	5	SeqNo: 1	254507	Units: mg/L			
Lead         0.00052         0.00050         0.0005000         0         104         50         150           Selenium         0.0010         0.0010         0.00100         0         102         50         150           Uranium         0.00050         0.000500         0         100         50         150           Sample ID         MB         SampType:         MBLK         TestCode:         EPA 200.8:         Dissolved Metals           Client ID:         PBW         Batch ID:         C40026         RunNo:         40026	Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium         0.0010         0.0010         0.001000         0         102         50         150           Uranium         0.00050         0.00050         0.000500         0         100         50         150           Sample ID MB         SampType: MBLK         TestCode: EPA 200.8: Dissolved Metals           Client ID:         PBW         Batch ID:         C40026         RunNo: 40026	Arsenic		ND	0.0010	0.001000	0	98.2	50	150		***********	HOLED IN CONTRACTORING
Uranium         0.00050         0.00050         0.0005000         0         100         50         150           Sample ID MB         SampType: MBLK         TestCode: EPA 200.8: Dissolved Metals           Client ID:         PBW         Batch ID: C40026         RunNo: 40026	Lead		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:         C40026         RunNo:         40026	Selenium		0.0010	0.0010	0.001000	0	102	50	150			
Client ID:     PBW     Batch ID:     C40026     RunNo:     40026	Uranium		0.00050	0.00050	0.0005000	0	100	50	150			
	Sample ID	МВ	Samp	туре: <b>МЕ</b>	BLK	TestCode: EPA 200.8: Dissolved Metals						
	Client ID:	PBW	0026	RunNo: <b>40026</b>								
Prep Date: Analysis Date: 1/13/2017 SeqNo: 1254508 Units: mg/L	Prep Date:		Analysis	Date: 1/	13/2017	S	SeqNo: 1	254508	Units: mg/L			
Analyte Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qua	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
- W Sample container temperature is out of limit as specified

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WO#: **1701253** *14-Feb-17* 

### Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID MB	Samp	SampType: MBLK			tCode: E					
Client ID: PBW	Batch ID: C40026			RunNo: 40026						
Prep Date:	Analysis	Date: 1/	13/2017	S	SeqNo: 1	254508	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010					10 h/g			
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
- W Sample container temperature is out of limit as specified

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WO#: **1701253** *14-Feb-17* 

**Project:** Quarterly R.O. Reject

Sample ID MB-29608	SampType: MBLK	TestCode: EPA Method	245.1: Mercury	alan dalam dalam kanang dalam da	Anna a fairte ann an
Client ID: PBW	Batch ID: 29608	RunNo: 39928			
Prep Date: 1/9/2017	Analysis Date: 1/10/2017	SeqNo: 1251284	Units: mg/L		
Analyte	Result PQL SPK value SPI	K Ref Val %REC LowLimit	HighLimit %RPI	D RPDLimit	Qual
Mercury	ND 0.00020				
Sample ID LCS-29608	SampType: LCS	TestCode: EPA Method	245.1: Mercury		an yana da kata ya kata
Sample ID LCS-29608 Client ID: LCSW	SampType: LCS Batch ID: 29608	TestCode: EPA Method RunNo: 39928	245.1: Mercury		
•	,		245.1: Mercury Units: mg/L		
Client ID: LCSW	Batch ID: 29608	RunNo: <b>39928</b> SeqNo: <b>1251285</b>		D RPDLimit	Qual

Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Н
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- $\mathbf{S}$ % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RLReporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1701253

14-Feb-17

# Client: Navajo Refining Company

**Project:** Quarterly R.O. Reject

Sample ID MB	SampTyp	be: ME	BLK	Tes	tCode: E	EPA Method	300.0: Anions	;		
Client ID: PBW	Batch I	D: R3	9919	F	RunNo:	39919				
Prep Date:	Analysis Dat	te: 1/	9/2017	S	SeqNo:	1251098	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10					······		*****	
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								
Sample ID LCS	SampTyp	be: LC	S	Tes	tCode: E	EPA Method	300.0: Anions	;		
Client ID: LCSW	Batch I	D: R3	9919	Я	RunNo:	39919				
Prep Date:	Analysis Dat	te: 1/	9/2017	S	SeqNo:	1251099	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			
Sample ID MB	SampTyp	be: MB	LK	Tes	tCode: E	EPA Method	300.0: Anions			an a
Client ID: PBW	Batch I	D: R3	9952	ਜ	RunNo:	39952				
Prep Date:	Analysis Dat	te: 1/	10/2017	S	SeqNo:	1251860	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								
Sample ID LCS	SampTyp	be: LC	s	Tes	tCode: E	EPA Method	300.0: Anions	;		
Client ID: LCSW	Batch I	D: R3	9952	R	RunNo:	39952				
Prep Date:	Analysis Dat	te: <b>1</b> /*	10/2017	S	SeqNo:	1251861	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.4	0.50	10.00	0	94.5	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
- W Sample container temperature is out of limit as specified

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1701253

WO#:

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Project:	Quarterl	y R.O. Reject			
Sample ID ME	3-29609	SampType: MBLK	Test	Code: EPA Method	8011/504.1: EDB
Client ID: PB	w	Batch ID: 29609	R	unNo: <b>39918</b>	
Prep Date: 1/	10/2017	Analysis Date: 1/10/2	: <b>017</b> Se	eqNo: <b>1251243</b>	Units: µg/L
Analyte		Result PQL SP	K value SPK Ref Val	%REC LowLimit	HighLimit %F

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								
Sample ID LCS-29609	Sampl	ype: LC	S	Tes	tCode: El	PA Method	8011/504.1: E	DB		
Client ID: LCSW	Batc	h ID: 29	609	F	RunNo: 3	9918				
Prep Date: 1/10/2017	Analysis [	Date: <b>1</b> /	10/2017	5	eqNo: 1	251245	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.094	0.010	0.1000	0	93.8	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
- W Sample container temperature is out of limit as specified

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WO#:

#### Navajo Refining Company **Client:**

**Project:** Quarterly R.O. Reject

Sample ID LCS-29657	SampT	ype: LC	s	Tes	TestCode: EPA Method 8015M/D: Diesel Range					
Client ID: LCSW	Batch	ID: 29	657	F	RunNo: 3	9973				
Prep Date: 1/12/2017	Analysis D	ate: 1/	12/2017	SeqNo: 1252916			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.5	1.0	5.000	0	110	63.2	155			******
Surr: DNOP	0.56		0.5000		111	77.1	144			
		*****	0.0000						OP Birmland and a state of the	
Sample ID MB-29657		ype: ME		Tes			8015M/D: Die	sel Rang	e	
Sample ID MB-29657 Client ID: PBW	SampT	ype: ME 1D: 29	BLK			PA Method		sel Rang	9	
	SampT	i ID: 29	BLK	F	tCode: El	PA Method 9973		sel Rang	9	
Client ID: PBW	SampT Batch	i ID: 29	3LK 657 12/2017	F	tCode: El RunNo: 3	PA Method 9973	8015M/D: Die	sel Rango %RPD	e RPDLimit	Qual
Client ID: PBW Prep Date: 1/12/2017	SampT Batch Analysis D	i ID: <b>29</b> ate: <b>1</b> /	3LK 657 12/2017	F	tCode: El RunNo: 3 SeqNo: 1	PA Method 9973 252917	8015M/D: Die Units: mg/L	J		Qual
Client ID: <b>PBW</b> Prep Date: <b>1/12/2017</b> Analyte	SampT Batch Analysis D Result	n ID: <b>29</b> ate: <b>1</b> / PQL	3LK 657 12/2017	F	tCode: El RunNo: 3 SeqNo: 1	PA Method 9973 252917	8015M/D: Die Units: mg/L	J		Qual

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified W

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WO#: 1701253

14-Feb-17

#### Navajo Refining Company **Client:**

**Project:** Quarterly R.O. Reject

Sample ID MB-29618	SampT	/pe: MI	BLK	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: PBW	Batch	ID: 29	618	F	RunNo: 3	9949				
Prep Date: 1/10/2017	Analysis D	ate: 1	11/2017	S	SeqNo: 1	251667	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		63.2	26.1	140			
Surr: Tetrachloro-m-xylene	1.4		2.500		55.2	15	123			
Sample ID LCS-29618(1221)	SampT	/pe: LC	s	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSW	Batch	ID: 29	618	F	RunNo: 3	9949				
Prep Date: 1/10/2017	Analysis D	ate: 1/	11/2017	S	SeqNo: 1	251690	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1221	3.1	1.0	5.000	0	61.8	15	200			
Surr: Decachlorobiphenyl	1.8		2.500		71.6	26.1	140			
Surr: Tetrachloro-m-xylene	1.2		2.500		48.0	15	123			
Sample ID LCSD-29618(1221	) SampT	/pe: LC	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID: LCSS02	Batch	ID: 29	618	F	RunNo: 3	9949				
Prep Date: 1/10/2017	An altrada D			-						
	Analysis Da	ate: 1/	11/2017	5	SeqNo: 1	252020	Units: µg/L			
Analyte	Result	PQL		SPK Ref Val	SeqNo: 1: %REC	252020 LowLimit	Units: <b>µg/L</b> HighLimit	%RPD	RPDLimit	Qual
								%RPD 10.1	RPDLimit 0	Qual
	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit			Qual
Aroclor 1221	Result 3.4	PQL	SPK value 5.000	SPK Ref Val	%REC 68.4	LowLimit 15	HighLimit 200	10.1	0	Qual
Aroclor 1221 Surr: Decachlorobiphenyl	Result 3.4 1.8	PQL 1.0	SPK value 5.000 2.500 2.500	SPK Ref Val 0	%REC 68.4 72.8 50.8	LowLimit 15 26.1 15	HighLimit 200 140	10.1 0	0 0	Qual
Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene	Result 3.4 1.8 1.3 SampTy	PQL 1.0	SPK value 5.000 2.500 2.500	SPK Ref Val 0 Tes	%REC 68.4 72.8 50.8	LowLimit 15 26.1 15 PA Method	HighLimit 200 140 123	10.1 0	0 0	Qual
Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene Sample ID LCS-29618(1232)	Result 3.4 1.8 1.3 SampTy	PQL 1.0 /pe: LC ID: 29	SPK value 5.000 2.500 2.500 3.500	SPK Ref Val 0 Tes F	%REC 68.4 72.8 50.8 tCode: EF	LowLimit 15 26.1 15 PA Method 9949	HighLimit 200 140 123	10.1 0	0 0	Qual
Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene Sample ID LCS-29618(1232) Client ID: LCSW	Result 3.4 1.8 1.3 SampTy Batch	PQL 1.0 /pe: LC ID: 29	SPK value 5.000 2.500 2.500 55 618 11/2017	SPK Ref Val 0 Tes F	%REC 68.4 72.8 50.8 tCode: EF	LowLimit 15 26.1 15 PA Method 9949	HighLimit 200 140 123 8082: PCB's	10.1 0	0 0	Qual
Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene Sample ID LCS-29618(1232) Client ID: LCSW Prep Date: 1/10/2017	Result 3.4 1.8 1.3 SampTy Batch Analysis Da	PQL 1.0 /pe: LC ID: 29 ate: 1/	SPK value 5.000 2.500 2.500 55 618 11/2017	SPK Ref Val 0 Tes F S	%REC 68.4 72.8 50.8 tCode: EF RunNo: 39 SeqNo: 12	LowLimit 15 26.1 15 PA Method 9949 252021	HighLimit 200 140 123 8082: PCB's Units: µg/L	10.1 0 0	0 0 0	
Aroclor 1221 Surr: Decachlorobiphenyl Surr: Tetrachloro-m-xylene Sample ID LCS-29618(1232) Client ID: LCSW Prep Date: 1/10/2017 Analyte	Result 3.4 1.8 1.3 SampTy Batch Analysis Da Result	PQL 1.0 /pe: LC ID: 29 ate: 1/ PQL	SPK value 5.000 2.500 2.500 5 5 618 11/2017 SPK value	SPK Ref Val 0 Tes: R SPK Ref Val	%REC 68.4 72.8 50.8 tCode: Ef RunNo: 39 SeqNo: 12 %REC	LowLimit 15 26.1 15 PA Method 9949 252021 LowLimit	HighLimit 200 140 123 8082: PCB's Units: µg/L HighLimit	10.1 0 0	0 0 0	

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits Р
  - Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1701253 14-Feb-17

### Client: Navajo Refining Company

Project: Quarterly R.O. Reject

Sample ID	LCSD-29618(1232)	) SampT	ype: LC	SD	Tes	tCode: El	PA Method	8082: PCB's			
Client ID:	LCSS02	Batch	ID: 29	618	RunNo: <b>39949</b>						
Prep Date:	1/10/2017	Analysis D	ate: 1/	11/2017	S	SeqNo: 1	252022	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1232		3.6	1.0	5.000	0	72.0	15	200	1.38	0	
Surr: Decach	lorobiphenyl	1.7		2.500		68.8	26.1	140	0	0	
Surr: Tetrach	loro-m-xylene	1.5		2.500		61.6	15	123	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
- W Sample container temperature is out of limit as specified

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#### **Client:** Navajo Refining Company

**Project:** Quarterly R.O. Reject

SampT	Гуре: МВ	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Batcl	h ID: W	39912	F	RunNo: 3	9912				
Analysis D	Date: 1/	9/2017	S	SeqNo: 1	250932	Units: µg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
ND	1.0					***		*****	
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	3.0								
ND	2.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.0								
ND	1.5								
9.1		10.00		91.4	70	130			
9.1		10.00		91.2	70	130			
9.7		10.00		97.5	70	130			
8.9		10.00		88.9	70	130			
SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Batch	n ID: W3	39912	F	RunNo: 3	9912				
Analysis D	Date: 1/	9/2017	S	SeqNo: 1	250933	Units: µg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
23	1.0	20.00	0	115	70	130	**************************************		
	Batci Analysis I Result ND ND ND ND ND ND ND ND ND ND ND ND ND	Batch ID:       W3         Analysis Date:       1/         Result       PQL         ND       1.0         SampType:       LC	ND       1.0         ND       1.0      ND       1.0         ND       1.0         ND       1.0         ND       1.0         ND       1.0         ND       1.0         ND       1.0         ND       1.0         ND       1.0         ND	Batch ID:       W39912       F         Analysis Date:       1/9/2017       S         Result       PQL       SPK value       SPK Ref Val         ND       1.0       S       S         9.1       10.00       S       S         9.1       <	Batch ID:       W39912       RunNo:       3         Analysis Date:       1/9/2017       SeqNo:       1         Result       PQL       SPK value       SPK Ref Val       %REC         ND       1.0	Batch ID:       W39912       RunNo:       39912         Analysis Date:       1/9/2017       SeqNo::       1250932         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPK value       SPK Value       SPK Value       SPK Value       KunNo:       SPI2         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit         ND       1.0       SPI4       TO       SPI4       TO         ND       1.0       SPI4       SPI4       SPI4       SPI4         ND       1.0       SPI4       SPI4       SPI4       SPI4         ND       1.0       SPI4       SPI4       SPI4       SPI4	Batch ID:       W 39912       RunNo:       39912       Units:       µg/L         Analysis Det:       10/2017       SeqNo:       1250932       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       % REC       LowLimit       HighLimit         ND       1.0        SeqNo:       1250932       Units:       µg/L         ND       1.0       SPK value       SPK Ref Val       % REC       LowLimit       HighLimit         ND       1.0        SeqNo:       SeqNo: <td>Batch ID:       W39912       RunNo:       39912       Units:       µg/L         Analysis Date:       1/9/2017       SeqNo:       1250932       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         ND       1.0       SPK       SPK       SPK       SPK       SPK       SPK       SPK       SPK         ND       1.0       SPK       SPK</td> <td>Batch I:       W 3912       RunNo:       3912         Analysis Date:       1/2017       SeqNo:       1250932       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit         ND       1.0         LowLimit       HighLimit       %RPD       RPDLimit         ND       1.0</td>	Batch ID:       W39912       RunNo:       39912       Units:       µg/L         Analysis Date:       1/9/2017       SeqNo:       1250932       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         ND       1.0       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         ND       1.0       SPK       SPK       SPK       SPK       SPK       SPK       SPK       SPK         ND       1.0       SPK       SPK	Batch I:       W 3912       RunNo:       3912         Analysis Date:       1/2017       SeqNo:       1250932       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit         ND       1.0         LowLimit       HighLimit       %RPD       RPDLimit         ND       1.0

0

0

### Qualifiers:

1,1-Dichloroethene

Trichloroethene (TCE)

Surr: Toluene-d8

Surr: 1,2-Dichloroethane-d4

Surr: 4-Bromofluorobenzene

Surr: Dibromofluoromethane

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

20

22

9.4

9.0

9.8

9.1

1.0

1.0

20.00

20.00

10.00

10.00

10.00

10.00

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

102

109

93.8

89.5

98.4

91.5

70

70

70

70

70

70

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

130

130

130

130

130

130

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WO#: 1701253

14-Feb-17

#### **Client:** Navajo Refining Company

**Project:** Quarterly R.O. Reject

Sample ID MB-29615	SampT	ype: MBI	_K	Tes	tCode: El	PA Method	8310: PAHs			
Client ID: PBW	Batch	n ID: 296	15	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis D	Date: 1/1	1/2017	S	SeqNo: 1	252566	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	2.0				*****	***************************************		*****	
1-Methylnaphthalene	ND	2.0								
2-Methylnaphthalene	ND	2.0								
Acenaphthylene	ND	2.5								
Acenaphthene	ND	2.0								
Fluorene	ND	0.80								
Phenanthrene	ND	0.60								
Anthracene	ND	0.60								
Fluoranthene	ND	0.30								
Pyrene	ND	0.30								
Benz(a)anthracene	ND	0.070								
Chrysene	ND	0.20								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.070								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.12								
Benzo(g,h,i)perylene	ND	0.12								
Indeno(1,2,3-cd)pyrene	ND	0.25								
Surr: Benzo(e)pyrene	17		20.00		83.8	24.4	130			
Sample ID LCS-29615	SampT	ype: LCS		Tes	tCode: EF	PA Method	8310: PAHs			
Client ID: LCSW	Batch	n ID: <b>296</b> 1	15	F	RunNo: 3	9968				

Batch ID: 29615 RunNo: 39968									
Analysis E	Date: 1/	11/2017	S	SeqNo: 1	252567	Units: µg/L			
Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
47	2.0	80.00	0	59.0	33.3	141			
45	2.0	80.20	0	56.4	35.5	139			
43	2.0	80.00	0	54.1	30.7	139			
53	2.5	80.20	0	65.8	60.2	119			
49	2.0	80.00	0	61.9	56	126			
5.0	0.80	8.020	0	61.7	51.6	129			
2.8	0.60	4.020	0	69.7	58.8	129			
2.7	0.60	4.020	0	66.9	59.9	121			
5.9	0.30	8.020	0	72.9	48	145			
6.3	0.30	8.020	0	78.7	56.2	130			
0.58	0.070	0.8020	0	72.3	50.4	142			
3.0	0.20	4.020	0	73.9	54.7	134			
0.73	0.10	1.002	0	72.9	61.8	120			
0.37	0.070	0.5000	0	74.0	55.9	134			
	Analysis I Result 47 45 43 53 49 5.0 2.8 2.7 5.9 6.3 0.58 3.0 0.73	Result         PQL           47         2.0           45         2.0           43         2.0           53         2.5           49         2.0           5.0         0.80           2.8         0.60           2.7         0.60           5.9         0.30           6.3         0.30           0.58         0.070           3.0         0.20           0.73         0.10	Analysis Date:         I/I/2017           Result         PQL         SPK value           47         2.0         80.00           45         2.0         80.20           43         2.0         80.20           43         2.0         80.00           53         2.5         80.20           49         2.0         80.00           5.0         0.80         8.020           2.8         0.60         4.020           2.7         0.60         4.020           5.9         0.30         8.020           6.3         0.30         8.020           0.58         0.070         0.8020           3.0         0.20         4.020           0.73         0.10         1.002	Analysis Date:         1/1/2017         S           Result         PQL         SPK value         SPK Ref Value           47         2.0         80.00         0           45         2.0         80.20         0           43         2.0         80.00         0           43         2.0         80.00         0           53         2.5         80.20         0           49         2.0         80.00         0           5.0         0.80         8.020         0           5.0         0.80         4.020         0           2.7         0.60         4.020         0           5.9         0.30         8.020         0           6.3         0.30         8.020         0           6.3         0.30         8.020         0           0.58         0.070         0.8020         0           3.0         0.20         4.020         0           3.0         0.20         4.020         0	Analysis Date:         I/I/2017         SeqNo:         1           Result         PQL         SPK value         SPK Ref Val         %REC           47         2.0         80.00         0         59.0           45         2.0         80.20         0         56.4           43         2.0         80.00         0         54.1           53         2.5         80.20         0         65.8           49         2.0         80.00         0         61.9           5.0         0.80         8.020         0         61.7           2.8         0.60         4.020         0         66.9           5.9         0.30         8.020         0         72.9           6.3         0.30         8.020         0         78.7           0.58         0.070         0.8020         0         72.3           3.0         0.20         4.020         0         73.9           0.73         0.10         1.002         0         73.9	Analysis Date:         1/1/2017         SeqNo:         1/252567           Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit           47         2.0         80.00         0         59.0         33.3           45         2.0         80.20         0         56.4         35.5           43         2.0         80.00         0         54.1         30.7           53         2.5         80.20         0         65.8         60.2           49         2.0         80.00         0         61.9         56           5.0         0.80         8.020         0         61.9         56           5.0         0.80         8.020         0         61.7         51.6           2.8         0.60         4.020         0         69.7         58.8           2.7         0.60         4.020         0         72.9         48           6.3         0.30         8.020         0         78.7         56.2           0.58         0.070         0.8020         0         72.3         50.4           3.0         0.20         4.020         0         73.9         54.7 </td <td>Analysis Date:         I/I/2017         SeqNo:         1252567         Units:         µg/L           Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit           47         2.0         80.00         0         59.0         33.3         141           45         2.0         80.20         0         56.4         35.5         139           43         2.0         80.20         0         56.4         35.5         139           53         2.5         80.20         0         65.8         60.2         119           49         2.0         80.00         0         61.9         56         126           5.0         0.80         8.020         0         61.7         51.6         129           2.8         0.60         4.020         0         69.7         58.8         129           2.7         0.60         4.020         0         72.9         48         145           6.3         0.30         8.020         0         78.7         56.2         130           0.58         0.070         0.8020         0         72.3         50.4         142     <td>Analysis Date: 1/1/2017       SeqNo: 1252567       Units: µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         47       2.0       80.00       0       59.0       33.3       141         45       2.0       80.00       0       56.4       35.5       139         43       2.0       80.00       0       54.1       30.7       139         53       2.5       80.20       0       65.8       60.2       119         49       2.0       80.00       0       61.9       56       126         5.0       0.80       8.020       0       61.7       51.6       129         2.8       0.60       4.020       0       69.7       58.8       129         2.7       0.60       4.020       0       66.9       59.9       121         5.9       0.30       8.020       0       72.9       48       145         6.3       0.30       8.020       0       72.9       48       145         6.3       0.30       8.020       0       72.3       50.4       142</td><td>Analysis Date:       I/I/2017       SeqNo:       1252567       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit         47       2.0       80.00       0       59.0       33.3       141       145         45       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       65.8       60.2       119       141         49       2.0       80.00       0       61.9       56       126       141         49       2.0       80.00       0       61.7       51.6       129       141         2.8       0.60       4.020       0       66.9       59.9       121       141       142       142         5.9       0.30       8.020       0       78.7       56.2       130       141       141       141       141       141&lt;</td></td>	Analysis Date:         I/I/2017         SeqNo:         1252567         Units:         µg/L           Result         PQL         SPK value         SPK Ref Val         %REC         LowLimit         HighLimit           47         2.0         80.00         0         59.0         33.3         141           45         2.0         80.20         0         56.4         35.5         139           43         2.0         80.20         0         56.4         35.5         139           53         2.5         80.20         0         65.8         60.2         119           49         2.0         80.00         0         61.9         56         126           5.0         0.80         8.020         0         61.7         51.6         129           2.8         0.60         4.020         0         69.7         58.8         129           2.7         0.60         4.020         0         72.9         48         145           6.3         0.30         8.020         0         78.7         56.2         130           0.58         0.070         0.8020         0         72.3         50.4         142 <td>Analysis Date: 1/1/2017       SeqNo: 1252567       Units: µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         47       2.0       80.00       0       59.0       33.3       141         45       2.0       80.00       0       56.4       35.5       139         43       2.0       80.00       0       54.1       30.7       139         53       2.5       80.20       0       65.8       60.2       119         49       2.0       80.00       0       61.9       56       126         5.0       0.80       8.020       0       61.7       51.6       129         2.8       0.60       4.020       0       69.7       58.8       129         2.7       0.60       4.020       0       66.9       59.9       121         5.9       0.30       8.020       0       72.9       48       145         6.3       0.30       8.020       0       72.9       48       145         6.3       0.30       8.020       0       72.3       50.4       142</td> <td>Analysis Date:       I/I/2017       SeqNo:       1252567       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit         47       2.0       80.00       0       59.0       33.3       141       145         45       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       65.8       60.2       119       141         49       2.0       80.00       0       61.9       56       126       141         49       2.0       80.00       0       61.7       51.6       129       141         2.8       0.60       4.020       0       66.9       59.9       121       141       142       142         5.9       0.30       8.020       0       78.7       56.2       130       141       141       141       141       141&lt;</td>	Analysis Date: 1/1/2017       SeqNo: 1252567       Units: µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD         47       2.0       80.00       0       59.0       33.3       141         45       2.0       80.00       0       56.4       35.5       139         43       2.0       80.00       0       54.1       30.7       139         53       2.5       80.20       0       65.8       60.2       119         49       2.0       80.00       0       61.9       56       126         5.0       0.80       8.020       0       61.7       51.6       129         2.8       0.60       4.020       0       69.7       58.8       129         2.7       0.60       4.020       0       66.9       59.9       121         5.9       0.30       8.020       0       72.9       48       145         6.3       0.30       8.020       0       72.9       48       145         6.3       0.30       8.020       0       72.3       50.4       142	Analysis Date:       I/I/2017       SeqNo:       1252567       Units:       µg/L         Result       PQL       SPK value       SPK Ref Val       %REC       LowLimit       HighLimit       %RPD       RPDLimit         47       2.0       80.00       0       59.0       33.3       141       145         45       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       56.4       35.5       139       141         43       2.0       80.00       0       65.8       60.2       119       141         49       2.0       80.00       0       61.9       56       126       141         49       2.0       80.00       0       61.7       51.6       129       141         2.8       0.60       4.020       0       66.9       59.9       121       141       142       142         5.9       0.30       8.020       0       78.7       56.2       130       141       141       141       141       141<

### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
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- Е Value above quantitation range
- J Analyte detected below quantitation limits Р
- Page 16 of 22

- Sample pH Not In Range
- RLReporting Detection Limit
- W Sample container temperature is out of limit as specified

### Client: Navajo Refining Company

Project: Quarterly R.O. Reject

**************************************										
Sample ID LCS-29615	Samp	Type: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSW	Batc	h ID: 29	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [	Date: 1/	11/2017	S	SeqNo: 1	252567	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene 0.36 0.070 0.5020					71.7	49.1	142		· · · · · · · · · · · · · · · · · · ·	
Dibenz(a,h)anthracene	0.76	0.12	1.002	0	75.8	57.8	134			
Benzo(g,h,i)perylene	0.77	0.12	1.000	0	77.0	57.2	134			
Indeno(1,2,3-cd)pyrene	1.4	0.25	2.004	0	68.9	58.2	137			
Surr: Benzo(e)pyrene	15		20.00		75.3	24.4	130			
Sample ID LCSD-29615	8310: PAHs									
Client ID: LCSS02	Batc	h ID: 29	615	F	RunNo: 3	9968				
Prep Date: 1/10/2017	Analysis [	Date: 1/	11/2017	S	SeqNo: 1	252568	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	43	2.0	80.00	0	53.3	33.3	141	10.2	20.3	
1-Methylnaphthalene	41	2.0	80.20	0	51.0	35.5	139	10.0	22.7	
2-Methylnaphthalene	39	2.0	80.00	0	49.0	30.7	139	9.91	22.6	
Acenaphthylene	48	2.5	80.20	0	59.6	60.2	119	9.90	22.6	S
Acenaphthene	45	2.0	80.00	0	56.1	56	126	9.70	21.4	
Fluorene	4.6	0.80	8.020	0	57.1	51.6	129	7.76	23.6	
Phenanthrene	2.5	0.60	4.020	0	62.2	58.8	129	11.3	24.7	
Anthracene	2.4	0.60	4.020	0	59.5	59.9	121	11.8	23.9	S
Fluoranthene	5.3	0.30	8.020	0	65.6	48	145	10.6	25.1	
Pyrene	5.7	0.30	8.020	0	70.8	56.2	130	10.5	23.7	
Benz(a)anthracene	0.52	0.070	0.8020	0	64.8	50.4	142	10.9	19.2	
Chrysene	2.6	0.20	4.020	0	65.7	54.7	134	11.8	19.8	
Benzo(b)fluoranthene	0.66	0.10	1.002	0	65.9	61.8	120	10.1	22.1	
Benzo(k)fluoranthene	0.33	0.070	0.5000	0	66.0	55.9	134	11.4	27.2	
Denzo(k)nuorantiiene					~~ -	40.4	142	11.8	30.2	
( )	0.32	0.070	0.5020	0	63.7	49.1	142	11.0	30.Z	
Benzo(a)pyrene	0.32 0.69	0.070 0.12	0.5020 1.002	0 0	63.7 68.9	49.1 57.8	142	9.66	30.2 23.8	
Benzo(a)pyrene Dibenz(a,h)anthracene										
Benzo(a)pyrene Dibenz(a,h)anthracene Benzo(g,h,i)perylene Indeno(1,2,3-cd)pyrene	0.69	0.12	1.002	0	68.9	57.8	134	9.66	23.8	

### Qualifiers:

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- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limitsP Sample pH Not In Range
- Page 17 of 22

- P Sample pH Not In RangeRL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

WO#: **1701253** *14-Feb-17* 

WO#: 1701253

14-Feb-17

Client: Project:	•	Refining Co 7 R.O. Reje	1 2								
							n for the first of the second s				
Sample ID MB	-29866	SampT	ype: ME	BLK	Tes	6 9067					
Client ID: PB	W	Batch	ID: 29	866	. F	RunNo: 4	0252				
Prep Date: 1/	25/2017	Analysis Da	ate: 1/	25/2017	5	SeqNo: 1	262095	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Rec	coverable	ND	2.5								
Sample ID LC	S-29866	SampT	ype: LC	S	Tes	tCode: T	otal Phenol	ics by SW-84	6 9067		**************************************
Client ID: LC:	sw	Batch	ID: 29	866	F	RunNo: 4	0252				
Prep Date: 1/	25/2017	Analysis Da	ate: 1/	25/2017	S	SeqNo: 1	262096	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Red	coverable	21	2.5	20.00	0	104	62.4	146			
Sample ID LC	SD-29866	SampT	ype: LC	SD	Tes	tCode: T	otal Phenol	ics by SW-84	6 9067		
Client ID: LC:	SS02	Batch	ID: 29	866	F	RunNo: 4	0252				
Prep Date: 1/	25/2017	Analysis Da	ate: <b>1</b> /	25/2017	S	eqNo: 1	262097	Units: µg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics, Total Red	coverable	23	2.5	20.00	0	113	62.4	146	8.32	21	

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- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: **1701253** *14-Feb-17* 

Client: Project:	•	Refining Company ly R.O. Reject										
Sample ID	MB-R40523	SampType: <b>MBLK</b>	TestCode: EPA 335.4: Total Cyanide Subbed									
Client ID:	PBW	Batch ID: R40523	RunNo: <b>40523</b>									
Prep Date:		Analysis Date: 1/16/2017	SeqNo: 1269895 Units: mg/L									
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual									
Cyanide	ŧ	ND 0.0100										
Sample ID	LCS-R40523	SampType: LCS	TestCode: EPA 335.4: Total Cyanide Subbed									
Client ID:	LCSW	Batch ID: R40523	RunNo: <b>40523</b>									
Prep Date:		Analysis Date: 1/16/2017	SeqNo: <b>1269896</b> Units: <b>mg/L</b>									
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual									
Cyanide		0.485 0.5000	0 97.0 90 110									

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- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Client: Project:	-	efining Con R.O. Rejec									
Sample ID		SampTy		3LK	Tes	tCode: E	PA Method	8015D: Gasol	line Rang	e	
Client ID:	PBW	Batch I	D: <b>G</b> 3	39990	F	RunNo: 3	9990				
Prep Date:		Analysis Dat	te: 1/	/12/2017	S						
Analyte			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang Surr: BFB	je Organics (GRO)	ND 8.8	0.050	10.00		87.5	70	130			
Sample ID         2.5ug gro Ics         SampType: LCS         TestCode: EPA Method 8015D: Gasoline Range											
Client ID:	LCSW	Batch I	D: <b>G</b> 3	39990	F	RunNo: 3	9990				
Prep Date:		Analysis Dat	te: 1/	12/2017	S	SeqNo: 1	253121	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
	e Organics (GRO)		0.050	0.5000	0	110	75.4	118			
Surr: BFB		9.2		10.00		92.5	70	130			
Sample ID	1701253-001a ms	d SampTy	be: MS	SD	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	е	
Client ID:	R.O. Reject	Batch I	D: <b>G</b> 3	39990	F	RunNo: 3	9990				
Prep Date:		Analysis Dat	te: 1/	12/2017	S	SeqNo: 1	253124	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	0.46	0.050	0.5000	0.01760	89.1	70	130	12.9	20	
Surr: BFB		9.0		10.00		89.7	70	130	0	0	
Sample ID	1701253-001a ms	<b>g</b> SampTyp	be: MS	8	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	R.O. Reject	Batch I	D: G3	39990	F	RunNo: 4	0004				
Prep Date:		Analysis Dat	te: 1/	13/2017	S	SeqNo: 1	254101	Units: mg/L			
Analyte			PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
•	e Organics (GRO)		0.050	0.5000	0.01760	102	70	130			
Surr: BFB		8.8		10.00		87.8	70	130			

Qualifiers:

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- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range

RL

- J Analyte detected below quantitation limits Р
  - Sample pH Not In Range
  - Reporting Detection Limit
- W Sample container temperature is out of limit as specified

1701253 14-Feb-17

WO#:

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#### **Client:** Navajo Refining Company

**Project:** Quarterly R.O. Reject

Sample ID MB-R40526	SampType: MBLK			Tes	tCode: E	Code: EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed										
Client ID: PBW	Batch ID: R40526			F	RunNo:	40526										
Prep Date:	Analysis E	Date: <b>2</b> /	2/2017	S	eqNo:	1269905	Units: <b>pCi/L</b>									
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual						
Radium-226	0.127	0.468		**********												
Radium-226 ±	0.291	0.468														
Radium-228	0.0949	0.653														
Radium-228 ±	0.29	0.653														

### Qualifiers:

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- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- $\mathbf{S}$ % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- Analyte detected below quantitation limits J
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1701253

14-Feb-17

WO#: **1701253** *14-Feb-17* 

Client: Project:	-	o Refining Cou erly R.O. Rejea											
Sample ID Client ID: Prep Date:	MB-29623 PBW 1/10/2017	Batch	SampType: MBLK Batch ID: 29623 Analysis Date: 1/11/2017			lunNo:		IOD: Total Dissolved Solids					
Analyte Total Dissolved	l Solids	Result ND	PQL 20.0		SPK Ref Val	•		HighLimit	%RPD	RPDLimit	Qual		
Sample ID Client ID: Prep Date:	LCS-29623 LCSW 1/10/2017	SampTy Batch Analysis Da	ID: <b>29</b>	623	F	lunNo:		D: Total Diss	olved So	lids			
Analyte Total Dissolved		Result 1060	PQL 20.0		SPK Ref Val	%REC 106	CowLimit	HighLimit 120	%RPD	RPDLimit	Qual		

Qualifiers:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
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- E Value above quantitation range
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- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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HALL ENVIRONMEN ANALYSIS LABORATORY		Hall Environmental Analysis Laboratory 4901 Hawkins NE Albuquerque, NM 87109 TEL: 505-345-3975 FAX: 505-345-4107 Website: www.hallenvironmental.com	S
Client Name: NAVAJO	D REFINING CO	Work Order Number: 1701253	
Repaired by/datas	E	NINALI	· · · ·

# Sample Log-In Check List

	NAVAJU REFINING CO	Work Order Numb	er. 1701255		RoptNo:	1
Received by/date	RE	01/09/1	7			
Logged By:	Ashley Gallegos	1/9/2017 9:20:00 AM	1	A		
Completed By:	Ashiey Gallegos	1/9/2017 9:54:08 AN	1	A		
Reviewed By:	XQ 01/09/1-	7		0		
Chain of Cust						
1. Custody seal	s intact on sample bottles?	,	Yes	No 🗌	Not Present	
2, Is Chain of C	ustody complete?		Yes 🖌	No []]	Not Present	
3. How was the	sample delivered?		<u>Courier</u>			
Log In						
4. Was an atter	npt made to cool the samp	les?	Yes 🖌	No	NA	
5. Were all sam	ples received at a tempera	ture of >0° C to 6.0°C	Yes 🔽	No []]	NA []]	
6. Sample(s) in	proper container(s)?		Yes 🖌	No 📋		
7. Sufficient san	nple volume for indicated to	est(s)?	Yes 🖌	No 🗍		
8. Are samples	(except VOA and ONG) pro	operly preserved?	Yes 🖌	No		
	ative added to bottles?		Yes	No 🕅	NA []]	
10.VOA vials hav	ve zero headspace?		Yes 🖌	No []	No VOA Vials	
11. Were any sar	mple containers received b	roken?	Yes	No 🗹	# of preserved ,	
	ork match bottle labels? ancies on chain of custody	)	Yes 🕅	No 🗔	bottles checked for pH:	>
13, Are matrices	correctly identified on Chai	n of Custody?	Yes 🔽	No 🗌	Adjusted?	No
	t analyses were requested	?	Yes 🔽	No		0
	ing times able to be met? ustomer for authorization.)		Yes 🖌	No	Checked by:	Ke
Special Handli	ing (if applicable)					
16. Was client not	tified of all discrepancies w	ith this order?	Yes	No []]	NA 🗹	
Person	Notified:	Date			· · · · · · · · · · · · · · · · · · ·	
By Who	m:	Via:	eMail P	hone 🗔 Fax	In Person	
Regardi	ng:	n an				
Client In	structions:	n an far an	ALINE STATISTIC ALL ALINA AND AND AND AND AND AND AND AND AND A	an a		
17. Additional ren	narks:	·			······	
18. <u>Cooler Inforr</u>	mation					
Cooler No	Temp ºC Condition	Seal Intact Seal No	Seal Date	Signed By		

(N ro Y) selddu8 riAl  $\succ$ VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-ANALYSIS LABORATORY SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene 504.1:EDB × HALL ENVIRONMENTAL Trichforoethane; 1,1,2-Trichforoethyfene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Hd × If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report. Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; sbiloS bevlossid letoT × Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn 4901 Hawkins NE - Albuquerque, NM 87109 Nitrate/Nitrite × Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride Fax 505-345-4107 ebinoul<sup>-1</sup> × www.hallenvironmental.com Analysis Request slonard × Sulfate Chloride × (822-69+822-69) (YivitocoibeF × 8082: PCBs × Tel. 505-345-3975 8015: GRO, DRO, ORO ×  $\times$ 7470: Mercury × 335.4: Total Cyanide × 6010B: WQCC Metals  $\times$ 8270C: WOCC list SVOCs Remarks  $\times$ 8260B:WQCC List VOCs × 0726 2007 100-Time Time 19/17 Date Date Sampier: Krad, Hubhard Rush Preservative Project #: P.O. # 167796 Na2S203 Type 1-unpres H2SO4 1 - 1L Glass H2SO4 1 - 1L Glass unpres 1-250mlGlas unpres 2 - 1L Glass unpres HN03 Monthly R.O. Reject HN03 NaOH HN03 זמוו-עומות וווופי 3-40ml VOA HCL 2-40ml VOA HCL 3-40ml VOA HCI Project Manager: Robert Combs Project Name 3-40ml VOA X Standard Type and # 2 - 500ml P Container ٥ 1-500ml P 1-125ml P Received by: Quarterly Received by: 1-500ml 2-1L P Level 4 (Full Validation) Sample Request ID Chain-ot-Custody Record Relinquished by. Grad, Hussara R.O. Reject Trip Blank Jy a Mailing Address: P.O. Box 159 Artesia, Relinquished by email or Fax#: 575-746-5451 R. Freed, Matrix Client: Navajo Refinery Phone #: 575-748-3311 liquid liauid H:30 liquid H:30 liquid NM 88211-0159 QA/QC Package: Time 4:30 1:20 ぷい 14:30 *d:*,7 4:30 15/17 4:30 5. Ч lime: EDD (Type) H:30 ž 15/17/4:30 lime: X Standard □ Other \_ 1212 1517 1/5/17 5 /5/D 15/17 /S/1 في ال 12 LD /s/n Date (5/N 12/17 Date: Date:

HOLLYFRONTIER The HollyFrontier Comparies	Rectify to sample jars		stratistika artika a Artikara artika artik	pH, CI, F, S04, NO2/NO3, TDS	8015 GRO	6020 total metals, 7470 Hg	6020 Dissolved Metals	Cyanide	Radium 226/228		02/0 SEC ALACHEU IISL 8082 PCRs	8015 DRO	Radium 226/228		
Quarterly RO Reject Sample Details Attachment		ge Iv South Field R.O. Reject Discarge	WWO PERCH NEED NEED NEEDS	×		X	×	× .	×					17.1C Field pH 7.69	
Navajo Refining Company, LLC 501 E. Main Artesia, NM 88210 (Tel) <i>575.7</i> 46.3451 (Fax) <i>575.7</i> 46.3451	elect Co. LLC m	U North Field R.O. Reject Discarge	Total Interest	×					> ~	×	2			7.69	
OLEVENT	Allow Harte Quarterly RO Reject Source Marie Bredy Hubbard Source Witch Navajo Refining Co. LLC 1/5/17 @ 4:51 pm							2				40ml VOA	40ml VOA	Field Temp. 17.1C Field pH 7.69	

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