

GW – 028

**Background
Groundwater
Investigation Report**

PART 7 OF 9

September 2015

ARCADIS US - TX 2929 Briarpark Dr., Suite 300 Houston, TX 77042				Billing Information:				Analysis / Container / Preservative										Chain of Custody Page <u>1</u> of <u>2</u>	
				Attn: Accounts Payable 630 Plaza Drive, Suite 600 Highlands Ranch, CO 80129														 L.A.B S.C.I.E.N.C.E.S YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859	
Report to:				Email To: pam.krueger@arcadis-us.com;maisha.turner@arcadis-us.com															
Project Description: Navajo Refining Company - Artesia, NM				City/State Collected:															
Phone: 713-953-4800		Client Project #		Lab Project #															
Fax:		TX000836.0008.00004		ARCADHTX-NAVAJO															
Collected by (print):		Site/Facility ID #		P.O. #															
Collected by (signature):		Rush? (Lab MUST Be Notified)		Date Results Needed															
Immediately		☐ Same Day200% ☐ Next Day100% ☐ Two Day50% ☐ Three Day25%		Email? ☐ No ☒ Yes FAX? ☐ No ☐ Yes															
Packed on Ice N ☐ Y ☒																			
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	8270 100ml Amb NoPres	CL, FL, SO4 125mlHDPE-NoPres	CN 250mlHDPEAmb-NaOH	DROOROLVI 40mlAmb-HCl-BT	GRO 40mlAmb HCl	NAV DISSOLVED METALS 500mlHDPE-NoPres	NO2NO3 250mlHDPE-H2SO4	TDS 250mlHDPE-NoPres	TOTAL METALS 500mlHDPE-HNO3	V8260 40mlAmb-HCl		
MW-55-0215-BG	G	GW		2/2/15	1520	15	X	X	X	X	X	X	X	X	X	X	X		
NP-5-0215-BG		GW		2/2/15	1630	15	X	X	X	X	X	X	X	X	X	X	X		
EB-20-0215-BG		GW		2/2/15	1740	15	X	X	X	X	X	X	X	X	X	X	X		
MW-25-0215-BG		GW		2/3/15	0930	15	X	X	X	X	X	X	X	X	X	X	X		
MW-17-0215-BG		GW		2/3/15	1115	15	X	X	X	X	X	X	X	X	X	X	X		
UG-1-0215-BG		GW		2/3/15	1300	15	X	X	X	X	X	X	X	X	X	X	X		
UG-4-0215-BG		GW		2/3/15	1400	15	X	X	X	X	X	X	X	X	X	X	X		
UG-3R-0215-BG		GW		2/3/15	1530	15	X	X	X	X	X	X	X	X	X	X	X		
UG-2-0215-BG		GW		2/3/15	1640	15	X	X	X	X	X	X	X	X	X	X	X		
EB-21-0215-BG		GW		2/3/15	1730	15	X	X	X	X	X	X	X	X	X	X	X		
* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other Remarks: Dissolved metals samples were field filtered and preserved 6272 8610 8464 pH _____ Temp _____ 6272 8610 7273 6272 8610 7300 6272 8610 8442 6272 8610 8453 Flow _____ Other _____ Hold # _____																			
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		Samples returned via: ☐ UPS		Condition: (lab use only)											
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)		☐ FedEx ☐ Courier ☐ _____		Temp: _____ °C Bottles Received: _____ COC Seal Intact: ☒ Y ☐ N ☐ NA											
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature)		Date: _____ Time: _____ 2/6/15 0900		pH Checked: 110 of 111 <2.12											

ARCADIS US - TX

2929 Briarpark Dr., Suite 300
Houston, TX 77042

Report to:
Pam Krueger

Project
Description: **Navajo Refining Company - Artesia, NM**

Phone: **713-953-4800**

Fax:

Collected by (print):

Collected by (signature):

Immediately
Packed on Ice N ☐ Y ☒

Billing Information:

Attn: Accounts Payable
630 Plaza Drive, Suite 600
Highlands Ranch, CO 80129

Email To: **pam.krueger@arcadis-us.com;maisha.turner@arcadis-us.com**

City/State
Collected:

Lab Project #
ARCADHTX-NAVAJO

P.O. #

Date Results Needed

Email? ☐ No ☒ Yes

FAX? ☐ No ☐ Yes

No.
of
Cnts

Analysis / Container / Preservative

8270 100ml Amb NoPres

CL, FL, SO4 125mlHDPE-NoPres

CN 250mlHDPEAmb-NaOH

DROOROLVI 40mlAmb-HCl-BT

GRO 40mlAmb HCl

NAV DISSOLVED METALS 500mlHDPE-NoPres

NO2NO3 250mlHDPE-H2SO4

TDS 250mlHDPE-NoPres

TOTAL METALS 500mlHDPE-HNO3

V8260 40mlAmb-HCl

Chain of Custody Page 2 of 2



YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# **L747445**

Table #

Acctnum: **ARCADHTX**

Template: **T99908**

Prelogin: **P497465**

TSR: **633 Pam Langford**

PB: **1.27m**

Shipped Via: **FedEX Ground**

Rem./Contaminant Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	8270 100ml Amb NoPres	CL, FL, SO4 125mlHDPE-NoPres	CN 250mlHDPEAmb-NaOH	DROOROLVI 40mlAmb-HCl-BT	GRO 40mlAmb HCl	NAV DISSOLVED METALS 500mlHDPE-NoPres	NO2NO3 250mlHDPE-H2SO4	TDS 250mlHDPE-NoPres	TOTAL METALS 500mlHDPE-HNO3	V8260 40mlAmb-HCl	Rem./Contaminant	Sample # (lab only)
MW-136-0215-BG	G	GW		2/4/15	1135	15	X	X	X	X	X	X	X	X	X	X		11
MW-13-0215-BG	I	GW		2/4/15	1320	15	X	X	X	X	X	X	X	X	X	X		12
MW-12-0215-BG	I	GW		2/4/15	1420	15	X	X	X	X	X	X	X	X	X	X		13
EB-22-0215-BG	I	GW		2/4/15	1445	15	X	X	X	X	X	X	X	X	X	X		14
DUP-08-0215-BG	I	GW		—	—	15	X	X	X	X	X	X	X	X	X	X		15
Trip Blank		GW				15	X	X	X	X	X	X	X	X	X	X		16
Trip Blank						1										X		

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: Dissolved metals samples were field filtered and preserved

pH _____ Temp _____

Flow _____ Other _____

Hold #

Condition: **F** (lab use only)

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Samples returned via: ☐ UPS

☒ FedEx ☐ Courier ☐ _____

COC Seal Intact: ☐ Y ☐ N ☐ NA

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: **3.8** °C Bottles Received: **226**

pH Checked: **111 of 111**

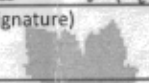
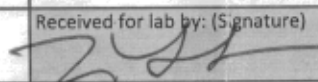
Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: **2/6/15** Time: **0900**

ARCADIS US - TX 2929 Briarpark Dr., Suite 300 Houston, TX 77042				Billing Information: Attn: Accounts Payable 630 Plaza Drive, Suite 600 Highlands Ranch, CO 80129				Analysis / Container / Preservative												Chain of Custody Page 1 of 2			
				Report to: Pam Krueger				Email To: pam.krueger@arcadis-us.com;maisha.turner@arcadis-us.com				 ESC L.A.B S.C.I.E.N.C.E.S YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859 											
Project Description: Navajo Refining Company - Artesia, NM				City/State Collected:																			
Phone: 713-953-4800 Fax:		Client Project # TX000836.0008.00004		Lab Project # ARCADHTX-NAVAJO																			
Collected by (print): <i>Ron Wood</i>		Site/Facility ID #		P.O. #																			
Collected by (signature): <i>Ron Wood</i>		Rush? (Lab MUST Be Notified) Same Day200% Next Day100% Two Day50% Three Day25%		Date Results Needed																			
Immediately Packed on Ice N <u> </u> Y <u>X</u>				Email? <u> </u> No <u>X</u> Yes FAX? <u> </u> No <u> </u> Yes		No. of Cntrs																	
Sample ID		Comp/Grab	Matrix *	Depth	Date	Time	Cntrs	Sub-Out 1L-HDPE-Add HNO3												Rem./Contaminant		Sample # (lab only)	
<i>MW-55-0215-BG</i>		<i>G</i>	<i>DW</i>	<i>2/2/15</i>	<i>1520</i>	<i>24</i>	<i>X</i>													<i>-01</i>			
<i>NP-5-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/2/15</i>	<i>1630</i>	<i>24</i>	<i>X</i>													<i>02</i>			
<i>EB-20-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/2/15</i>	<i>1740</i>	<i>24</i>	<i>X</i>													<i>03</i>			
<i>MW-25-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>0930</i>	<i>24</i>	<i>X</i>													<i>04</i>			
<i>MW-17-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>1115</i>	<i>24</i>	<i>X</i>													<i>05</i>			
<i>^{RW} MW UG-1-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>1300</i>	<i>24</i>	<i>X</i>													<i>06</i>			
<i>UG-4-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>1400</i>	<i>24</i>	<i>X</i>													<i>07</i>			
<i>UG-3R-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>1530</i>	<i>24</i>	<i>X</i>													<i>08</i>			
<i>UG-2-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>1640</i>	<i>24</i>	<i>X</i>													<i>09</i>			
<i>EB-21-0215-BG</i>		<i>1</i>	<i>DW</i>	<i>2/3/15</i>	<i>1730</i>	<i>24</i>	<i>X</i>													<i>10</i>			
* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other																							
Remarks:																							
Relinquished by: (Signature) <i>Ron Wood</i>				Date: <i>2/4/15</i>		Time: <i>1600</i>		Received by: (Signature) 				Samples returned via: ☐ UPS ☒ FedEx ☐ Courier ☐				Condition: <i>F</i> (lab use only)							
Relinquished by: (Signature)				Date:		Time:		Received by: (Signature)				Temp: <i>3.8</i> °C Bottles Received: <i>30=ER</i>				COC Seal Intact: <i>Y</i> ☐ N ☐ NA							
Relinquished by: (Signature)				Date:		Time:		Received for lab by: (Signature) 				Date: <i>2/4/15</i> Time: <i>0900</i>				pH Checked: <i>4.2</i> NCF:							

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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110 South Hill Street
 South Bend, IN 46617
 Tel: (574) 233-4777
 Fax: (574) 233-8207
 1 800 332 4345

Laboratory Report

Client: Environmental Science

Report:

333985

Attn: Janice Cozby
 12065 Lebanon Road
 Mount Juliet, TN 37122

Priority:

Standard Written

Status:

Final

PWS ID:

Not Supplied

Copies
 to: None

Sample Information					
EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3185463	L747450-01	7500-Ra B	02/02/15 15:20	Client	02/10/15 09:00
3185463	L747450-01	7500-Ra D	02/02/15 15:20	Client	02/10/15 09:00
3185464	L747450-02	7500-Ra B	02/02/15 16:30	Client	02/10/15 09:00
3185464	L747450-02	7500-Ra D	02/02/15 16:30	Client	02/10/15 09:00
3185465	L747450-03	7500-Ra B	02/02/15 17:40	Client	02/10/15 09:00
3185465	L747450-03	7500-Ra D	02/02/15 17:40	Client	02/10/15 09:00
3185466	L747450-04	7500-Ra B	02/03/15 09:30	Client	02/10/15 09:00
3185466	L747450-04	7500-Ra D	02/03/15 09:30	Client	02/10/15 09:00
3185467	L747450-05	7500-Ra B	02/03/15 11:15	Client	02/10/15 09:00
3185467	L747450-05	7500-Ra D	02/03/15 11:15	Client	02/10/15 09:00
3185468	L747450-06	7500-Ra B	02/03/15 13:00	Client	02/10/15 09:00
3185468	L747450-06	7500-Ra D	02/03/15 13:00	Client	02/10/15 09:00
3185469	L747450-07	7500-Ra B	02/03/15 14:00	Client	02/10/15 09:00
3185469	L747450-07	7500-Ra D	02/03/15 14:00	Client	02/10/15 09:00
3185470	L747450-08	7500-Ra B	02/03/15 15:30	Client	02/10/15 09:00
3185470	L747450-08	7500-Ra D	02/03/15 15:30	Client	02/10/15 09:00
3185471	L747450-09	7500-Ra B	02/03/15 16:40	Client	02/10/15 09:00
3185471	L747450-09	7500-Ra D	02/03/15 16:40	Client	02/10/15 09:00
3185472	L747450-10	7500-Ra B	02/03/15 17:30	Client	02/10/15 09:00
3185472	L747450-10	7500-Ra D	02/03/15 17:30	Client	02/10/15 09:00
3185473	L747450-11	7500-Ra B	02/04/15 11:35	Client	02/10/15 09:00
3185473	L747450-11	7500-Ra D	02/04/15 11:35	Client	02/10/15 09:00
3185474	L747450-12	7500-Ra B	02/04/15 13:20	Client	02/10/15 09:00
3185474	L747450-12	7500-Ra D	02/04/15 13:20	Client	02/10/15 09:00
3185475	L747450-13	7500-Ra B	02/04/15 14:20	Client	02/10/15 09:00
3185475	L747450-13	7500-Ra D	02/04/15 14:20	Client	02/10/15 09:00
3185476	L747450-14	7500-Ra B	02/04/15 14:45	Client	02/10/15 09:00
3185476	L747450-14	7500-Ra D	02/04/15 14:45	Client	02/10/15 09:00
3185477	L747450-15	7500-Ra B	02/04/15 00:00	Client	02/10/15 09:00
3185477	L747450-15	7500-Ra D	02/04/15 00:00	Client	02/10/15 09:00

Report Summary

Note: Sample containers were provided by the client.

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Kelly Trott at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.



Authorized Signature

Title

03/17/2015

Date

Client Name: Environmental Science

Report #: 333985

Sampling Point: L747450-01

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.54	1.0	0.65 ± 0.57	pCi/L	02/13/15 10:34	02/18/15 09:58	3185463
15262-20-1	Radium-228	7500-Ra D	---	0.2	1.0	1.1 ± 0.3	pCi/L	02/20/15 14:47	02/25/15 17:51	3185463
---	Combined Radium	calc.	5 *	0.54	---	1.75 ± 0.64	pCi/L	02/13/15 10:34	02/25/15 17:51	3185463

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-02

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.4	1.0	1.2 ± 0.6	pCi/L	02/13/15 10:34	02/18/15 09:58	3185464
15262-20-1	Radium-228	7500-Ra D	---	0.4	1.0	1.6 ± 0.4	pCi/L	02/20/15 14:47	02/25/15 17:51	3185464
---	Combined Radium	calc.	5 *	0.4	---	2.8 ± 0.7	pCi/L	02/13/15 10:34	02/25/15 17:51	3185464

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-03

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.44	1.00	0.08 ± 0.33	pCi/L	02/13/15 10:34	02/18/15 09:58	3185465
15262-20-1	Radium-228	7500-Ra D	---	0.34	1.0	0.95 ± 0.38	pCi/L	02/20/15 14:47	02/25/15 17:51	3185465
---	Combined Radium	calc.	5 *	0.44	---	1.03 ± 0.50	pCi/L	02/13/15 10:34	02/25/15 17:51	3185465

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-04

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.5	1.0	1.6 ± 0.7	pCi/L	02/23/15 10:22	02/25/15 10:38	3185466
15262-20-1	Radium-228	7500-Ra D	---	0.2	1.0	1.3 ± 0.3	pCi/L	02/20/15 14:47	02/25/15 17:51	3185466
---	Combined Radium	calc.	5 *	0.5	---	2.9 ± 0.8	pCi/L	02/23/15 10:22	02/25/15 17:51	3185466

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-05

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.41	1.0	0.45 ± 0.42	pCi/L	02/13/15 10:34	02/18/15 09:58	3185467
15262-20-1	Radium-228	7500-Ra D	---	0.4	1.0	2.1 ± 0.5	pCi/L	02/20/15 14:47	02/25/15 17:51	3185467
---	Combined Radium	calc.	5 *	0.41	---	2.55 ± 0.66	pCi/L	02/13/15 10:34	02/25/15 17:51	3185467

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-06

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.55	1.0	0.91 ± 0.63	pCi/L	02/23/15 10:22	02/25/15 10:38	3185468
15262-20-1	Radium-228	7500-Ra D	---	0.4	1.0	1.7 ± 0.5	pCi/L	02/20/15 14:47	02/25/15 17:51	3185468
---	Combined Radium	calc.	5 *	0.55	---	2.61 ± 0.79	pCi/L	02/23/15 10:22	02/25/15 17:51	3185468

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-07

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.6	1.0	1.2 ± 0.7	pCi/L	02/23/15 10:22	02/25/15 10:38	3185469
15262-20-1	Radium-228	7500-Ra D	---	0.4	1.0	1.0 ± 0.4	pCi/L	02/20/15 14:47	03/05/15 12:39	3185469
---	Combined Radium	calc.	5 *	0.6	---	2.2 ± 0.8	pCi/L	02/23/15 10:22	03/05/15 12:39	3185469

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-08

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.4	1.0	1.7 ± 0.6	pCi/L	02/13/15 10:34	02/18/15 09:58	3185470
15262-20-1	Radium-228	7500-Ra D	---	0.3	1.0	1.0 ± 0.3	pCi/L	02/20/15 14:47	03/05/15 12:39	3185470
---	Combined Radium	calc.	5 *	0.4	---	2.7 ± 0.7	pCi/L	02/13/15 10:34	03/05/15 12:39	3185470

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-09

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.39	1.0	0.38 ± 0.39	pCi/L	02/13/15 10:34	02/18/15 09:58	3185471
15262-20-1	Radium-228	7500-Ra D	---	0.34	1.0	0.87 ± 0.37	pCi/L	02/20/15 14:47	03/05/15 12:39	3185471
---	Combined Radium	calc.	5 *	0.39	---	1.25 ± 0.54	pCi/L	02/13/15 10:34	03/05/15 12:39	3185471

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-10

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.20	1.0	0.62 ± 0.30	pCi/L	02/17/15 12:45	02/23/15 13:27	3185472
15262-20-1	Radium-228	7500-Ra D	---	0.30	1.0	0.52 ± 0.32	pCi/L	02/20/15 14:47	03/05/15 12:39	3185472
---	Combined Radium	calc.	5 *	0.30	---	1.14 ± 0.44	pCi/L	02/17/15 12:45	03/05/15 12:39	3185472

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-11

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.15	1.0	0.35 ± 0.21	pCi/L	02/17/15 12:45	02/23/15 12:24	3185473
15262-20-1	Radium-228	7500-Ra D	---	0.27	1.0	0.67 ± 0.29	pCi/L	02/20/15 14:47	03/05/15 12:39	3185473
---	Combined Radium	calc.	5 *	0.27	---	1.02 ± 0.36	pCi/L	02/17/15 12:45	03/05/15 12:39	3185473

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-12

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.18	1.0	0.48 ± 0.25	pCi/L	02/17/15 12:45	02/23/15 12:24	3185474
15262-20-1	Radium-228	7500-Ra D	---	0.26	1.0	0.68 ± 0.29	pCi/L	02/20/15 14:47	03/05/15 12:39	3185474
---	Combined Radium	calc.	5 *	0.26	---	1.16 ± 0.38	pCi/L	02/17/15 12:45	03/05/15 12:39	3185474

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-13

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.16	1.0	0.76 ± 0.30	pCi/L	02/17/15 12:45	02/23/15 12:24	3185475
15262-20-1	Radium-228	7500-Ra D	---	0.25	1.0	0.40 ± 0.26	pCi/L	02/20/15 14:47	03/05/15 12:39	3185475
---	Combined Radium	calc.	5 *	0.25	---	1.16 ± 0.40	pCi/L	02/17/15 12:45	03/05/15 12:39	3185475

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-14

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.18	1.0	0.61 ± 0.28	pCi/L	02/17/15 12:45	02/23/15 12:24	3185476
15262-20-1	Radium-228	7500-Ra D	---	0.25	1.0	0.13 ± 0.24	pCi/L	02/20/15 14:47	03/05/15 12:39	3185476
---	Combined Radium	calc.	5 *	0.25	---	0.74 ± 0.37	pCi/L	02/17/15 12:45	03/05/15 12:39	3185476

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L747450-15

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.16	1.0	0.33 ± 0.21	pCi/L	02/17/15 12:45	02/23/15 12:24	3185477
15262-20-1	Radium-228	7500-Ra D	---	0.27	1.0	0.36 ± 0.28	pCi/L	02/20/15 14:47	03/05/15 12:39	3185477
---	Combined Radium	calc.	5 *	0.27	---	0.69 ± 0.35	pCi/L	02/17/15 12:45	03/05/15 12:39	3185477

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

Sub-Contract Chain of Custody



Environmental Science Corp
12065 Lebanon Road
Mt. Juliet, TN 37122
(615) 773-9756 (615) 758-5859 fax

271423

Sub-Contract Lab : ENVHEALT

City / State : South Bend, IN

Results Needed by : 3/9/15

ESC Purchase Order # : S21464

Send Reports To : Janice Cozby jcozby@esclabsciences.com

WORKGROUP WG769291

Date Created : 2/9/2015

333985

SAMPLENO Container #	MATRIX	Date / Time Collected	PARAMETER	Code	METHOD	Comments
L747450-01	DW	2/2/2015 15:20	Radium 226	RA226	7500Ra B-2001	EDD
S17949717						
S17949716						
L747450-01	DW	2/2/2015 15:20	Radium 228	RA228	7500Ra D-2001	EDD
S17949716						
S17949717						
L747450-02	DW	2/2/2015 16:30	Radium 226	RA226	7500Ra B-2001	EDD
S17949721						
S17949719						
L747450-02	DW	2/2/2015 16:30	Radium 228	RA228	7500Ra D-2001	EDD
S17949721						
S17949719						
L747450-03	DW	2/2/2015 17:40	Radium 226	RA226	7500Ra B-2001	EDD
S17949725						
S17949724						
L747450-03	DW	2/2/2015 17:40	Radium 228	RA228	7500Ra D-2001	EDD
S17949724						
S17949725						
L747450-04	DW	2/3/2015 9:30	Radium 226	RA226	7500Ra B-2001	EDD
S17949728						
S17949729						
L747450-04	DW	2/3/2015 9:30	Radium 228	RA228	7500Ra D-2001	EDD
S17949728						
S17949729						
L747450-05	DW	2/3/2015 11:15	Radium 226	RA226	7500Ra B-2001	EDD
S17949733						
S17949732						
L747450-05	DW	2/3/2015 11:15	Radium 228	RA228	7500Ra D-2001	EDD

Client Provided Sample Container

Relinquished by Janice Cozby

Received by Janice Cozby

Relinquished by Janice Cozby

Received by Janice Cozby

Date: 020915

Date: 2-10-15

Date: 0900

Date: 0900

Liters Received = 2
each Site SS 2-10-15

Page : 1

Sub-Contract Lab : ENVHEALT

City / State : South Bend, IN

Results Needed by : 3/9/15

ESC Purchase Order # : S21464

Send Reports To : Janice Cozby jcozby@esclabsciences.com

WORKGROUP

WG769291

Date Created :

2/9/2015

SAMPLENO

Date / Time

Container #

MATRIX

Collected

PARAMETER

Code

METHOD

Comments

S17949733

S17949732

L747450-06	DW	2/3/2015 13:00	Radium 226	RA226	7500Ra B-2001	EDD
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S17949736

S17949737

3185468

L747450-06	DW	2/3/2015 13:00	Radium 228	RA228	7500Ra D-2001	EDD
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S17949736

S17949737

L747450-07	DW	2/3/2015 14:00	Radium 226	RA226	7500Ra B-2001	EDD
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S17949741

S17949740

3185469

L747450-07	DW	2/3/2015 14:00	Radium 228	RA228	7500Ra D-2001	EDD
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S17949741

S17949740

L747450-08	DW	2/3/2015 15:30	Radium 226	RA226	7500Ra B-2001	EDD
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S17949744

S17949745

3185470

L747450-08	DW	2/3/2015 15:30	Radium 228	RA228	7500Ra D-2001	EDD
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S17949745

S17949744

L747450-09	DW	2/3/2015 16:40	Radium 226	RA226	7500Ra B-2001	EDD
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S17949749

S17949748

3185471

L747450-09	DW	2/3/2015 16:40	Radium 228	RA228	7500Ra D-2001	EDD
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S17949749

S17949748

L747450-10	DW	2/3/2015 17:30	Radium 226	RA226	7500Ra B-2001	EDD
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S17949753

S17949752

3185472

L747450-10	DW	2/3/2015 17:30	Radium 228	RA228	7500Ra D-2001	EDD
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S17949753

S17949752

Client Provided Sample Container

Liters Received = 2 each side
SS 2-10-15
Ambient

Relinquished by _____ Date: _____

Received by: Seaton Date: 2-10-15 0900

Relinquished by _____ Date: _____

Received by: "Relinquished by" by Client Date: _____

Page : 2

Page 10 of 28

Sub-Contract Lab : _ENVHEALT_

City / State : _South Bend, IN_

Results Needed by : _3/9/15_

ESC Purchase Order # : _S21464_

Send Reports To : _Janice Cozby jcozby@esclabsciences.com_

WORKGROUP

WG769291

Date Created :

2/9/2015

SAMPLENO Container #	MATRIX	Date / Time Collected	PARAMETER	Code	METHOD	Comments
L747450-11	DW	2/4/2015 11:35	Radium 226	RA226	7500Ra B-2001	EDD PH 2.5
S17949756						
S17949757						
L747450-11	DW	2/4/2015 11:35	Radium 228	RA228	7500Ra D-2001	EDD
S17949756						
S17949757						
L747450-12	DW	2/4/2015 13:20	Radium 226	RA226	7500Ra B-2001	EDD
S17949761						
S17949760						
L747450-12	DW	2/4/2015 13:20	Radium 228	RA228	7500Ra D-2001	EDD
S17949760						
S17949761						
L747450-13	DW	2/4/2015 14:20	Radium 226	RA226	7500Ra B-2001	EDD
S17949765						
S17949764						
L747450-13	DW	2/4/2015 14:20	Radium 228	RA228	7500Ra D-2001	EDD
S17949765						
S17949764						
L747450-14	DW	2/4/2015 14:45	Radium 226	RA226	7500Ra B-2001	EDD
S17949769						
S17949768						
L747450-14	DW	2/4/2015 14:45	Radium 228	RA228	7500Ra D-2001	EDD
S17949768						
S17949769						
L747450-15	DW	2/4/2015 0:00	Radium 226	RA226	7500Ra B-2001	EDD
S17949772						
S17949773						
L747450-15	DW	2/4/2015 0:00	Radium 228	RA228	7500Ra D-2001	EDD
S17949773						
S17949772						

Client Provided Sample Container

Mailed COC was not Signed at

Relinquished by "Relinquished by" by Client

Received by : S. J. J.

Date : 2-10-15 0900

Relinquished by

Date :

Received by :

Date :

Liters Received = 2 each site 552-1015

Ambient

Page : 3

Page 11 of 28

ARCADIS US - TX 2929 Briarpark Dr., Suite 300 Houston, TX 77042						Billing Information: Attn: Accounts Payable 630 Plaza Drive, Suite 600 Highlands Ranch, CO 80129						Chain of Custody Page 1 of 2 ESC L.A.B S.C.I.E.N.C.E.S. YOUR LAB OF CHOICE 12055 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859					
Report to: Pam Krueger Project Description: Navajo Refining Company - Artesia, NM						Email To: pam.krueger@arcadis-us.com; maisha.turner@arcadis-us.com						City/State Collected: Lab Project # ARCADHTX-NAVAJO					
Client Project # TX000836.0008.00004						P.O. #						Date Results Needed					
Site/Facility ID #						Rush? (Lab MUST Be Notified) ☐ Same Day200% ☐ Next Day100% ☐ Two Day50% ☒ Three Day25%						No. of Cntrs					
Sample ID						Comp/Grab Matrix * Depth						Date Time					
MW-55-0215-BG						G DW						2/2/15 1520					
NP-5-0215-BG						DW						2/2/15 1630					
FB-20-0215-BG						DW						2/2/15 1740					
MW-25-0215-BG						DW						2/3/15 0930					
MW-17-0715-BG						DW						2/3/15 1115					
UG-1-0215-BG						DW						2/3/15 1300					
UG-4-0215-BG						DW						2/3/15 1400					
UG-3R-0215-BG						DW						2/3/15 1530					
UG-2-0215-BG						DW						2/3/15 1640					
EB-21-0215-BG						DW						2/3/15 1730					
Remarks: * Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other 627286107284 627286108464 627286108442												pH _____ Temp _____ Flow _____ Other _____					
Relinquished by: (Signature) <i>[Signature]</i>						Received by: (Signature) _____						Samples returned via: ☐ UPS ☒ FedEx ☐ Courier					
Relinquished by: (Signature) <i>[Signature]</i>						Received by: (Signature) _____						Temp: 3.8 °C Bottles Received: 30=ER					
Relinquished by: (Signature) <i>[Signature]</i>						Received by: (Signature) _____						Date: 2/4/15 Time: 0900					

Chain of Custody Page 2 of 2		Analysis / Container / Preservative	
ARCADIS US - TX 2929 Briarpark Dr., Suite 300 Houston, TX 77042 Attn: Accounts Payable 630 Plaza Drive, Suite 600 Highlands Ranch, CO 80129		ESC L.A.B S.C.I.E.N.C.E.S YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859 L# 1747450 Table # Acctnum: ARCADHTX Template: T99912 Prelogin: P497467 TSR: 633 - Pam Langford PB: 1-28-15 AB Shipped Via: FedEx Ground Rem./Contaminant Sample # (lab only)	
Report to: Pam Krueger		Hold #	
Project Description: Navajo Refining Company - Artesia, NM		Condition: (lab use only)	
Client Project # TX000836.0008.00004		COC Seal Intact: Y N NA	
Site/Facility ID #		pH Checked: 57	
Collected by (print): Ron Wood		Temp: 3.8 °C	
Collected by (signature): [Signature]		Date: 2/4/15	
Immediately Packed on ice N Y		Time: 12:00	
Rush? (Lab MUST Be Notified) Same Day 200% Next Day 100% Two Day 50% Three Day 25%		Received by: (Signature)	
Comp/Grab Matrix * Depth		Received by: (Signature)	
Sample ID		Received for lab by: (Signature)	
M12-136-0215-B6		Date: 2/4/15	
M12-13-0215-B6		Date: 2/4/15	
M12-12-0215-B6		Date: 2/4/15	
EB-22-0215-B6		Date: 2/4/15	
DUP-08-0215-B6		Date: 2/4/15	
Remarks:		Remarks:	
* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other		Remarks:	
Relinquished by: (Signature)		Relinquished by: (Signature)	
Relinquished by: (Signature)		Relinquished by: (Signature)	
Relinquished by: (Signature)		Relinquished by: (Signature)	

Eurofins Eaton Analytical

Run Log

Run ID: 199945 Method: 7500-Ra B

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3185463	L747450-01	GW	DU	02/18/2015 09:58	
FS	3185464	L747450-02	GW	DU	02/18/2015 09:58	
FS	3185465	L747450-03	GW	DU	02/18/2015 09:58	
FS	3185467	L747450-05	GW	DU	02/18/2015 09:58	
FS	3185470	L747450-08	GW	DU	02/18/2015 09:58	
FS	3185471	L747450-09	GW	DU	02/18/2015 09:58	
LRB	3192260		RW	DU	02/18/2015 09:58	
LFB	3192261		RW	DU	02/18/2015 09:58	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.54	L747450-01		0.65		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3185463
FS	Radium-226	7500-Ra B	0.4	L747450-02		1.2		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3185464
FS	Radium-226	7500-Ra B	0.44	L747450-03		0.08		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3185465
FS	Radium-226	7500-Ra B	0.41	L747450-05		0.45		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3185467
FS	Radium-226	7500-Ra B	0.4	L747450-08		1.7		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3185470
FS	Radium-226	7500-Ra B	0.39	L747450-09		0.38		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3185471
LRB	Radium-226	7500-Ra B	0.19	---		0.06		pCi/L	---	---	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3192260
LFB	Radium-226	7500-Ra B	0.2	---		18.9100	18.0	pCi/L	105	30 - 160	---	---	1.0	02/13/2015 10:34	02/18/2015 09:58	3192261

Eurofins Eaton Analytical

Run Log

Run ID: 199954 Method: 7500-Ra B

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3185472	L747450-10	GW	CI	02/23/2015 13:27	
LRB	3192404		RW	CI	02/23/2015 13:27	
LFB	3192405		RW	CI	02/23/2015 13:27	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.20	L747450-10		0.62		pCi/L	---	---	---	---	1.0	02/17/2015 12:45	02/23/2015 13:27	3185472
LRB	Radium-226	7500-Ra B	0.10	---		0.18		pCi/L	---	---	---	---	1.0	---	02/23/2015 13:27	3192404
LFB	Radium-226	7500-Ra B	0.1	---		20.1200	18.0	pCi/L	112	30 - 160	---	---	1.0	---	02/23/2015 13:27	3192405

Eurofins Eaton Analytical

Run Log

Run ID: 199958 Method: 7500-Ra B

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
FS	3185473	L747450-11	GW	CI	02/23/2015 12:24	
FS	3185474	L747450-12	GW	CI	02/23/2015 12:24	
FS	3185475	L747450-13	GW	CI	02/23/2015 12:24	
FS	3185476	L747450-14	GW	CI	02/23/2015 12:24	
FS	3185477	L747450-15	GW	CI	02/23/2015 12:24	
LRB	3192534		RW	CI	02/23/2015 12:24	
LFB	3192535		RW	CI	02/23/2015 12:24	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.15	L747450-11		0.35		pCi/L	---	---	---	---	1.0	02/17/2015 12:45	02/23/2015 12:24	3185473
FS	Radium-226	7500-Ra B	0.18	L747450-12		0.48		pCi/L	---	---	---	---	1.0	02/17/2015 12:45	02/23/2015 12:24	3185474
FS	Radium-226	7500-Ra B	0.16	L747450-13		0.76		pCi/L	---	---	---	---	1.0	02/17/2015 12:45	02/23/2015 12:24	3185475
FS	Radium-226	7500-Ra B	0.18	L747450-14		0.61		pCi/L	---	---	---	---	1.0	02/17/2015 12:45	02/23/2015 12:24	3185476
FS	Radium-226	7500-Ra B	0.16	L747450-15		0.33		pCi/L	---	---	---	---	1.0	02/17/2015 12:45	02/23/2015 12:24	3185477
LRB	Radium-226	7500-Ra B	0.09	---		0.10		pCi/L	---	---	---	---	1.0	---	---	3192534
LFB	Radium-226	7500-Ra B	0.1	---		18.3800	18.0	pCi/L	102	30 - 160	---	---	1.0	---	---	3192535

Eurofins Eaton Analytical

Run Log

Run ID: 200082 Method: 7500-Ra B

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3185466	L747450-04	GW	DU	02/25/2015 10:38	
FS	3185468	L747450-06	GW	DU	02/25/2015 10:38	
FS	3185469	L747450-07	GW	DU	02/25/2015 10:38	
LRB	3194854		RW	DU	02/25/2015 10:38	
LFB	3194855		RW	DU	02/25/2015 10:38	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.5	L747450-04		1.6		pCi/L	---	---	---	---	1.0	02/23/2015 10:22	02/25/2015 10:38	3185466
FS	Radium-226	7500-Ra B	0.55	L747450-06		0.91		pCi/L	---	---	---	---	1.0	02/23/2015 10:22	02/25/2015 10:38	3185468
FS	Radium-226	7500-Ra B	0.6	L747450-07		1.2		pCi/L	---	---	---	---	1.0	02/23/2015 10:22	02/25/2015 10:38	3185469
LRB	Radium-226	7500-Ra B	0.25	---		0.38		pCi/L	---	---	---	---	1.0	02/23/2015 12:15	02/25/2015 10:38	3194854
LFB	Radium-226	7500-Ra B	0.3	---		19.4300	18.0	pCi/L	108	30 - 160	---	---	1.0	02/23/2015 12:15	02/25/2015 10:38	3194855

Eurofins Eaton Analytical

Run Log

Run ID: 200097 Method: 7500-Ra D

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3185463	L747450-01	GW	DU	02/25/2015 17:51	
FS	3185464	L747450-02	GW	DU	02/25/2015 17:51	
FS	3185465	L747450-03	GW	DU	02/25/2015 17:51	
FS	3185466	L747450-04	GW	DU	02/25/2015 17:51	
FS	3185467	L747450-05	GW	DU	02/25/2015 17:51	
FS	3185468	L747450-06	GW	DU	02/25/2015 17:51	
LRB	3194994		RW	DU	02/25/2015 18:51	
LFB	3194995		RW	DU	02/25/2015 18:51	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-228	7500-Ra D	0.2	L747450-01		1.1		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 17:51	3185463
FS	Radium-228	7500-Ra D	0.4	L747450-02		1.6		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 17:51	3185464
FS	Radium-228	7500-Ra D	0.34	L747450-03		0.95		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 17:51	3185465
FS	Radium-228	7500-Ra D	0.2	L747450-04		1.3		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 17:51	3185466
FS	Radium-228	7500-Ra D	0.4	L747450-05		2.1		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 17:51	3185467
FS	Radium-228	7500-Ra D	0.4	L747450-06		1.7		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 17:51	3185468
LRB	Radium-228	7500-Ra D	0.33	---		0.46		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	02/25/2015 18:51	3194994
LFB	Radium-228	7500-Ra D	0.3	---		10.7100	9.33	pCi/L	115	48 - 139	---	---	1.0	02/20/2015 14:47	02/25/2015 18:51	3194995

Eurofins Eaton Analytical

Run Log

Run ID: 200354 Method: 7500-Ra D

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
LRB	3199739		RW	DU	03/05/2015 12:39	
LFB	3199740		RW	DU	03/05/2015 14:20	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
LRB	Radium-228	7500-Ra D	0.32	---		0.44		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3199739
LFB	Radium-228	7500-Ra D	0.31	---		8.400	9.3	pCi/L	91	48 - 139	---	---	1.0	02/20/2015 14:47	03/05/2015 14:20	3199740



Eaton Analytical

Eurofins Eaton Analytical

Run Log

Run ID: 200364 Method: 7500-Ra D

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3185469	L747450-07	GW	DU	03/05/2015 12:39	
FS	3185470	L747450-08	GW	DU	03/05/2015 12:39	
FS	3185471	L747450-09	GW	DU	03/05/2015 12:39	
FS	3185472	L747450-10	GW	DU	03/05/2015 12:39	
FS	3185473	L747450-11	GW	DU	03/05/2015 12:39	
FS	3185474	L747450-12	GW	DU	03/05/2015 12:39	
FS	3185475	L747450-13	GW	DU	03/05/2015 12:39	
FS	3185476	L747450-14	GW	DU	03/05/2015 12:39	
FS	3185477	L747450-15	GW	DU	03/05/2015 12:39	
LRB	3199821		RW	DU	03/05/2015 12:39	
LFB	3199822		RW	DU	03/05/2015 14:20	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-228	7500-Ra D	0.4	L747450-07		1.0		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185469
FS	Radium-228	7500-Ra D	0.3	L747450-08		1.0		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185470
FS	Radium-228	7500-Ra D	0.34	L747450-09		0.87		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185471
FS	Radium-228	7500-Ra D	0.30	L747450-10		0.52		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185472
FS	Radium-228	7500-Ra D	0.27	L747450-11		0.67		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185473
FS	Radium-228	7500-Ra D	0.26	L747450-12		0.68		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185474
FS	Radium-228	7500-Ra D	0.25	L747450-13		0.40		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185475
FS	Radium-228	7500-Ra D	0.25	L747450-14		0.13		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185476
FS	Radium-228	7500-Ra D	0.27	L747450-15		0.36		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3185477
LRB	Radium-228	7500-Ra D	0.32	---		0.44		pCi/L	---	---	---	---	1.0	02/20/2015 14:47	03/05/2015 12:39	3199821
LFB	Radium-228	7500-Ra D	0.31	---		8.400	9.3	pCi/L	91	48 - 139	---	---	1.0	02/20/2015 14:47	03/05/2015 14:20	3199822

Sample Type Key

<u>Type (Abbr.)</u>	<u>Sample Type</u>	<u>Type (Abbr.)</u>	<u>Sample Type</u>
FS	Field Sample		
LFB	Laboratory Fortified Blank		
LRB	Laboratory Reagent Blank		



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Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

Report Summary

Tuesday August 11, 2015

Report Number: L752468

Samples Received: 03/10/15

Client Project: TX000836.0008.00004

Description: Navajo Refining Company - Artesia, NM

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Pam Langford , ESC Representative

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-01

Sample ID : MW-55-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 09:15

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	260000	260	5000	ug/l		9056MOD	03/15/15	5
Fluoride	2600	50.	500	ug/l		9056MOD	03/15/15	5
Sulfate	2900000	3900	250000	ug/l		9056MOD	03/15/15	50
Cyanide	U	1.8	5.0	ug/l		9012B	03/13/15	1
Nitrate-Nitrite	13000	39.	200	ug/l		353.2	03/16/15	2
Dissolved Solids	4800000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	10.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	4.8	0.25	2.0	ug/l		6020	03/12/15	1
Arsenic, Dissolved	4.7	0.25	2.0	ug/l		6020	03/13/15	1
Barium	12.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	10.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	1200	7.5	100	ug/l	01V	6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	610000	46.	1000	ug/l	V	6020	03/13/15	1
Chromium	1.4	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	1.0	0.54	2.0	ug/l	J	6020	03/13/15	1
Copper, Dissolved	1.1	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	55.	15.	100	ug/l	J	6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	0.29	0.24	2.0	ug/l	J	6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	170	0.25	5.0	ug/l		6020	03/12/15	1
Manganese, Dissolved	110	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	21.	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	1.8	0.35	2.0	ug/l	J	6020	03/12/15	1
Nickel, Dissolved	1.8	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	770	37.	1000	ug/l	J	6020	03/13/15	1
Selenium	20.	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	20.	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	180000	550	5000	ug/l	01V	6020	03/16/15	5
Uranium, Dissolved	47.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	17.	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	17.	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

U = ND (Not Detected)

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

MDL = Minimum Detection Limit = LOD = TRRP SDL

Note:

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-55-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 09:15

ESC Sample # : L752468-01

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.4			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	150	22.	100	ug/l	B	8015	03/11/15	1
C28-C40 Oil Range	62.	12.	100	ug/l	J	8015	03/11/15	1
Surrogate Recovery o-Terphenyl	87.5			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	42.0			% Rec.		8270C	03/11/15	1
Phenol-d5	24.9			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

Sample ID : MW-55-0315-BG

Collected By : Ron Wood
Collection Date : 03/03/15 09:15

ESC Sample # : L752468-01

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	78.8			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	72.6			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	59.1			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	74.0			% Rec.		8270C	03/11/15	1

U = ND (Not Detected)

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
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Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-02

Sample ID : UG-2-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 10:35

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	78000	52.	1000	ug/l		9056MOD	03/15/15	1
Fluoride	1700	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	1100000	1500	100000	ug/l		9056MOD	03/15/15	20
Cyanide	U	1.8	5.0	ug/l		9012B	03/13/15	1
Nitrate-Nitrite	4800	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	2400000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	20.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	2.4	0.25	2.0	ug/l		6020	03/12/15	1
Arsenic, Dissolved	2.8	0.25	2.0	ug/l		6020	03/13/15	1
Barium	20.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	15.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	340	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	340000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.0	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	2.6	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	0.36	0.26	2.0	ug/l	J	6020	03/13/15	1
Iron	27.	15.	100	ug/l	J	6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	0.31	0.24	2.0	ug/l	J	6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	50.	1.2	25.	ug/l		6020	03/12/15	5
Manganese, Dissolved	44.	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	7.9	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	7.8	0.35	2.0	ug/l		6020	03/12/15	1
Nickel, Dissolved	6.1	0.35	2.0	ug/l		6020	03/13/15	1
Potassium, Dissolved	1700	37.	1000	ug/l		6020	03/13/15	1
Selenium	2.9	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	2.9	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	93000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	14.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	16.	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	12.	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	3.3	2.6	25.	ug/l	J	6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-2-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 10:35

ESC Sample # : L752468-02

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.3			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	102.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	87.3			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	43.0			% Rec.		8270C	03/11/15	1
Phenol-d5	30.2			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-2-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 10:35

ESC Sample # : L752468-02

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	83.9			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	71.6			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	56.1			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	73.4			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-03

Sample ID : UG-4-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 12:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	52000	52.	1000	ug/l		9056MOD	03/15/15	1
Fluoride	740	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	2600000	3900	250000	ug/l		9056MOD	03/15/15	50
Cyanide	U	1.8	5.0	ug/l		9012B	03/13/15	1
Nitrate-Nitrite	460	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	6300000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	19.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	1.0	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	0.89	0.25	2.0	ug/l	J	6020	03/13/15	1
Barium	32.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	25.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	1100	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	560000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.7	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	1.4	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	450	15.	100	ug/l		6020	03/12/15	1
Iron, Dissolved	17.	15.	100	ug/l	J	6020	03/13/15	1
Lead	0.52	0.24	2.0	ug/l	J	6020	03/12/15	1
Lead, Dissolved	0.34	0.24	2.0	ug/l	J	6020	03/13/15	1
Manganese	52.	0.25	5.0	ug/l		6020	03/12/15	1
Manganese, Dissolved	43.	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	4.8	0.14	5.0	ug/l	J	6020	03/13/15	1
Nickel	2.6	0.35	2.0	ug/l		6020	03/12/15	1
Nickel, Dissolved	2.0	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	2600	37.	1000	ug/l		6020	03/13/15	1
Selenium	6.4	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	6.0	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	250000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	36.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	6.0	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	5.0	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	12.	2.6	25.	ug/l	J	6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-4-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 12:00

ESC Sample # : L752468-03

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.3			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	102.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery o-Terphenyl	89.6			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	35.5			% Rec.		8270C	03/11/15	1
Phenol-d5	25.3			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-4-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 12:00

ESC Sample # : L752468-03

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	83.0			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	74.9			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	53.5			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	69.9			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-04

Sample ID : UG-1-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 13:15

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	100000	1000	20000	ug/l		9056MOD	03/15/15	20
Fluoride	940	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	1800000	1500	100000	ug/l		9056MOD	03/15/15	20
Cyanide	U	1.8	5.0	ug/l		9012B	03/13/15	1
Nitrate-Nitrite	14000	39.	200	ug/l		353.2	03/16/15	2
Dissolved Solids	3100000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	15.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	2.0	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	1.9	0.25	2.0	ug/l	J	6020	03/13/15	1
Barium	15.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	13.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	520	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	470000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.4	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	0.91	0.54	2.0	ug/l	J	6020	03/13/15	1
Copper, Dissolved	1.2	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	79.	15.	100	ug/l	J	6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	0.27	0.24	2.0	ug/l	J	6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	1.0	0.25	5.0	ug/l	J	6020	03/12/15	1
Manganese, Dissolved	U	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	5.6	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	1.2	0.35	2.0	ug/l	J	6020	03/12/15	1
Nickel, Dissolved	2.1	0.35	2.0	ug/l		6020	03/13/15	1
Potassium, Dissolved	1200	37.	1000	ug/l		6020	03/13/15	1
Selenium	9.9	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	9.9	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	93000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	23.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	11.	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	11.	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

U = ND (Not Detected)

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-1-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 13:15

ESC Sample # : L752468-04

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.4			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	105.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery o-Terphenyl	91.3			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	50.5			% Rec.		8270C	03/11/15	1
Phenol-d5	32.8			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-1-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 13:15

ESC Sample # : L752468-04

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	82.1			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	84.8			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	59.3			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	81.7			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-05

Sample ID : MW-136-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 15:25

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	260000	260	5000	ug/l		9056MOD	03/15/15	5
Fluoride	2100	50.	500	ug/l		9056MOD	03/15/15	5
Sulfate	2500000	3900	250000	ug/l		9056MOD	03/15/15	50
Cyanide	U	1.8	5.0	ug/l		9012B	03/13/15	1
Nitrate-Nitrite	780	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	4400000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	27.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	3.4	0.25	2.0	ug/l		6020	03/12/15	1
Arsenic, Dissolved	2.4	0.25	2.0	ug/l		6020	03/13/15	1
Barium	29.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	11.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	640	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	670000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.7	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	1.2	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	620	15.	100	ug/l		6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	0.67	0.24	2.0	ug/l	J	6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	25.	0.25	5.0	ug/l		6020	03/12/15	1
Manganese, Dissolved	5.7	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	6.0	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	1.9	0.35	2.0	ug/l	J	6020	03/12/15	1
Nickel, Dissolved	1.2	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	2700	37.	1000	ug/l		6020	03/13/15	1
Selenium	4.0	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	3.7	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	110000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	79.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	19.	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	17.	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-136-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 15:25

ESC Sample # : L752468-05

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	95.9			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	84.5			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	24.6			% Rec.		8270C	03/11/15	1
Phenol-d5	21.4			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

Sample ID : MW-136-0315-BG

Collected By : Ron Wood
Collection Date : 03/03/15 15:25

ESC Sample # : L752468-05

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	80.4			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	70.3			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	48.6			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	66.3			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-06

Sample ID : NP-5-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 16:40

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	430000	260	5000	ug/l		9056MOD	03/15/15	5
Fluoride	3700	50.	500	ug/l		9056MOD	03/15/15	5
Sulfate	3900000	7700	500000	ug/l		9056MOD	03/15/15	100
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	3000	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	6800000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	8.8	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	2.9	0.25	2.0	ug/l		6020	03/12/15	1
Arsenic, Dissolved	2.9	0.25	2.0	ug/l		6020	03/13/15	1
Barium	10.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	8.2	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	2000	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	520000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.1	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	1.5	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	94.	15.	100	ug/l	J	6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	0.90	0.25	5.0	ug/l	J	6020	03/12/15	1
Manganese, Dissolved	0.25	0.25	5.0	ug/l	J	6020	03/13/15	1
Molybdenum, Dissolved	46.	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	2.8	0.35	2.0	ug/l		6020	03/12/15	1
Nickel, Dissolved	1.6	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	1200	37.	1000	ug/l		6020	03/13/15	1
Selenium	35.	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	34.	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	300000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	220	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	21.	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	21.	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

U = ND (Not Detected)

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : NP-5-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 16:40

ESC Sample # : L752468-06

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.2			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	104.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery o-Terphenyl	88.6			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	51.4			% Rec.		8270C	03/11/15	1
Phenol-d5	32.6			% Rec.		8270C	03/11/15	1

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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : NP-5-0315-BG
Collected By : Ron Wood
Collection Date : 03/03/15 16:40

ESC Sample # : L752468-06

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	87.4			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	80.1			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	58.1			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	69.6			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-07

Sample ID : EB-23-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 17:25

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	300	52.	1000	ug/l	J	9056MOD	03/15/15	1
Fluoride	U	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	3300	77.	5000	ug/l	J	9056MOD	03/15/15	1
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	200	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	76000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum	18.	2.0	100	ug/l	J	6020	03/16/15	1
Aluminum, Dissolved	13.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	U	0.25	2.0	ug/l		6020	03/16/15	1
Arsenic, Dissolved	U	0.25	2.0	ug/l		6020	03/13/15	1
Barium	U	0.36	5.0	ug/l		6020	03/16/15	1
Barium, Dissolved	U	0.36	5.0	ug/l		6020	03/13/15	1
Boron	23.	1.5	20.	ug/l		6020	03/17/15	1
Boron, Dissolved	130	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	220	46.	1000	ug/l	J	6020	03/13/15	1
Chromium	0.66	0.54	2.0	ug/l	J	6020	03/16/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	2.2	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	U	15.	100	ug/l		6020	03/16/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/16/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	0.44	0.25	5.0	ug/l	J	6020	03/16/15	1
Manganese, Dissolved	U	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	U	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	U	0.35	2.0	ug/l		6020	03/16/15	1
Nickel, Dissolved	0.44	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium	100	37.	1000	ug/l	J	6020	03/16/15	1
Potassium, Dissolved	U	37.	1000	ug/l		6020	03/13/15	1
Selenium	U	0.38	2.0	ug/l		6020	03/16/15	1
Selenium, Dissolved	U	0.38	2.0	ug/l		6020	03/13/15	1
Silver	U	0.31	2.0	ug/l		6020	03/17/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	1400	550	5000	ug/l	J	6020	03/16/15	5
Uranium, Dissolved	U	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	U	0.18	5.0	ug/l		6020	03/16/15	1
Vanadium, Dissolved	U	0.18	5.0	ug/l		6020	03/13/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-07

Sample ID : EB-23-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/03/15 17:25

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/13/15	1
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a, a, a-Trifluorotoluene(FID)	96.8			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	103.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	89.5			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

Sample ID : EB-23-0315-BG

Collected By : Ron Wood
Collection Date : 03/03/15 17:25

ESC Sample # : L752468-07

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	34.5			% Rec.		8270C	03/11/15	1
Phenol-d5	21.9			% Rec.		8270C	03/11/15	1
Nitrobenzene-d5	67.4			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	64.4			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	55.1			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	70.0			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-08

Sample ID : UG-3R-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 09:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	25000	52.	1000	ug/l		9056MOD	03/15/15	1
Fluoride	720	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	1200000	1500	100000	ug/l		9056MOD	03/15/15	20
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	970	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	2100000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	22.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	1.5	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	2.1	0.25	2.0	ug/l		6020	03/13/15	1
Barium	17.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	16.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	260	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	360000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.3	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	0.71	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	24.	15.	100	ug/l	J	6020	03/12/15	1
Iron, Dissolved	21.	15.	100	ug/l	J	6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	0.90	0.25	5.0	ug/l	J	6020	03/12/15	1
Manganese, Dissolved	0.57	0.25	5.0	ug/l	J	6020	03/13/15	1
Molybdenum, Dissolved	3.5	0.14	5.0	ug/l	J	6020	03/13/15	1
Nickel	2.0	0.35	2.0	ug/l	J	6020	03/12/15	1
Nickel, Dissolved	1.3	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	1600	37.	1000	ug/l		6020	03/13/15	1
Selenium	3.3	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	3.3	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	56000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	11.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	9.4	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	9.0	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-3R-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 09:00

ESC Sample # : L752468-08

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.5			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery o-Terphenyl	90.4			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	49.1			% Rec.		8270C	03/11/15	1
Phenol-d5	32.7			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : UG-3R-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 09:00

ESC Sample # : L752468-08

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	87.3			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	78.3			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	62.7			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	81.7			% Rec.		8270C	03/11/15	1

U = ND (Not Detected)

RDL = Reported Detection Limit = LOQ = PQL = EQL = TRRP MQL

MDL = Minimum Detection Limit = LOD = TRRP SDL

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Tax I.D. 62-0814289

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-09

Sample ID : MW-17-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 11:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	140000	100	2000	ug/l		9056MOD	03/15/15	2
Fluoride	1200	20.	200	ug/l		9056MOD	03/15/15	2
Sulfate	1100000	1500	100000	ug/l		9056MOD	03/15/15	20
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	2100	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	2200000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	19.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	0.93	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	0.85	0.25	2.0	ug/l	J	6020	03/13/15	1
Barium	14.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	16.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	160	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	360000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.8	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	1.5	0.54	2.0	ug/l	J	6020	03/13/15	1
Copper, Dissolved	0.87	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	U	15.	100	ug/l		6020	03/12/15	1
Iron, Dissolved	17.	15.	100	ug/l	J	6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	0.48	0.25	5.0	ug/l	J	6020	03/12/15	1
Manganese, Dissolved	0.40	0.25	5.0	ug/l	J	6020	03/13/15	1
Molybdenum, Dissolved	10.	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	0.61	0.35	2.0	ug/l	J	6020	03/12/15	1
Nickel, Dissolved	0.36	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	1900	37.	1000	ug/l		6020	03/13/15	1
Selenium	7.6	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	7.8	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	81000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	3.0	0.33	10.	ug/l	J	6020	03/13/15	1
Vanadium	6.0	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	6.0	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	3.4	2.6	25.	ug/l	J	6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-09

Sample ID : MW-17-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 11:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.3			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	105.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery o-Terphenyl	91.6			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	38.3			% Rec.		8270C	03/11/15	1
Phenol-d5	28.1			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-17-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 11:00

ESC Sample # : L752468-09

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	75.5			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	68.4			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	53.5			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	67.1			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-10

Sample ID : DUP-09-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 00:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	25000	52.	1000	ug/l		9056MOD	03/15/15	1
Fluoride	730	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	1200000	1500	100000	ug/l		9056MOD	03/15/15	20
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	960	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	2100000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	23.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	1.5	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	1.5	0.25	2.0	ug/l	J	6020	03/13/15	1
Barium	16.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	17.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	240	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	360000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.2	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	0.68	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	57.	15.	100	ug/l	J	6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	1.1	0.25	5.0	ug/l	J	6020	03/12/15	1
Manganese, Dissolved	0.57	0.25	5.0	ug/l	J	6020	03/13/15	1
Molybdenum, Dissolved	3.4	0.14	5.0	ug/l	J	6020	03/13/15	1
Nickel	1.6	0.35	2.0	ug/l	J	6020	03/12/15	1
Nickel, Dissolved	1.3	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	1600	37.	1000	ug/l		6020	03/13/15	1
Selenium	3.1	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	2.9	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	66000	550	5000	ug/l		6020	03/16/15	5
Uranium, Dissolved	11.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	9.2	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	9.0	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-10

Sample ID : DUP-09-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 00:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.7			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	103.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	92.1			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	41.8			% Rec.		8270C	03/11/15	1
Phenol-d5	24.4			% Rec.		8270C	03/11/15	1

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August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : DUP-09-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 00:00

ESC Sample # : L752468-10

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	65.8			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	62.2			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	54.7			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	60.3			% Rec.		8270C	03/11/15	1

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ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-11

Sample ID : MW-25-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 13:00

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	5900000	5200	100000	ug/l		9056MOD	03/15/15	100
Fluoride	1000	9.9	100	ug/l		9056MOD	03/15/15	1
Sulfate	4400000	7700	500000	ug/l		9056MOD	03/15/15	100
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	270	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	17000000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	16.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	9.1	0.25	2.0	ug/l		6020	03/12/15	1
Arsenic, Dissolved	8.5	0.25	2.0	ug/l		6020	03/13/15	1
Barium	24.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	22.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	430	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	990000	46.	1000	ug/l		6020	03/13/15	1
Chromium	0.74	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	1.4	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	0.54	0.26	2.0	ug/l	J	6020	03/13/15	1
Iron	U	15.	100	ug/l		6020	03/12/15	1
Iron, Dissolved	U	15.	100	ug/l		6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	480	0.25	5.0	ug/l		6020	03/12/15	1
Manganese, Dissolved	160	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	22.	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	8.4	0.35	2.0	ug/l		6020	03/12/15	1
Nickel, Dissolved	5.8	0.35	2.0	ug/l		6020	03/13/15	1
Potassium, Dissolved	7700	37.	1000	ug/l		6020	03/13/15	1
Selenium	31.	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	25.	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	3500000	5500	50000	ug/l		6020	03/16/15	50
Uranium, Dissolved	26.	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	14.	0.18	5.0	ug/l		6020	03/12/15	1
Vanadium, Dissolved	14.	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	2.6	2.6	25.	ug/l	J	6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-25-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 13:00

ESC Sample # : L752468-11

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	42.	31.	100	ug/l	J	8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	95.9			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	105.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	106.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	380	22.	100	ug/l	B	8015	03/11/15	1
C28-C40 Oil Range	31.	12.	100	ug/l	J	8015	03/11/15	1
Surrogate Recovery o-Terphenyl	87.2			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	35.4			% Rec.		8270C	03/11/15	1
Phenol-d5	24.0			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-25-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 13:00

ESC Sample # : L752468-11

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	80.8			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	84.3			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	51.4			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	82.9			% Rec.		8270C	03/11/15	1

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ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-12

Sample ID : MW-13-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 14:40

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	1900000	2600	50000	ug/l		9056MOD	03/15/15	50
Fluoride	660	9.9	100	ug/l		9056MOD	03/16/15	1
Sulfate	2500000	3900	250000	ug/l		9056MOD	03/15/15	50
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	1100	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	7200000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	11.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	1.5	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	1.4	0.25	2.0	ug/l	J	6020	03/13/15	1
Barium	25.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	24.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	600	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	660000	46.	1000	ug/l		6020	03/13/15	1
Chromium	1.3	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	1.3	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	160	15.	100	ug/l		6020	03/12/15	1
Iron, Dissolved	38.	15.	100	ug/l	J	6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	99.	0.25	5.0	ug/l		6020	03/12/15	1
Manganese, Dissolved	56.	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	3.6	0.14	5.0	ug/l	J	6020	03/13/15	1
Nickel	3.4	0.35	2.0	ug/l		6020	03/12/15	1
Nickel, Dissolved	0.86	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	5000	37.	1000	ug/l		6020	03/13/15	1
Selenium	4.8	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	4.4	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	1300000	2200	20000	ug/l		6020	03/16/15	20
Uranium, Dissolved	9.1	0.33	10.	ug/l	J	6020	03/13/15	1
Vanadium	4.0	0.18	5.0	ug/l	J	6020	03/12/15	1
Vanadium, Dissolved	3.6	0.18	5.0	ug/l	J	6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-13-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 14:40

ESC Sample # : L752468-12

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/14/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.4			% Rec.		8015D/G	03/14/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	102.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	103.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	83.8			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/11/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/11/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/11/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/11/15	1
Surrogate Recovery								
2-Fluorophenol	47.8			% Rec.		8270C	03/11/15	1
Phenol-d5	27.5			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-13-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 14:40

ESC Sample # : L752468-12

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	78.6			% Rec.		8270C	03/11/15	1
2-Fluorobiphenyl	75.7			% Rec.		8270C	03/11/15	1
2,4,6-Tribromophenol	54.7			% Rec.		8270C	03/11/15	1
p-Terphenyl-d14	79.1			% Rec.		8270C	03/11/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-13

Sample ID : MW-12-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 15:45

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	1700000	2600	50000	ug/l		9056MOD	03/16/15	50
Fluoride	1000	99.	1000	ug/l		9056MOD	03/15/15	10
Sulfate	2900000	3900	250000	ug/l		9056MOD	03/16/15	50
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	3400	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	7100000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	12.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	1.2	0.25	2.0	ug/l	J	6020	03/12/15	1
Arsenic, Dissolved	1.1	0.25	2.0	ug/l	J	6020	03/13/15	1
Barium	17.	0.36	5.0	ug/l		6020	03/12/15	1
Barium, Dissolved	16.	0.36	5.0	ug/l		6020	03/13/15	1
Boron, Dissolved	550	7.5	100	ug/l		6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	680000	46.	1000	ug/l		6020	03/13/15	1
Chromium	0.56	0.54	2.0	ug/l	J	6020	03/12/15	1
Chromium, Dissolved	U	0.54	2.0	ug/l		6020	03/13/15	1
Copper, Dissolved	1.6	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	0.47	0.26	2.0	ug/l	J	6020	03/13/15	1
Iron	130	15.	100	ug/l		6020	03/12/15	1
Iron, Dissolved	28.	15.	100	ug/l	J	6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/12/15	1
Lead, Dissolved	U	0.24	2.0	ug/l		6020	03/13/15	1
Manganese	650	0.25	5.0	ug/l		6020	03/12/15	1
Manganese, Dissolved	650	0.25	5.0	ug/l		6020	03/13/15	1
Molybdenum, Dissolved	5.9	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	2.9	0.35	2.0	ug/l		6020	03/12/15	1
Nickel, Dissolved	2.4	0.35	2.0	ug/l		6020	03/13/15	1
Potassium, Dissolved	4700	37.	1000	ug/l		6020	03/13/15	1
Selenium	6.6	0.38	2.0	ug/l		6020	03/12/15	1
Selenium, Dissolved	6.5	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	1400000	5500	50000	ug/l		6020	03/16/15	50
Uranium, Dissolved	6.2	0.33	10.	ug/l	J	6020	03/13/15	1
Vanadium	1.6	0.18	5.0	ug/l	J	6020	03/12/15	1
Vanadium, Dissolved	1.4	0.18	5.0	ug/l	J	6020	03/13/15	1
Zinc, Dissolved	U	2.6	25.	ug/l		6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/12/15	1

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REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-13

Sample ID : MW-12-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 15:45

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/15/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.2			% Rec.		8015D/G	03/15/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	101.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	93.5			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/14/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/14/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/14/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/14/15	1
Surrogate Recovery								
2-Fluorophenol	14.0			% Rec.		8270C	03/14/15	1
Phenol-d5	9.95			% Rec.		8270C	03/14/15	1

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : MW-12-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 15:45

ESC Sample # : L752468-13

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	62.2			% Rec.		8270C	03/14/15	1
2-Fluorobiphenyl	74.7			% Rec.		8270C	03/14/15	1
2,4,6-Tribromophenol	62.7			% Rec.		8270C	03/14/15	1
p-Terphenyl-d14	74.3			% Rec.		8270C	03/14/15	1

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August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM

ESC Sample # : L752468-14

Sample ID : EB-24-0315-BG

Site ID : BACKGROUND

Collected By : Ron Wood
Collection Date : 03/04/15 16:50

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chloride	490	52.	1000	ug/l	J	9056MOD	03/15/15	1
Fluoride	16.	9.9	100	ug/l	J	9056MOD	03/15/15	1
Sulfate	4200	77.	5000	ug/l	J	9056MOD	03/15/15	1
Cyanide	U	1.8	5.0	ug/l		9012B	03/16/15	1
Nitrate-Nitrite	210	20.	100	ug/l		353.2	03/16/15	1
Dissolved Solids	1300000	2800	10000	ug/l		2540 C-	03/12/15	1
Aluminum, Dissolved	23.	2.0	100	ug/l	J	6020	03/13/15	1
Arsenic	U	0.25	2.0	ug/l		6020	03/16/15	1
Arsenic, Dissolved	U	0.25	2.0	ug/l		6020	03/13/15	1
Barium	U	0.36	5.0	ug/l		6020	03/16/15	1
Barium, Dissolved	2.3	0.36	5.0	ug/l	J	6020	03/13/15	1
Boron, Dissolved	71.	7.5	100	ug/l	J	6020	03/16/15	5
Cadmium, Dissolved	U	0.16	1.0	ug/l		6020	03/13/15	1
Calcium, Dissolved	360	46.	1000	ug/l	J	6020	03/13/15	1
Chromium	0.57	0.54	2.0	ug/l	J	6020	03/16/15	1
Chromium, Dissolved	0.56	0.54	2.0	ug/l	J	6020	03/13/15	1
Copper, Dissolved	3.4	0.52	5.0	ug/l	J	6020	03/13/15	1
Cobalt, Dissolved	U	0.26	2.0	ug/l		6020	03/13/15	1
Iron	U	15.	100	ug/l		6020	03/16/15	1
Iron, Dissolved	23.	15.	100	ug/l	J	6020	03/13/15	1
Lead	U	0.24	2.0	ug/l		6020	03/16/15	1
Lead, Dissolved	0.29	0.24	2.0	ug/l	J	6020	03/13/15	1
Manganese	0.35	0.25	5.0	ug/l	J	6020	03/16/15	1
Manganese, Dissolved	0.39	0.25	5.0	ug/l	J	6020	03/13/15	1
Molybdenum, Dissolved	U	0.14	5.0	ug/l		6020	03/13/15	1
Nickel	U	0.35	2.0	ug/l		6020	03/16/15	1
Nickel, Dissolved	0.46	0.35	2.0	ug/l	J	6020	03/13/15	1
Potassium, Dissolved	U	37.	1000	ug/l		6020	03/13/15	1
Selenium	U	0.38	2.0	ug/l		6020	03/16/15	1
Selenium, Dissolved	U	0.38	2.0	ug/l		6020	03/13/15	1
Silver, Dissolved	U	0.31	2.0	ug/l		6020	03/13/15	1
Sodium, Dissolved	1300	550	5000	ug/l	J	6020	03/16/15	5
Uranium, Dissolved	U	0.33	10.	ug/l		6020	03/13/15	1
Vanadium	U	0.18	5.0	ug/l		6020	03/16/15	1
Vanadium, Dissolved	U	0.18	5.0	ug/l		6020	03/13/15	1
Zinc, Dissolved	3.5	2.6	25.	ug/l	J	6020	03/13/15	1
Mercury	U	0.049	0.20	ug/l		7470A	03/13/15	1

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2929 Briarpark Dr., Suite 300
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August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : EB-24-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 16:50

ESC Sample # : L752468-14

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
TPH (GC/FID) Low Fraction	U	31.	100	ug/l		8015D/G	03/15/15	1
Surrogate Recovery-% a,a,a-Trifluorotoluene(FID)	96.6			% Rec.		8015D/G	03/15/15	1
Volatile Organics								
Benzene	U	0.33	1.0	ug/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.38	1.0	ug/l		8260B	03/11/15	1
Chloroform	U	0.32	5.0	ug/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.26	1.0	ug/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.36	1.0	ug/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.40	1.0	ug/l		8260B	03/11/15	1
Ethylbenzene	U	0.38	1.0	ug/l		8260B	03/11/15	1
Methylene Chloride	U	1.0	5.0	ug/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.13	1.0	ug/l		8260B	03/11/15	1
Toluene	U	0.78	5.0	ug/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.32	1.0	ug/l		8260B	03/11/15	1
Tetrachloroethene	U	0.37	1.0	ug/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.38	1.0	ug/l		8260B	03/11/15	1
Vinyl chloride	U	0.26	1.0	ug/l		8260B	03/11/15	1
o-Xylene	U	0.34	1.0	ug/l		8260B	03/11/15	1
m&p-Xylene	U	0.72	2.0	ug/l		8260B	03/11/15	1
Xylenes, Total	U	1.1	3.0	ug/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	103.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1
Diesel and Oil Ranges								
C10-C28 Diesel Range	U	22.	100	ug/l		8015	03/11/15	1
C28-C40 Oil Range	U	12.	100	ug/l		8015	03/11/15	1
Surrogate Recovery								
o-Terphenyl	91.5			% Rec.		8015	03/11/15	1
Base/Neutral Extractables								
Benzo(a)pyrene	U	0.34	1.0	ug/l		8270C	03/12/15	1
1-Methylnaphthalene	U	0.22	1.0	ug/l		8270C	03/12/15	1
2-Methylnaphthalene	U	0.31	1.0	ug/l		8270C	03/12/15	1
Naphthalene	U	0.37	1.0	ug/l		8270C	03/12/15	1
Surrogate Recovery								
2-Fluorophenol	44.8			% Rec.		8270C	03/12/15	1
Phenol-d5	31.2			% Rec.		8270C	03/12/15	1

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August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : EB-24-0315-BG
Collected By : Ron Wood
Collection Date : 03/04/15 16:50

ESC Sample # : L752468-14

Site ID : BACKGROUND

Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	64.3			% Rec.		8270C	03/12/15	1
2-Fluorobiphenyl	73.4			% Rec.		8270C	03/12/15	1
2,4,6-Tribromophenol	69.9			% Rec.		8270C	03/12/15	1
p-Terphenyl-d14	63.0			% Rec.		8270C	03/12/15	1

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2929 Briarpark Dr., Suite 300
Houston, TX 77042

August 11, 2015

Date Received : March 10, 2015
Description : Navajo Refining Company - Artesia, NM
Sample ID : TRIP BLANK
Collected By : Ron Wood
Collection Date : 03/04/15 00:00

ESC Sample # : L752468-15
Site ID : BACKGROUND
Project # : TX000836.0008.00004

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Volatile Organics								
Benzene	U	0.00033	0.0010	mg/l		8260B	03/11/15	1
Carbon tetrachloride	U	0.00038	0.0010	mg/l		8260B	03/11/15	1
Chloroform	U	0.00032	0.0050	mg/l		8260B	03/11/15	1
1,2-Dibromoethane	U	0.00038	0.0010	mg/l		8260B	03/11/15	1
1,1-Dichloroethane	U	0.00026	0.0010	mg/l		8260B	03/11/15	1
1,2-Dichloroethane	U	0.00036	0.0010	mg/l		8260B	03/11/15	1
1,1-Dichloroethene	U	0.00040	0.0010	mg/l		8260B	03/11/15	1
Ethylbenzene	U	0.00038	0.0010	mg/l		8260B	03/11/15	1
Methylene Chloride	U	0.0010	0.0050	mg/l		8260B	03/11/15	1
1,1,1,2-Tetrachloroethane	U	0.00038	0.0010	mg/l		8260B	03/11/15	1
1,1,2,2-Tetrachloroethane	U	0.00013	0.0010	mg/l		8260B	03/11/15	1
Toluene	U	0.00078	0.0050	mg/l		8260B	03/11/15	1
1,1,1-Trichloroethane	U	0.00032	0.0010	mg/l		8260B	03/11/15	1
Tetrachloroethene	U	0.00037	0.0010	mg/l		8260B	03/11/15	1
1,1,2-Trichloroethane	U	0.00038	0.0010	mg/l		8260B	03/11/15	1
Vinyl chloride	U	0.00026	0.0010	mg/l		8260B	03/11/15	1
o-Xylene	U	0.00034	0.0010	mg/l		8260B	03/11/15	1
m&p-Xylene	U	0.00072	0.0020	mg/l		8260B	03/11/15	1
Xylenes, Total	U	0.0011	0.0030	mg/l		8260B	03/11/15	1
Surrogate Recovery								
Toluene-d8	106.			% Rec.		8260B	03/11/15	1
Dibromofluoromethane	102.			% Rec.		8260B	03/11/15	1
4-Bromofluorobenzene	104.			% Rec.		8260B	03/11/15	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L752468-01	WG774673	SAMP	C10-C28 Diesel Range	R3024196	B
	WG774673	SAMP	C28-C40 Oil Range	R3024196	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774944	SAMP	Boron, Dissolved	R3024859	01V
	WG774944	SAMP	Calcium, Dissolved	R3024446	V
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Chromium, Dissolved	R3024446	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774948	SAMP	Lead	R3024427	J
	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774944	SAMP	Potassium, Dissolved	R3024446	J
	WG774944	SAMP	Sodium, Dissolved	R3024859	01V
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
L752468-02	WG774944	SAMP	Cobalt, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774948	SAMP	Lead	R3024427	J
	WG774944	SAMP	Zinc, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774944	SAMP	Arsenic, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774944	SAMP	Iron, Dissolved	R3024446	J
L752468-03	WG774948	SAMP	Lead	R3024427	J
	WG774944	SAMP	Lead, Dissolved	R3024446	J
	WG774944	SAMP	Molybdenum, Dissolved	R3024446	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774944	SAMP	Zinc, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774944	SAMP	Arsenic, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Chromium, Dissolved	R3024446	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774948	SAMP	Lead	R3024427	J
	WG774948	SAMP	Manganese	R3024427	J
L752468-04	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Chromium, Dissolved	R3024446	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774948	SAMP	Lead	R3024427	J
	WG774948	SAMP	Manganese	R3024427	J
	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
L752468-05	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Lead	R3024427	J
	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
L752468-06	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774948	SAMP	Manganese	R3024427	J
	WG774944	SAMP	Manganese, Dissolved	R3024446	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG775758	SAMP	Chloride	R3024884	J
	WG775758	SAMP	Sulfate	R3024884	J
	WG775793	SAMP	Aluminum	R3024990	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
L752468-07	WG774944	SAMP	Calcium, Dissolved	R3024446	J
	WG775793	SAMP	Chromium	R3024990	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG775793	SAMP	Manganese	R3024990	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG775793	SAMP	Potassium	R3024990	J
	WG774944	SAMP	Sodium, Dissolved	R3024859	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774948	SAMP	Chromium	R3024427	J
L752468-08					

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L752468-09	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774944	SAMP	Iron, Dissolved	R3024446	J
	WG774948	SAMP	Manganese	R3024427	J
	WG774944	SAMP	Manganese, Dissolved	R3024446	J
	WG774944	SAMP	Molybdenum, Dissolved	R3024446	J
	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774944	SAMP	Arsenic, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Chromium, Dissolved	R3024446	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774944	SAMP	Iron, Dissolved	R3024446	J
	WG774948	SAMP	Manganese	R3024427	J
	WG774944	SAMP	Manganese, Dissolved	R3024446	J
	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
L752468-10	WG774944	SAMP	Uranium, Dissolved	R3024446	J
	WG774944	SAMP	Zinc, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774944	SAMP	Arsenic, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774948	SAMP	Iron	R3024427	J
	WG774948	SAMP	Manganese	R3024427	J
	WG774944	SAMP	Manganese, Dissolved	R3024446	J
L752468-11	WG774944	SAMP	Molybdenum, Dissolved	R3024446	J
	WG774948	SAMP	Nickel	R3024427	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774673	SAMP	C10-C28 Diesel Range	R3024196	B
	WG774673	SAMP	C28-C40 Oil Range	R3024196	J
	WG774891	SAMP	TPH (GC/FID) Low Fraction	R3025138	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774944	SAMP	Cobalt, Dissolved	R3024446	J
L752468-12	WG774944	SAMP	Zinc, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774944	SAMP	Arsenic, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774944	SAMP	Iron, Dissolved	R3024446	J
	WG774944	SAMP	Molybdenum, Dissolved	R3024446	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774944	SAMP	Uranium, Dissolved	R3024446	J
L752468-13	WG774948	SAMP	Vanadium	R3024427	J
	WG774944	SAMP	Vanadium, Dissolved	R3024446	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774948	SAMP	Arsenic	R3024427	J
	WG774944	SAMP	Arsenic, Dissolved	R3024446	J
	WG774948	SAMP	Chromium	R3024427	J
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774944	SAMP	Cobalt, Dissolved	R3024446	J
	WG774944	SAMP	Iron, Dissolved	R3024446	J
	WG774944	SAMP	Uranium, Dissolved	R3024446	J
L752468-14	WG774948	SAMP	Vanadium	R3024427	J
	WG774944	SAMP	Vanadium, Dissolved	R3024446	J
	WG775758	SAMP	Chloride	R3024884	J
	WG775758	SAMP	Fluoride	R3024884	J
	WG775758	SAMP	Sulfate	R3024884	J
	WG774944	SAMP	Aluminum, Dissolved	R3024446	J
	WG774944	SAMP	Barium, Dissolved	R3024446	J
	WG774944	SAMP	Boron, Dissolved	R3024859	J
	WG774944	SAMP	Calcium, Dissolved	R3024446	J
	WG775793	SAMP	Chromium	R3024990	J
	WG774944	SAMP	Chromium, Dissolved	R3024446	J

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
	WG774944	SAMP	Copper, Dissolved	R3024446	J
	WG774944	SAMP	Iron, Dissolved	R3024446	J
	WG774944	SAMP	Lead, Dissolved	R3024446	J
	WG775793	SAMP	Manganese	R3024990	J
	WG774944	SAMP	Manganese, Dissolved	R3024446	J
	WG774944	SAMP	Nickel, Dissolved	R3024446	J
	WG774944	SAMP	Sodium, Dissolved	R3024859	J
	WG774944	SAMP	Zinc, Dissolved	R3024446	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
01	(ESC) The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

ARCADIS US - TX

2929 Briarpark Dr., Suite 300
Houston, TX 77042

Billing Information:
Attn: Accounts Payable
630 Plaza Drive, Suite 600
Highlands Ranch, CO 80129

Report to:
Pam Krueger

Email To: pam.krueger@arcadis-us.com;maisha.turner@arcadis-

Project
Description: Navajo Refining Company - Artesia, NM

City/State
Collected:

Phone: 713-953-4800
Fax:

Client Project #
TX000836.0008.00004

Lab Project #
ARCADHTX-NAVAJO

Collected by (print):
Ron Wood

Site/Facility ID #
BACKGROUND

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
Same Day200%
Next Day100%
Two Day50%
Three Day25%

Date Results Needed

Email? ___ No ___ Yes

FAX? ___ No ___ Yes

No. of
Cntrs

Immediately
Packed on Ice N ___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time		CL, FL, SO4 125mlHDPE-NoPres	CN 250mlHDPEAmb-NaOH >12	DROOROLVI 40mlAmb-HCl-BT	GRO 40mlAmb HCl	NAVAJO METALS, DIS 500mlHDPE-Add HNO3 <2	NAVAJO METALS, TOT 500mlHDPE-Add HNO3 <2	NO2NO3 250mlHDPE-H2SO4 <2	RA226, RA228 1L-HDPE-Add HNO3 <2	SV8270 100ml Amb NoPres	TDS 250mlHDPE-NoPres		
MW-55-0315-BG	G	GW	—	3/3/15	0915	16	X	X	X	X	X	X	X	X	X	X		-01
UG-2-0315-BG	G	GW	—	3/3/15	1035	16	X	X	X	X	X	X	X	X	X	X		02
UG-4-0315-BG	G	GW	—	3/3/15	1200	16	X	X	X	X	X	X	X	X	X	X		03
UG-3-UG-1-0315-BG	G	GW	—	3/3/15	1315	16	X	X	X	X	X	X	X	X	X	X		04
MW-136-0315-BG	G	DW	—	3/3/15	1525	16	X	X	X	X	X	X	X	X	X	X		05
NP-5-0315-BG	G	GW	—	3/3/15	1640	16	X	X	X	X	X	X	X	X	X	X		06
EB-23-0315-BG	G	GW	—	3/3/15	1725	16	X	X	X	X	X	X	X	X	X	X		07
UG-3R-0315-BG	G	GW	—	3/4/15	0900	16	X	X	X	X	X	X	X	X	X	X		08
MW-17-0315-BG	G	GW	—	3/4/15	1100	16	X	X	X	X	X	X	X	X	X	X		09
DWP-09-0315-BG	G	GW	—	—	—	16	X	X	X	X	X	X	X	X	X	X		10

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:
627286172446/627286172473/619449514132
627286172462/627286172484/627286172451/619449514143

Relinquished by: (Signature)
[Signature]

Date: 3/5/15
Time: 1000

Received by: (Signature)

Samples returned via: ☒ UPS ☐ FedEx ☐ Courier ☐

Relinquished by: (Signature)

Date: Time:

Received by: (Signature)

Temp: 3.8 °C Bottles Received: 239

Relinquished by: (Signature)

Date: Time:

Received for lab by: (Signature)

Date: 3/10/15 Time: 1430

pH Temp

Flow Other

Refer to 17524162

Hold #

Condition: (lab use only) 723

COC Seal Intact: ☒ Y ☐ N ☐ NA

pH Checked: 22718 NCF:

Chain of Custody Page 1 of 2

ESC
L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

QR Code

L# 1752476
G204

Acctnum: ARCADHTX
Template: T99321
Prelogin: P500191
TSR: 633 - Pam Langford
PB: 2-25-15
Shipped Via: FedEx Ground

Rem./Contaminant	Sample # (lab only)
	-01
	02
	03
	04
	05
	06
	07
	08
	09
	10

Chain of Custody Page 2 of 2



ESC
L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



ARCADIS US - TX

2929 Briarpark Dr., Suite 300
Houston, TX 77042

Billing Information:
Attn: Accounts Payable
630 Plaza Drive, Suite 600
Highlands Ranch, CO 80129

Report to:
Pam Krueger

Email To: pam.krueger@arcadis-us.com;maisha.turner@arcadis-

Project
Description: Navajo Refining Company - Artesia, NM

City/State
Collected:

Phone: 713-953-4800
Fax:

Client Project #
TX000836.0008.00004

Lab Project #
ARCADHTX-NAVAJO

Collected by (print):
Ben Wood

Site/Facility ID #
BACKGROUND

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
Same Day200%
Next Day100%
Two Day50%
Three Day25%

Date Results Needed

Email? ___No ___X Yes
FAX? ___No ___Yes

No. of
Cntrs

Immediately
Packed on Ice N ___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CL, FL, SO4 125mlHDPE-NoPres	CN 250mlHDPEAmb-NaOH >12	DROOROLVI 40mlAmb-HCl-BT	GRO 40mlAmb HCl	NAVAJO METALS, DIS 500mlHDPE-Add HNO3 <2	NAVAJO METALS, TOT 500mlHDPE-Add HNO3 <2	NO2NO3 250mlHDPE-H2SO4 <2	RA226, RA228 1L-HDPE-Add HNO3 <2	SV8270 100ml Amb NoPres	TDS 250mlHDPE-NoPres
MW-25-0315-B6	6	GW	—	3/4/15	1300	16	X	X	X	X	X	X	X	X	X	X
MW-13-0315-B6	6	GW	—	3/4/15	1440	16	X	X	X	X	X	X	X	X	X	X
MW-12-0315-B6	6	GW	—	3/4/15	1545	16	X	X	X	X	X	X	X	X	X	X
EB-24-0315-B6	6	GW	—	3/4/15	1650	16	X	X	X	X	X	X	X	X	X	X
		GW				16	X	X	X	X	X	X	X	X	X	X
		GW				16	X	X	X	X	X	X	X	X	X	X

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

pH _____ Temp _____
Flow _____ Other _____

Remarks:

Relinquished by: (Signature)

Date:
3/5/15

Time:
1000

Received by: (Signature)

Samples returned via: ☐ UPS
☐ FedEx ☐ Courier ☐ _____

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: °C Bottles Received:
3.8 239

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 3/6/15 Time: 1430

Hold #

Condition: (lab use only) SR

COC Seal Intact: ☒ Y ☐ N ☐ NA

pH Checked: 2712 NCF:

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Montana	CERT0026
Alaska	IN00035	Nebraska	E87775
Arizona	AZ0432	Nevada	IN000352015-1
Arkansas	IN035	New Hampshire*	2124
California	2920	New Mexico	IN00035
Colorado	IN035	New Jersey*	IN598
Colorado Radiochemistry	IN035	New York*	11398
Connecticut	PH-0132	North Carolina	18700
Delaware	IN035	North Dakota	R-035
Florida (Primary AB)*	E87775	Ohio	87775
Georgia	929	Oklahoma	D9508
Hawaii	IN035	Oregon*	IN200001
Idaho	IN00035/E87775	Pennsylvania*	68-00466
Illinois*	200001	Puerto Rico	IN00035
Illinois Microbiology	200001	Rhode Island	LAO00241
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-14-7
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA150003	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	00127
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
Missouri	880		

*NELAP/TNI Recognized Accreditation Bodies

110 South Hill Street
 South Bend, IN 46617
 Tel: (574) 233-4777
 Fax: (574) 233-8207
 1 800 332 4345

Laboratory Report

Client: Environmental Science

Report:

336228

Attn: Janice Cozby
 12065 Lebanon Road
 Mount Juliet, TN 37122

Priority:

Standard Written

Status:

Final

PWS ID:

Not Supplied

Copies
 to: None

Sample Information					
EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
3205389	L752476-01	7500-Ra B	03/03/15 09:15	Client	03/12/15 09:15
3205389	L752476-01	7500-Ra D	03/03/15 09:15	Client	03/12/15 09:15
3205390	L752476-02	7500-Ra B	03/03/15 10:35	Client	03/12/15 09:15
3205390	L752476-02	7500-Ra D	03/03/15 10:35	Client	03/12/15 09:15
3205391	L752476-03	7500-Ra B	03/03/15 12:00	Client	03/12/15 09:15
3205391	L752476-03	7500-Ra D	03/03/15 12:00	Client	03/12/15 09:15
3205392	L752476-04	7500-Ra B	03/03/15 13:15	Client	03/12/15 09:15
3205392	L752476-04	7500-Ra D	03/03/15 13:15	Client	03/12/15 09:15
3205393	L752476-05	7500-Ra B	03/03/15 15:25	Client	03/12/15 09:15
3205393	L752476-05	7500-Ra D	03/03/15 15:25	Client	03/12/15 09:15
3205394	L752476-06	7500-Ra B	03/03/15 16:40	Client	03/12/15 09:15
3205394	L752476-06	7500-Ra D	03/03/15 16:40	Client	03/12/15 09:15
3205395	L752476-07	7500-Ra B	03/03/15 17:25	Client	03/12/15 09:15
3205395	L752476-07	7500-Ra D	03/03/15 17:25	Client	03/12/15 09:15
3205396	L752476-08	7500-Ra B	03/04/15 09:00	Client	03/12/15 09:15
3205396	L752476-08	7500-Ra D	03/04/15 09:00	Client	03/12/15 09:15
3205397	L752476-09	7500-Ra B	03/04/15 11:00	Client	03/12/15 09:15
3205397	L752476-09	7500-Ra D	03/04/15 11:00	Client	03/12/15 09:15
3205398	L752476-10	7500-Ra B	03/04/15 00:00	Client	03/12/15 09:15
3205398	L752476-10	7500-Ra D	03/04/15 00:00	Client	03/12/15 09:15
3205399	L752476-11	7500-Ra B	03/04/15 13:00	Client	03/12/15 09:15
3205399	L752476-11	7500-Ra D	03/04/15 13:00	Client	03/12/15 09:15
3205400	L752476-12	7500-Ra B	03/04/15 14:40	Client	03/12/15 09:15
3205400	L752476-12	7500-Ra D	03/04/15 14:40	Client	03/12/15 09:15
3205401	L752476-13	7500-Ra B	03/04/15 15:45	Client	03/12/15 09:15
3205401	L752476-13	7500-Ra D	03/04/15 15:45	Client	03/12/15 09:15
3205402	L752476-14	7500-Ra B	03/04/15 16:50	Client	03/12/15 09:15
3205402	L752476-14	7500-Ra D	03/04/15 16:50	Client	03/12/15 09:15

Report Summary

Note: Sample containers were provided by the client.

Note: Method 7500-Ra D results for sites L752476-11, L752476-12 and L752476-13 are potentially high biased due to low biased barium carrier recovery.

Note: In the method 7500-Ra D analysis, sample site L752476-11 has a calculated MRL of 2.35 pCi/L, which exceeds the nominal MRL of 1.0 pCi/L.

Note: In the method 7500-Ra D analysis, sample site L752476-12 has a calculated MRL of 3.11 pCi/L, which exceeds the nominal MRL of 1.0 pCi/L.

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Kelly Trott at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

 Analytical Services Manager

Authorized Signature

Title

04/20/2015

Date

Client Name: Environmental Science

Report #: 336228

Sampling Point: L752476-01

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.22	1.0	0.20 ± 0.21	pCi/L	03/25/15 11:43	04/01/15 11:17	3205389
15262-20-1	Radium-228	7500-Ra D	---	0.24	1.0	0.64 ± 0.26	pCi/L	03/19/15 10:12	04/09/15 20:12	3205389
---	Combined Radium	calc.	5 *	0.24	1.0	0.84 ± 0.33	pCi/L	03/25/15 11:43	04/09/15 20:12	3205389

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-02

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.25	1.0	0.16 ± 0.22	pCi/L	03/25/15 11:43	04/01/15 11:17	3205390
15262-20-1	Radium-228	7500-Ra D	---	0.26	1.0	0.85 ± 0.30	pCi/L	03/19/15 10:12	04/09/15 20:12	3205390
---	Combined Radium	calc.	5 *	0.26	1.0	1.01 ± 0.37	pCi/L	03/25/15 11:43	04/09/15 20:12	3205390

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-03

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.23	1.0	0.56 ± 0.30	pCi/L	03/25/15 11:43	04/01/15 11:17	3205391
15262-20-1	Radium-228	7500-Ra D	---	0.26	1.0	0.43 ± 0.27	pCi/L	03/19/15 10:12	04/09/15 20:12	3205391
---	Combined Radium	calc.	5 *	0.26	1.0	0.99 ± 0.40	pCi/L	03/25/15 11:43	04/09/15 20:12	3205391

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-04

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.24	1.0	0.55 ± 0.30	pCi/L	03/25/15 11:43	04/01/15 11:17	3205392
15262-20-1	Radium-228	7500-Ra D	---	0.23	1.0	0.71 ± 0.26	pCi/L	03/19/15 10:12	04/09/15 20:12	3205392
---	Combined Radium	calc.	5 *	0.24	1.0	1.26 ± 0.40	pCi/L	03/25/15 11:43	04/09/15 20:12	3205392

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-05

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.22	1.0	0.32 ± 0.24	pCi/L	03/25/15 11:45	04/01/15 13:46	3205393
15262-20-1	Radium-228	7500-Ra D	---	0.24	1.0	0.70 ± 0.27	pCi/L	03/19/15 10:12	04/09/15 20:12	3205393
---	Combined Radium	calc.	5 *	0.24	1.0	1.02 ± 0.36	pCi/L	03/25/15 11:45	04/09/15 20:12	3205393

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-06

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.26	1.0	0.16 ± 0.51	pCi/L	03/25/15 11:45	04/06/15 10:21	3205394
15262-20-1	Radium-228	7500-Ra D	---	0.2	1.0	1.2 ± 0.3	pCi/L	03/19/15 10:12	04/09/15 20:12	3205394
---	Combined Radium	calc.	5 *	0.26	1.0	1.36 ± 0.60	pCi/L	03/25/15 11:45	04/09/15 20:12	3205394

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-07

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.35	1.0	0.56 ± 0.39	pCi/L	03/25/15 11:45	04/01/15 13:46	3205395
15262-20-1	Radium-228	7500-Ra D	---	0.26	1.0	0.51 ± 0.27	pCi/L	03/19/15 10:12	04/09/15 20:12	3205395
---	Combined Radium	calc.	5 *	0.35	1.0	1.07 ± 0.47	pCi/L	03/25/15 11:45	04/09/15 20:12	3205395

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-08

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.30	1.0	0.52 ± 0.35	pCi/L	03/25/15 11:45	04/01/15 13:46	3205396
15262-20-1	Radium-228	7500-Ra D	---	0.25	1.0	0.38 ± 0.26	pCi/L	03/19/15 10:12	04/10/15 18:48	3205396
---	Combined Radium	calc.	5 *	0.30	1.0	0.90 ± 0.44	pCi/L	03/25/15 11:45	04/10/15 18:48	3205396

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-09

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.27	1.0	0.65 ± 0.35	pCi/L	03/25/15 11:45	04/01/15 13:46	3205397
15262-20-1	Radium-228	7500-Ra D	---	0.29	1.0	0.68 ± 0.32	pCi/L	03/19/15 10:12	04/10/15 18:48	3205397
---	Combined Radium	calc.	5 *	0.29	1.0	1.33 ± 0.47	pCi/L	03/25/15 11:45	04/10/15 18:48	3205397

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-10

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.24	1.0	0.36 ± 0.27	pCi/L	03/25/15 11:45	04/01/15 13:46	3205398
15262-20-1	Radium-228	7500-Ra D	---	0.24	1.0	0.70 ± 0.27	pCi/L	03/19/15 10:12	04/10/15 18:48	3205398
---	Combined Radium	calc.	5 *	0.24	1.0	1.06 ± 0.38	pCi/L	03/25/15 11:45	04/10/15 18:48	3205398

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-11

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.2	1.0	1.2 ± 0.6	pCi/L	03/25/15 11:45	04/06/15 10:21	3205399
15262-20-1	Radium-228	7500-Ra D	---	2.4	1.0	4.5 ± 2.5	pCi/L	03/19/15 10:12	04/10/15 18:48	3205399
---	Combined Radium	calc.	5 *	2.4	1.0	5.7 ± 2.6	pCi/L	03/25/15 11:45	04/10/15 18:48	3205399

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-12

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.22	1.0	0.44 ± 0.28	pCi/L	03/25/15 11:45	04/01/15 13:46	3205400
15262-20-1	Radium-228	7500-Ra D	---	3.1	1.0	3.6 ± 3.2	pCi/L	03/19/15 10:12	04/10/15 18:48	3205400
---	Combined Radium	calc.	5 *	3.1	1.0	4.04 ± 3.16	pCi/L	03/25/15 11:45	04/10/15 18:48	3205400

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-13

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.23	1.0	0.77 ± 0.34	pCi/L	03/25/15 11:45	04/01/15 13:46	3205401
15262-20-1	Radium-228	7500-Ra D	---	0.45	1.00	-0.01 ± 0.43	pCi/L	03/19/15 10:12	04/10/15 18:48	3205401
---	Combined Radium	calc.	5 *	0.45	1.0	0.76 ± 0.55	pCi/L	03/25/15 11:45	04/10/15 18:48	3205401

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

Sampling Point: L752476-14

PWS ID: Not Supplied

Radionuclides										
Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
13982-63-3	Radium-226	7500-Ra B	---	0.28	1.0	0.51 ± 0.33	pCi/L	03/25/15 11:39	04/01/15 12:33	3205402
15262-20-1	Radium-228	7500-Ra D	---	0.23	1.0	0.34 ± 0.24	pCi/L	03/19/15 10:12	04/10/15 18:48	3205402
---	Combined Radium	calc.	5 *	0.28	1.0	0.85 ± 0.41	pCi/L	03/25/15 11:39	04/10/15 18:48	3205402

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

Sub-Contract Chain of Custody



Environmental Science Corp
12065 Lebanon Road
Mt. Juliet, TN 37122
(615) 773-9756 (615) 758-5859 fax

Sub-Contract Lab : ENVHEALT

City / State : South Bend, IN

Results Needed by : 4/9/15

ESC Purchase Order # : S21582

Send Reports To : Janice Cozby jcozby@esclabsciences.com

WORKGROUP

WG774985

Date Created :

3/11/2015

SAMPLENO Container #	MATRIX	Date / Time Collected	PARAMETER	Code	METHOD	Comments
L752476-01	DW	3/3/2015 9:15	Radium 226	RA226	7500Ra B-2001	PH 2.95 nm client special EDD
18172219						
18172220						
L752476-01	DW	3/3/2015 9:15	Radium 228	RA228	7500Ra D-2001	3205389
18172219						
18172220						
L752476-02	DW	3/3/2015 10:35	Radium 226	RA226	7500Ra B-2001	
18172227						
18172240						
L752476-02	DW	3/3/2015 10:35	Radium 228	RA228	7500Ra D-2001	3205390
18172240						
18172227						
L752476-03	DW	3/3/2015 12:00	Radium 226	RA226	7500Ra B-2001	
18172228						
18172241						
L752476-03	DW	3/3/2015 12:00	Radium 228	RA228	7500Ra D-2001	3205391
18172228						
18172241						
L752476-04	DW	3/3/2015 13:15	Radium 226	RA226	7500Ra B-2001	
18172242						
18172229						
L752476-04	DW	3/3/2015 13:15	Radium 228	RA228	7500Ra D-2001	3205392
18172229						
18172242						
L752476-05	DW	3/3/2015 15:25	Radium 226	RA226	7500Ra B-2001	
18172243						
18172230						
L752476-05	DW	3/3/2015 15:25	Radium 228	RA228	7500Ra D-2001	3205393

Relinquished by : J Cozby

Date : 031115

Received by : [Signature]

Date : 3/12/15 0915

Relinquished by : _____

Date : _____

Received by : _____

Date : _____

Client Provided Sample Container

Ambient

Liters Received = 2 each site
Page : 1

Sub-Contract Lab : ENVHEALT

City / State : South Bend, IN

Results Needed by : 4/9/15

ESC Purchase Order # : S21582

Send Reports To : Janice Cozby jcozby@esclabsciences.com

WORKGROUP

WG774985

Date Created :

3/11/2015

SAMPLENO

Date / Time

Container #

MATRIX

Collected

PARAMETER

Code

METHOD

Comments

18172230

18172243

L752476-06	DW	3/3/2015 16:40	Radium 226	RA226	7500Ra B-2001	
18172231						
18172244						3205394
L752476-06	DW	3/3/2015 16:40	Radium 228	RA228	7500Ra D-2001	
18172244						
18172231						
L752476-07	DW	3/3/2015 17:25	Radium 226	RA226	7500Ra B-2001	
18172232						
18172245						3205395
L752476-07	DW	3/3/2015 17:25	Radium 228	RA228	7500Ra D-2001	
18172245						
18172232						
L752476-08	DW	3/4/2015 9:00	Radium 226	RA226	7500Ra B-2001	
18172246						
18172233						3205396
L752476-08	DW	3/4/2015 9:00	Radium 228	RA228	7500Ra D-2001	
18172233						
18172246						
L752476-09	DW	3/4/2015 11:00	Radium 226	RA226	7500Ra B-2001	
18172247						
18172234						3205397
L752476-09	DW	3/4/2015 11:00	Radium 228	RA228	7500Ra D-2001	
18172234						
18172247						
L752476-10	DW	3/4/2015 0:00	Radium 226	RA226	7500Ra B-2001	
18172248						
18172235						3205398
L752476-10	DW	3/4/2015 0:00	Radium 228	RA228	7500Ra D-2001	
18172235						
18172248						

Mailed COC was not Signed at
"Relinquished by" by Client

Client Provided Sample Container

Ambient

Relinquished by

Date:

Received by :

Date:

Relinquished by

Date:

Received by :

Date:

Liters Received = 2 each
Site

Page : 2

Sub-Contract Lab : ENVHEALT

City / State : South Bend, IN

Results Needed by : 4/9/15

ESC Purchase Order # : S21582

Send Reports To : Janice Cozby jcozby@esclabsciences.com

WORKGROUP

WG774985

Date Created :

3/11/2015

SAMPLENO Container #	MATRIX	Date / Time Collected	PARAMETER	Code	METHOD	Comments
L752476-11	DW	3/4/2015 13:00	Radium 226	RA226	7500Ra B-2001	
18172236 18172249						
L752476-11	DW	3/4/2015 13:00	Radium 228	RA228	7500Ra D-2001	
18172236 18172249						
L752476-12	DW	3/4/2015 14:40	Radium 226	RA226	7500Ra B-2001	
18172237 18172250						
L752476-12	DW	3/4/2015 14:40	Radium 228	RA228	7500Ra D-2001	
18172250 18172237						
L752476-13	DW	3/4/2015 15:45	Radium 226	RA226	7500Ra B-2001	
18172251 18172238						
L752476-13	DW	3/4/2015 15:45	Radium 228	RA228	7500Ra D-2001	
18172251 18172238						
L752476-14	DW	3/4/2015 16:50	Radium 226	RA226	7500Ra B-2001	
18172252 18172239						
L752476-14	DW	3/4/2015 16:50	Radium 228	RA228	7500Ra D-2001	
18172239 18172252						

Mailed COC was not Signed at
"Relinquished by" by Client

Liters Received = 2 each site

Relinquished by _____ Date: _____

Received by : Sharon Date: 3-12-15 0915

Relinquished by _____ Date: _____

Received by : _____ Date: _____

Page : 3

Page 12 of 29

ARCADIS US - TX

2929 Briarpark Dr., Suite 300
Houston, TX 77042

Report to:
Pam Krueger

Billing Information:
Attn: Accounts Payable
630 Plaza Drive, Suite 600
Highlands Ranch, CO 80129

Email To: pam.krueger@arcadis-us.com; maisha.turner@arcadis-

Project
Description: **Navajo Refining Company - Artesia, NM**

City/State Collected:

Phone: **713-953-4800**
Fax:

Client Project #
TX000836.0008.00004

Lab Project #
ARCADHTX-NAVAJO

Collected by (print):
Ron Ward

Site/Facility ID #
BACKGROUND

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
☐ Same Day200%
☐ Next Day100%
☐ Two Day50%
☐ Three Day25%

Date Results Needed

Immediately
Packed on Ice N ☐ Y ☒

Email? ☐ No ☒ Yes
FAX? ☐ No ☐ Yes

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-55-0315-BG	G	GW	—	3/3/15	0915	16
UG-2-0315-BG	G	GW	—	3/3/15	1035	16
UG-4-0315-BG	G	GW	—	3/3/15	1200	16
UG-3-UG-1-0315-BG	G	GW	—	3/3/15	1315	16
MW-136-0315-BG	G	DW	—	3/3/15	1525	16
NP-5-0315-BG	G	GW	—	3/3/15	1640	16
ER-23-0315-BG	G	GW	—	3/3/15	1725	16
UG-3R-0315-BG	G	GW	—	3/4/15	0900	16
MW-17-0315-BG	G	GW	—	3/4/15	1100	16
DW-09-0315-BG	G	GW	—	—	—	16

* Matrix: SS - Soil GW - Groundwater WW - Waste Water DW - Drinking Water OT - Other

Remarks:
627286172440/627286172473/619449514132
627286172462/627286172484/627286172451/619449514143

Relinquished by: (Signature) *[Signature]* Date: 3/5/15 Time: 1000

Relinquished by: (Signature) Date: Time:

Relinquished by: (Signature) Date: Time:

Received by: (Signature) *[Signature]*

Received by: (Signature) *[Signature]*

Received for lab by: (Signature) *[Signature]*

Analysis / Container / Preservative

CL, FL, SO4 125mlHDPE-NoPres	CN 250mlHDPEAmb-NaOH >12	DROOROLVI 40mlAmb-HCl-BT	GRO 40mlAmb HCl	NAVAJO METALS, DIS 500mlHDPE-Add HNO3 <2	NAVAJO METALS, TOT 500mlHDPE-Add HNO3 <2	NO2NO3 250mlHDPE-H2SO4 <2	RA226, RA228 1L-HDPE-Add HNO3 <2	SV8270 100ml Amb NoPres	TDS 250mlHDPE-NoPres
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X

Chain of Custody Page 1 of 2

ESC
L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

QR Code

L# **L752476**
G204

Acctnum: **ARCADHTX**
Template: **T99321**
Prelogin: **P500191**
TSR: **633 - Pam Langford**
PB: **2/25/15**

Shipped Via: **FedEX Ground**

Item/Contaminant	Sample # (lab only)
	-01
	02
	03
	04
	05
	06
	07
	08
	09
	10

Refer to **L752468**

Hold #

Condition: (lab use only) **223**

COC Seal Intact: ☒ Y ☐ N ☐ NA

pH Checked: **L2718** NCF:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: ☐ UPS
☒ FedEx ☐ Courier ☐ _____

Temp: **3.8** °C Bottles Received: **239**

Date: **3/10/15** Time: **1430**

ARCADIS US - TX

2929 Briarpark Dr., Suite 300
Houston, TX 77042

Billing Information:

Attn: Accounts Payable
630 Plaza Drive, Suite 600
Highlands Ranch, CO 80129

Report to:
Pam Krueger

Email To: pam.krueger@arcadis-us.com;maisha.turner@arcadis-us.com

Project
Description: Navajo Refining Company - Artesia, NM

City/State
Collected:

Phone: 713-953-4800
Fax:

Client Project #
TX000836.0008.00004

Lab Project #
ARCADHTX-NAVAJO

Collected by (print):

Site/Facility ID #
BACKGROUND

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Date Results Needed

Immediately
Packed on Ice N ☐ Y ☒

Same Day200%
Next Day100%
Two Day50%
Three Day25%

Email? ☐ No ☒ Yes
FAX? ☐ No ☐ Yes

No. of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CL, FL, SO4 125mIHDPE-NoPres	CN 250mIHDPEAmb-NaOH >10	DROOROLVI 40mIAmb-HCl-BT	GRO 40mIAmb HCl	NAVAJO METALS, DIS 500mIHDPE-Add HNO3 <2	NAVAJO METALS, TOT 500mIHDPE-Add HNO3 <2	NO2NO3 250mIHDPE-H2SO4 <2	RA226, RA228 1L-HDPE-Add HNO3 <2	SV8270 100ml Amb NoPres	TDS 250mIHDPE-NoPres	Rem./Contaminant	Sample # (lab only)
MW-25-0315-B6	6	GW	—	3/4/15	1300	16	X	X	X	X	X	X	X	X	X	X		11
MW-13-0315-B6	6	GW	—	3/4/15	1440	16	X	X	X	X	X	X	X	X	X	X		12
MW-12-0315-B6	6	GW	—	3/4/15	1545	16	X	X	X	X	X	X	X	X	X	X		13
EB-24-0315-B6	6	GW	—	3/4/15	1650	16	X	X	X	X	X	X	X	X	X	X		14
		GW				16	X	X	X	X	X	X	X	X	X	X		
		GW				16	X	X	X	X	X	X	X	X	X	X		

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Samples returned via: ☐ UPS

☐ FedEx ☐ Courier ☐

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: _____ °C Bottles Received:

3.8 239

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: _____ Time: _____

3/6/15 1430

Hold #

Condition: (lab use only)

COC Seal Intact: ☒ Y ☐ N ☐ NA

pH Checked: 42712

NCF:

Chain of Custody Page 2 of 2



YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# 1752476

Table #

Acctnum: ARCADHTX

Template: T99321

Prelogin: P500191

TSR: 633 - Pam Langford

RPB: 2-25-15

Shipped Via: FedEx Ground

Eurofins Eaton Analytical

Run Log

Run ID: 201296

Method: 7500-Ra B

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205389	L752476-01	GW	DU	04/01/2015 11:17	
FS	3205390	L752476-02	GW	DU	04/01/2015 11:17	
FS	3205391	L752476-03	GW	DU	04/01/2015 11:17	
FS	3205392	L752476-04	GW	DU	04/01/2015 11:17	
LRB	3216417		RW	DU	04/01/2015 11:17	
LFB	3216418		RW	DU	04/01/2015 11:17	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.22	L752476-01		0.20		pCi/L	---	---	---	---	1.0	03/25/2015 11:43	04/01/2015 11:17	3205389
FS	Radium-226	7500-Ra B	0.25	L752476-02		0.16		pCi/L	---	---	---	---	1.0	03/25/2015 11:43	04/01/2015 11:17	3205390
FS	Radium-226	7500-Ra B	0.23	L752476-03		0.56		pCi/L	---	---	---	---	1.0	03/25/2015 11:43	04/01/2015 11:17	3205391
FS	Radium-226	7500-Ra B	0.24	L752476-04		0.55		pCi/L	---	---	---	---	1.0	03/25/2015 11:43	04/01/2015 11:17	3205392
LRB	Radium-226	7500-Ra B	0.12	---		0.190		pCi/L	---	---	---	---	1.0	03/25/2015 11:43	04/01/2015 11:17	3216417
LFB	Radium-226	7500-Ra B	0.1	---		21.1500	18.0	pCi/L	118	82 - 130	---	---	1.0	03/25/2015 11:43	04/01/2015 11:17	3216418

Eurofins Eaton Analytical
Run Log

Run ID: **201299** Method: **7500-Ra B**

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205402	L752476-14	GW	DU	04/01/2015 12:33	
LRB	3216444		RW	DU	04/01/2015 12:33	
LFB	3216445		RW	DU	04/01/2015 12:33	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.28	L752476-14		0.51		pCi/L	---	---	---	---	1.0	03/25/2015 11:39	04/01/2015 12:33	3205402
LRB	Radium-226	7500-Ra B	0.15	---		0.170		pCi/L	---	---	---	---	1.0	03/25/2015 11:39	04/01/2015 12:33	3216444
LFB	Radium-226	7500-Ra B	0.2	---		22.3300	18.0	pCi/L	124	82 - 130	---	---	1.0	03/25/2015 11:39	04/01/2015 12:33	3216445

Eurofins Eaton Analytical Run Log

Run ID: 201306 Method: 7500-Ra B

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205393	L752476-05	GW	DU	04/01/2015 13:46	
FS	3205395	L752476-07	GW	DU	04/01/2015 13:46	
FS	3205396	L752476-08	GW	DU	04/01/2015 13:46	
FS	3205397	L752476-09	GW	DU	04/01/2015 13:46	
FS	3205398	L752476-10	GW	DU	04/01/2015 13:46	
FS	3205400	L752476-12	GW	DU	04/01/2015 13:46	
FS	3205401	L752476-13	GW	DU	04/01/2015 13:46	
LRB	3216493		RW	DU	04/01/2015 13:46	
LFB	3216494		RW	DU	04/01/2015 13:46	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.22	L752476-05		0.32		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205393
FS	Radium-226	7500-Ra B	0.35	L752476-07		0.56		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205395
FS	Radium-226	7500-Ra B	0.30	L752476-08		0.52		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205396
FS	Radium-226	7500-Ra B	0.27	L752476-09		0.65		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205397
FS	Radium-226	7500-Ra B	0.24	L752476-10		0.36		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205398
FS	Radium-226	7500-Ra B	0.22	L752476-12		0.44		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205400
FS	Radium-226	7500-Ra B	0.23	L752476-13		0.77		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3205401
LRB	Radium-226	7500-Ra B	0.12	---		0.0700		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3216493
LFB	Radium-226	7500-Ra B	0.1	---		21.0400	18.0	pCi/L	117	82 - 130	---	---	1.0	03/25/2015 11:45	04/01/2015 13:46	3216494

Eurofins Eaton Analytical
Run Log

Run ID: **201454** Method: **7500-Ra B**

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205394	L752476-06	GW	DU	04/06/2015 10:21	
FS	3205399	L752476-11	GW	DU	04/06/2015 10:21	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-226	7500-Ra B	0.26	L752476-06		0.16		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/06/2015 10:21	3205394
FS	Radium-226	7500-Ra B	0.2	L752476-11		1.2		pCi/L	---	---	---	---	1.0	03/25/2015 11:45	04/06/2015 10:21	3205399

Eurofins Eaton Analytical Run Log

Run ID: 201607 Method: 7500-Ra D

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205389	L752476-01	GW	DU	04/09/2015 20:12	
FS	3205390	L752476-02	GW	DU	04/09/2015 20:12	
FS	3205391	L752476-03	GW	DU	04/09/2015 20:12	
FS	3205392	L752476-04	GW	DU	04/09/2015 20:12	
FS	3205393	L752476-05	GW	DU	04/09/2015 20:12	
FS	3205394	L752476-06	GW	DU	04/09/2015 20:12	
FS	3205395	L752476-07	GW	DU	04/09/2015 20:12	
LRB	3221775		RW	DU	04/09/2015 20:12	
LFB	3221776		RW	DU	04/09/2015 20:12	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-228	7500-Ra D	0.24	L752476-01		0.64		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205389
FS	Radium-228	7500-Ra D	0.26	L752476-02		0.85		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205390
FS	Radium-228	7500-Ra D	0.26	L752476-03		0.43		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205391
FS	Radium-228	7500-Ra D	0.23	L752476-04		0.71		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205392
FS	Radium-228	7500-Ra D	0.24	L752476-05		0.70		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205393
FS	Radium-228	7500-Ra D	0.2	L752476-06		1.2		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205394
FS	Radium-228	7500-Ra D	0.26	L752476-07		0.51		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3205395
LRB	Radium-228	7500-Ra D	0.26	---		0.240		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3221775
LFB	Radium-228	7500-Ra D	0.3	---		10.8600	9.2	pCi/L	118	65 - 132	---	---	1.0	03/19/2015 10:12	04/09/2015 20:12	3221776

Eurofins Eaton Analytical Run Log

Run ID: 201677 Method: 7500-Ra D

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205396	L752476-08	GW	DU	04/10/2015 18:48	
FS	3205397	L752476-09	GW	DU	04/10/2015 18:48	
FS	3205398	L752476-10	GW	DU	04/10/2015 18:48	
FS	3205402	L752476-14	GW	DU	04/10/2015 18:48	
LRB	3222747		RW	DU	04/10/2015 18:48	
LFB	3222748		RW	DU	04/10/2015 18:48	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-228	7500-Ra D	0.25	L752476-08		0.38		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205396
FS	Radium-228	7500-Ra D	0.29	L752476-09		0.68		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205397
FS	Radium-228	7500-Ra D	0.24	L752476-10		0.70		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205398
FS	Radium-228	7500-Ra D	0.23	L752476-14		0.34		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205402
LRB	Radium-228	7500-Ra D	0.27	---		0.0900		pCi/L	---	---	---	---	1.0	---	04/10/2015 18:48	3222747
LFB	Radium-228	7500-Ra D	0.26	---		8.1300	9.19	pCi/L	88	65 - 132	---	---	1.0	---	04/10/2015 18:48	3222748

Eurofins Eaton Analytical
Run Log

Run ID: **201732** Method: **7500-Ra D**

<u>Type</u>	<u>Sample Id</u>	<u>Sample Site</u>	<u>Matrix</u>	<u>Instrument ID</u>	<u>Analysis Date</u>	<u>Calibration File</u>
FS	3205399	L752476-11	GW	DU	04/10/2015 18:48	
FS	3205400	L752476-12	GW	DU	04/10/2015 18:48	
FS	3205401	L752476-13	GW	DU	04/10/2015 18:48	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
FS	Radium-228	7500-Ra D	2.4	L752476-11		4.5		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205399
FS	Radium-228	7500-Ra D	3.1	L752476-12		3.6		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205400
FS	Radium-228	7500-Ra D	0.45	L752476-13		-0.01		pCi/L	---	---	---	---	1.0	03/19/2015 10:12	04/10/2015 18:48	3205401

Sample Type Key

<u>Type (Abbr.)</u>	<u>Sample Type</u>
FS	Field Sample
LFB	Laboratory Fortified Blank
LRB	Laboratory Reagent Blank



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Pam Krueger
ARCADIS US - TX
2929 Briarpark Dr., Suite 300
Houston, TX 77042

Report Summary

Tuesday August 11, 2015

Report Number: L757942

Samples Received: 04/08/15

Client Project: TX000836.0008.00004

Description: Navajo Refining Company - Artesia, NM

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Pam Langford , ESC Representative

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