



EXPLORING WHAT'S POSSIBLE

# APACHE CORPORATION

P.O.Box 1849  
Eunice, NM 88231  
Phone 575.394.3159

Empire Abo Unit O-8  
2RP-2141

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## Termination Request

API No. 30-015-00844

Release Date: December 19<sup>th</sup>, 2013

Unit Letter M, Section 3, Township 18S, Range 27E

**January 5<sup>th</sup>, 2015**

**Mike Bratcher**

New Mexico Energy, Minerals, & Natural Resources  
Oil Conservation Division, Environmental Bureau – District 2  
811 S. First St.  
Artesia, NM 88210

**RE: Termination Request**

**Apache Corporation – Empire Abo Unit O-8 (2RP-2141)**

**UL/M sec. 3 T18S R27E**

**API No. 30-015-00844**

Mr. Bratcher:

Apache Corporation (Apache) has retained Rice Environmental Consulting and Safety (RECS) to address potential environmental concerns at the above-referenced site.

**Background and Previous Work**

The site is located approximately 9 miles southeast of Artesia, New Mexico at UL/M sec. 3 T18S R27E. Soil bore installation at the site shows that there is no groundwater beneath the site.

On December 19<sup>th</sup>, 2013, Apache discovered an oil and produced water release from a steel flow line. The line had been previously repaired with clamps and when the line was pressured up, the clamps leaked. A total of 6 barrels of produced water and 2 barrels of oil were released over 6,986 square feet of pasture land (Figure 1). A vacuum truck was called to the site and recovered 1 barrel of produced water and 1 barrel of oil. BLM was notified of the release on December 19<sup>th</sup>, 2013 and an initial C-141 was submitted to NMOCD and BLM for their approval. NMOCD approved the initial C-141 on January 7<sup>th</sup>, 2014 (Appendix A).

RECS was on site beginning on December 19<sup>th</sup>, 2013 to assess and GPS map the site. On February 6<sup>th</sup>, 2014, three soil bores were installed at the site to assess the level of contamination. As the soil bores were advanced, samples were taken every 3 feet and field tested for chlorides and organic vapors. Representative samples from the bores were taken to a commercial laboratory for analysis.

Based on the laboratory sampling, a Corrective Action Plan (CAP) was submitted to NMOCD and BLM on May 7<sup>th</sup>, 2014. BLM approved the CAP on May 8<sup>th</sup>, 2014 and NMOCD approved the CAP on May 15<sup>th</sup>, 2014. The CAP stated that the release areas to the south would be excavated to a depth of 4 ft bgs. In areas that are inundated with lines, the release area would be excavated to remove the highest concentration of

chlorides. If at any time, excavating around the lines posed a safety hazard, excavating would cease. All excavated soil would be taken to a NMOCD approved facility for disposal. Clean soil would be imported to the site to backfill the excavations to ground surface and contour the areas to the surrounding location.

Corrective action activities began at the site on July 18<sup>th</sup>, 2014. Excavation 1 was dug to 4 ft bgs. Final wall samples were taken and field tested for chlorides and organic vapors. The samples were then sent to a commercial laboratory for analysis (Appendix B). All wall samples returned chloride values between 48 mg/kg and 624 mg/kg. Gasoline Range Organics (GRO), Diesel Range Organics (DRO) and BTEX results were non-detect, except for East Wall 2, which returned a DRO value of 626 mg/kg. Excavation 4 was dug to 2 ft bgs, and final wall and bottom samples were taken and field tested for chlorides and organic vapors. The samples were then sent to a commercial laboratory for analysis and returned chloride values ranging from 80 mg/kg to 1,020 mg/kg. GRO, DRO and BTEX results returned values of non-detect. Given the final wall and bottom sampling date, on August 8<sup>th</sup>, 2014, Apache requested permission from BLM and NMOCD to backfill Excavation 1 and 4 with clean, imported soil. NMOCD approved the request to backfill the site on August 8<sup>th</sup>, 2014, and BLM approved the request to backfill the site on August 14<sup>th</sup>, 2014.

The remainder of the release was excavated as stated in the approved CAP. Excavation 2 was scraped down to 2 ft bgs, Excavation 5 was scraped down to 1 ft bgs, and Excavation 3 and Excavation 6 were excavated to 4 ft bgs. Final wall samples from each of these scrapes and composite bottom samples from Excavations 2 and 5 were field tested for chlorides and organic vapors. The samples were then taken to a commercial laboratory for analysis. Excavation 2 returned laboratory chloride readings for all the wall and bottom samples below 1,000 mg/kg, except for West Wall 1, which returned a chloride value of 6,560 mg/kg, West Wall 2, which returned a chloride value of 1,100 mg/kg and East Wall 2, which returned a chloride value of 1,090 mg/kg. GRO, DRO and BTEX readings returned values of non-detect, except for West Wall 2, which returned a DRO value of 3,770 mg/kg and East Wall 2, which returned a DRO value of 127 mg/kg.

On September 3<sup>rd</sup>, 2014, Apache requested permission to backfill the remainder of the excavations with clean, imported soil. BLM gave verbal approval to backfill the site on September 9<sup>th</sup>, 2014, while NMOCD approved the site to backfilled on September 5<sup>th</sup>, 2014. As part of the approval from NMOCD to backfill the site, NMOCD requested that the West Wall 1 in Excavation 2 be expanded to obtain chloride readings below regulatory standards.

The area around West Wall 1 was excavated further to the west and re-sampled on September 8<sup>th</sup>, 2014. The sample was field tested for chlorides and organic vapors and then the sample was taken to a commercial laboratory for analysis. West Wall 1 returned a laboratory chloride value of 32 mg/kg. In response to this new data, on September 11<sup>th</sup>, 2014, NMOCD gave their approval to backfill the remaining excavations.

All excavated soil was taken to an NMOCD approved facility for disposal. Clean soil was imported to the site to replace the contaminated soil taken for disposal. The remaining excavations were backfilled with the clean, imported soil and contoured to the surrounding area. On October 17<sup>th</sup>, 2014, the disturbed area was seeded with BLM mix #3.

Photo documentation of all field activities can be found in Appendix C.

Given that NMOCD and BLM approved the site to be backfilled per the approved CAP, Apache respectfully requests 'remediation termination' and site closure. A final C-141 can be found in Appendix D.

RECS appreciates the opportunity to work with you on this project. Please call Hack Conder at (575) 393-2967 or me if you have any questions or wish to discuss the site.

Sincerely,

A handwritten signature in dark ink, appearing to read 'J.C.W.' followed by a stylized flourish.

Lara Weinheimer  
Project Scientist  
RECS  
(575) 441-0431

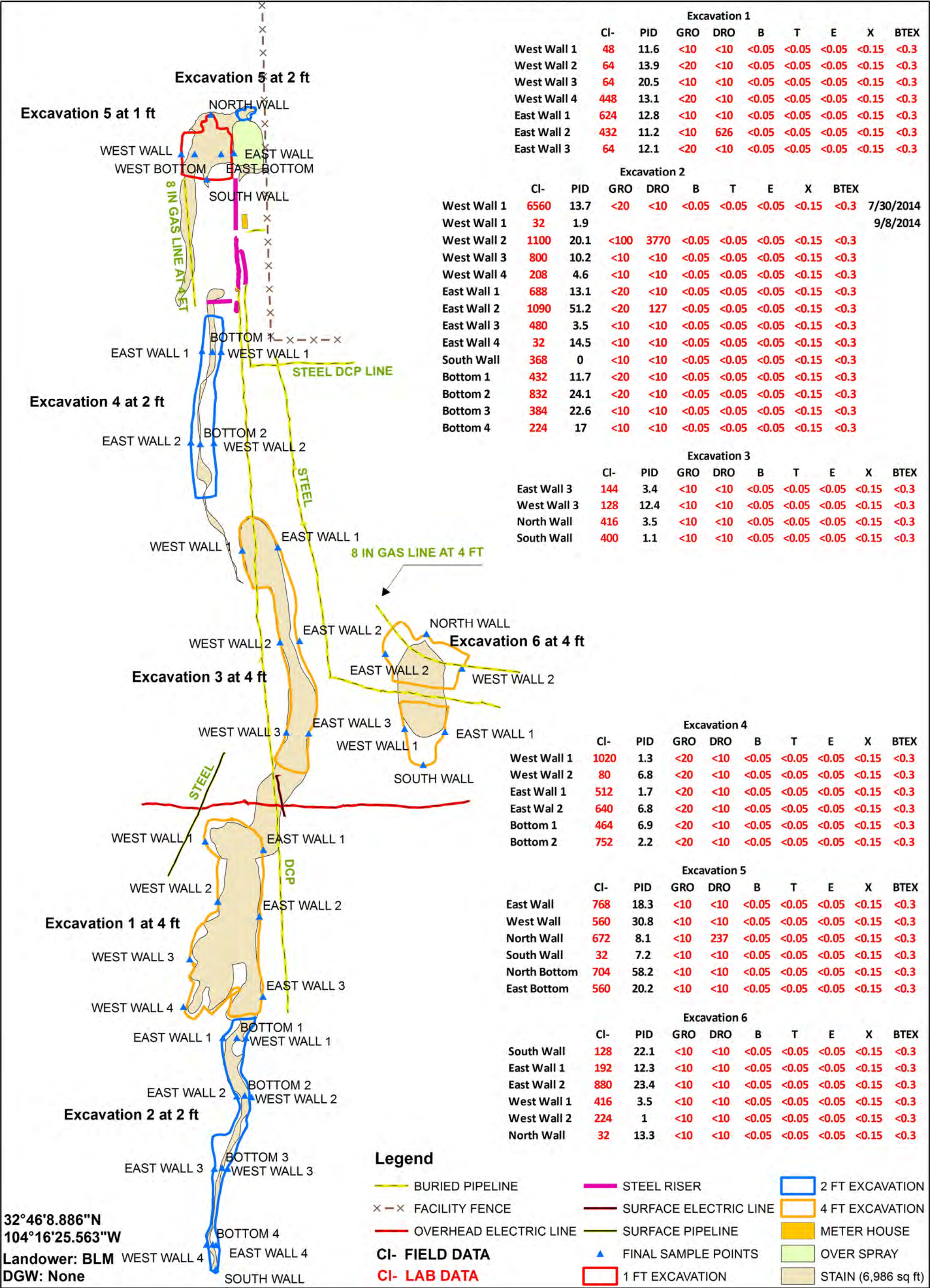
Attachments:

- Figure 1 – Excavation Data
- Appendix A – Initial C-141
- Appendix B – Laboratory Analyses
- Appendix C – Photo Documentation
- Appendix D – Final C-141

# Figures



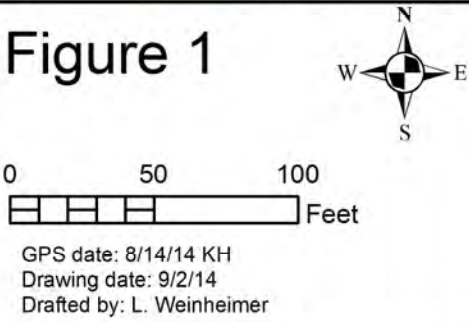
Excavation Data



APACHE EMPIRE  
ABO UNIT #08

LEGALS: UL/M sec. 3  
UL/ D sec. 10  
T-18-S R-27E

Figure 1





# Appendix A

Initial C-141

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

RECEIVED

DEC 30 2013

Form C-141  
Revised August 8, 2011

Submit Copy to Appropriate District Office in  
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: Apache Corporation 873 Contact: Bruce Baker  
Address: 8 Ellison Lane Eunice, NM 88231 Telephone No. (432) 631-6982  
Facility Name: Empire Abo Unit O-8 Facility Type: Oil Well

Surface Owner BLM Mineral Owner API No. 30-015-00844

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	3	18S	27E					Eddy

Latitude: 32°46'8.886"N Longitude: 104°16'25.563"W

NATURE OF RELEASE

Type of Release oil and produced water	Volume of Release 8 barrels (6 barrels water and 2 barrels oil)	Volume Recovered 2 barrels (1 barrel oil and 1 barrel water)
Source of Release Flow-line	Date and Hour of Occurrence	Date and Hour of Discovery 12/19/13 at 8:00 a.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Left Message with Jeffery Robertson (BLM)	
By Whom? Bruce Baker	Date and Hour 12/19/2013 at 2:00 p.m.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\*

The steal flow line pressured up and released fluid from two previous line repair clamps. Well was shut in and vacuum truck was dispatched to pick-up fluid. Line was replaced with a new poly line.

Describe Area Affected and Cleanup Action Taken.\*

The entire release was in the pasture (6,986 square feet). The site was mapped and surface samples collected and field tested for chlorides. The site will be delineated and corrective action plan will be submitted to resolve the issue.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: Bruce Baker		OIL CONSERVATION DIVISION	
Printed Name: Bruce Baker		Approved by Environmental Specialist: Signed By Mike Beaman	
Title: Environmental Technician		Approval Date: JAN 07 2014	Expiration Date:
E-mail Address: larry.baker@apachecorp.com		Conditions of Approval: Remediation per OCD Rule & Guidelines, & like approval by BLM. SUBMIT REMEDIATION	Attached <input type="checkbox"/>
Date: 12/30/13	Phone: (432) 631-6982		

PROPOSAL NO LATER THAN:  
February 7, 2014 2RP-2141



# Appendix B

## Laboratory Analyses

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967

August 06, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: EMPIRE ABO #08

Enclosed are the results of analyses for samples received by the laboratory on 08/01/14 12:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: WEST WALL 1 (H402368-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41	
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43	
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40	
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49	
Total BTX	<0.300	0.300	08/04/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	48.0	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2014	ND	200	99.8	200	2.11	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	207	104	200	4.91	

Surrogate: 1-Chlorooctane 89.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 95.8 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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 419 W. CAIN  
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Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: WEST WALL 2 (H402368-02)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.0 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	ND	200	99.8	200	2.11	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	207	104	200	4.91	

Surrogate: 1-Chlorooctane 93.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 101 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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 LAURA FLORES  
 419 W. CAIN  
 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: WEST WALL 3 (H402368-03)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	64.0	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<10.0	10.0	08/04/2014	ND	200	99.8	200	2.11		
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	207	104	200	4.91		

Surrogate: 1-Chlorooctane 85.8 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.1 % 63.6-154

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\*=Accredited Analyte

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Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EAST WALL 1 (H402368-04)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	624	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2014	ND	200	99.8	200	2.11	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	207	104	200	4.91	

Surrogate: 1-Chlorooctane 90.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 95.4 % 63.6-154

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HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EAST WALL 2 (H402368-05)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41	
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43	
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40	
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49	
Total BTX	<0.300	0.300	08/04/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/04/2014	ND	200	99.8	200	2.11	
DRO >C10-C28	626	10.0	08/04/2014	ND	207	104	200	4.91	

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 129 % 63.6-154

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\*=Accredited Analyte

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 HOBBS NM, 88240  
 Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EAST WALL 3 (H402368-06)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 89.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 94.4 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: WEST WALL 4 (H402368-07)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	448	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 87.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.3 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager






**RDINAL LABORATORIES**  
101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

## Page 10 of 10

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**Phone Result:**

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<b>Relinquished By:</b> 		<b>Date:</b> 7-20-14 <b>Time:</b> 12:00		<b>Received By:</b> 		<b>Phone Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Add'l Phone #:</b> <b>Fax Result:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Add'l Fax #:</b> <b>REMARKS:</b>	
<b>Relinquished By:</b>		<b>Date:</b> <b>Time:</b>		<b>Received By:</b>		email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com Environmental Tech: @rice-ecs.com	
<b>Delivered By: (Circle One)</b> Sampler - UPS - Bus - Other:				<b>Sample Condition</b> Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>CHECKED BY:</b> (Initials) 	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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August 06, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: EMPIRE ABO #08

Enclosed are the results of analyses for samples received by the laboratory on 08/01/14 12:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 WEST WALL 1 (H402369-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41	
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43	
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40	
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49	
Total BTX	<0.300	0.300	08/04/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6560	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 98.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 105 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 WEST WALL 2 (H402369-02)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 120 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1100	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	<100	100	08/04/2014	10.1	199	99.4	200	1.66		
DRO >C10-C28	3770	50.0	08/04/2014	ND	212	106	200	2.11		

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 174 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 EAST WALL 1 (H402369-03)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	688	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 90.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 90.8 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



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LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 EAST WALL 2 (H402369-04)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1090	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	127	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 88.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.4 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 BOTTOM 1 (H402369-05)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTEx	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	432	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 101 % 65.2-140

Surrogate: 1-Chlorooctadecane 103 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 BOTTOM 2 (H402369-06)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	832	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 97.0 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.7 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

Excavation 2



## CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 9 of 9

Company Name: <b>RECS</b>				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>																					
Project Manager: <b>Laura Flores, Jacob Kamplain</b>				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div> <div>TDS</div> </div>																					
Address:				Company:																									
City: <b>Hobbs</b> State: <b>NM</b> Zip: <b>88240</b>				Attn:																									
Phone #: Fax #:				Address:																									
Project #: Project Owner:				City:																									
Project Name:				State: Zip:																									
Project Location: <b>Empire ABO #08</b>				Phone #:																									
Sampler Name: <b>Kyle Schmidt</b>				Fax #:																									
FOR LAB USE ONLY																													
Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER:		ACID/BASE:		ICE / COOL		OTHER:		DATE		TIME	
<b>H402368</b>																													
		1 Excavation 2 west wall 1		6		1																							
		2 Excavation 2 west wall 2		6		1																							
		3 Excavation 2 East wall 1		6		1																							
		4 Excavation 2 East wall 2		6		1																							
		5 Excavation 2 Bottom 1		6		1																							
		6 Excavation 2 Bottom 2		6		1																							

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Relinquished By:		Date: <b>7-30-14</b>		Received By:		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Phone #:	
<b>Kyle Schmidt</b>		Time: <b>12:00</b>		<b>Jodi Benson</b>		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Fax #:	
Relinquished By:		Date:		Received By:		REMARKS:			
		Time:				email: hconder@riceswd.com; lflores@rice-ecs.com;			
Delivered By: (Circle One)						lweinheimer@rice-ecs.com; knorman@rice-ecs.com;			
Sampler - UPS - Bus - Other:						jkamplain@rice-ecs.com; sedwards@rice-ecs.com;			
						cursanic@rice-ecs.com			
						Environmental Tech: @rice-ecs.com			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

**#54**



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

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August 06, 2014

LAURA FLORES

RICE ENVIRONMENTAL CONSULTING & SAFETY LLC

419 W. CAIN

HOBBS, NM 88240

RE: EMPIRE ABO #08

Enclosed are the results of analyses for samples received by the laboratory on 08/01/14 12:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 4 WEST WALL 1 (H402370-01)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41	
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43	
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40	
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49	
Total BTX	<0.300	0.300	08/04/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1020	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 87.1 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.0 % 63.6-154

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RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 4 WEST WALL 2 (H402370-02)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/04/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/04/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 93.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 99.9 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

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RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 4 EAST WALL 1 (H402370-03)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.1 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	512	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/05/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/05/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 96.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 98.9 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

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LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 4 EAST WALL 2 (H402370-04)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/04/2014	ND	1.65	82.7	2.00	8.41		
Toluene*	<0.050	0.050	08/04/2014	ND	1.68	84.1	2.00	7.43		
Ethylbenzene*	<0.050	0.050	08/04/2014	ND	1.66	83.0	2.00	7.40		
Total Xylenes*	<0.150	0.150	08/04/2014	ND	5.18	86.4	6.00	7.49		
Total BTX	<0.300	0.300	08/04/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	640	16.0	08/05/2014	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/05/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/05/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 91.3 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.0 % 63.6-154

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RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 4 BOTTOM 1 (H402370-05)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2014	ND	2.07	103	2.00	1.58	
Toluene*	<0.050	0.050	08/05/2014	ND	2.10	105	2.00	1.01	
Ethylbenzene*	<0.050	0.050	08/05/2014	ND	2.13	106	2.00	1.52	
Total Xylenes*	<0.150	0.150	08/05/2014	ND	6.66	111	6.00	3.49	
Total BTEx	<0.300	0.300	08/05/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	464	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/05/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/05/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 91.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 97.1 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

RICE ENVIRONMENTAL CONSULTING & SAFETY  
LAURA FLORES  
419 W. CAIN  
HOBBS NM, 88240  
Fax To: (575) 397-1471

Received:	08/01/2014	Sampling Date:	07/30/2014
Reported:	08/06/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 4 BOTTOM 2 (H402370-06)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/05/2014	ND	2.07	103	2.00	1.58	
Toluene*	<0.050	0.050	08/05/2014	ND	2.10	105	2.00	1.01	
Ethylbenzene*	<0.050	0.050	08/05/2014	ND	2.13	106	2.00	1.52	
Total Xylenes*	<0.150	0.150	08/05/2014	ND	6.66	111	6.00	3.49	
Total BTEx	<0.300	0.300	08/05/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	752	16.0	08/05/2014	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<20.0	20.0	08/05/2014	10.1	199	99.4	200	1.66	
DRO >C10-C28	<10.0	10.0	08/05/2014	ND	212	106	200	2.11	

Surrogate: 1-Chlorooctane 105 % 65.2-140

Surrogate: 1-Chlorooctadecane 112 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

## Page 9 of 9

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† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54

August 29, 2014

BRUCE BAKER

APACHE - EUNICE

P. O. BOX 1849

EUNICE, NM 88231

RE: EMPIRE ABO UNIT #08

Enclosed are the results of analyses for samples received by the laboratory on 08/27/14 9:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 2 WEST WALL 3 (H402627-01)**

BTEX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTEX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	800	16.0	08/27/2014	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 110 % 65.2-140

Surrogate: 1-Chlorooctadecane 119 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 APACHE - EUNICE  
 BRUCE BAKER  
 P. O. BOX 1849  
 EUNICE NM, 88231  
 Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 WEST WALL 4 (H402627-02)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 121 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 EAST WALL 3 (H402627-03)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	480	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 97.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 107 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 EAST WALL 4 (H402627-04)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 110 % 65.2-140

Surrogate: 1-Chlorooctadecane 123 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 2 BOTTOM 3 (H402627-05)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	384	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 97.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 107 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 2 BOTTOM 4 (H402627-06)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 99.2 % 65.2-140

Surrogate: 1-Chlorooctadecane 108 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 2 SOUTH WALL (H402627-07)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	368	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 3 EAST WALL 3 (H402627-08)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	144	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 63.6-154

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 APACHE - EUNICE  
 BRUCE BAKER  
 P. O. BOX 1849  
 EUNICE NM, 88231  
 Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 3 WEST WALL 3 (H402627-09)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 106 % 65.2-140

Surrogate: 1-Chlorooctadecane 118 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 3 NORTH WALL (H402627-10)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 122 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 3 SOUTH WALL (H402627-11)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	400	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 112 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 5 NORTH WALL (H402627-12)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 104 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	672	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	237	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 110 % 65.2-140

Surrogate: 1-Chlorooctadecane 130 % 63.6-154

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**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 5 WEST WALL (H402627-13)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 123 % 63.6-154

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**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 5 SOUTH WALL (H402627-14)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 116 % 65.2-140

Surrogate: 1-Chlorooctadecane 127 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 5 NORTH BOTTOM (H402627-15)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	704	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 99.7 % 65.2-140

Surrogate: 1-Chlorooctadecane 109 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 5 EAST BOTTOM (H402627-16)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	560	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 114 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 5 EAST WALL (H402627-17)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 106 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	768	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 108 % 65.2-140

Surrogate: 1-Chlorooctadecane 120 % 63.6-154

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**Analytical Results For:**

 APACHE - EUNICE  
 BRUCE BAKER  
 P. O. BOX 1849  
 EUNICE NM, 88231  
 Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 6 SOUTH WALL (H402627-18)**

BTEx 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTEx	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 111 % 65.2-140

Surrogate: 1-Chlorooctadecane 122 % 63.6-154

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 6 EAST WALL 1 (H402627-19)**

BTX 8021B		mg/kg		Analyzed By: ck					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1	
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6	
Total BTX	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	192	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 106 % 65.2-140

Surrogate: 1-Chlorooctadecane 117 % 63.6-154

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**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received: 08/27/2014  
Reported: 08/29/2014  
Project Name: EMPIRE ABO UNIT #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 08/15/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXC 6 EAST WALL 2 (H402627-20)**

BTX 8021B		mg/kg		Analyzed By: ck						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	1.85	92.7	2.00	10.1		
Toluene*	<0.050	0.050	08/28/2014	ND	1.71	85.3	2.00	12.4		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	1.92	96.1	2.00	15.9		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	5.74	95.7	6.00	16.6		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	ND	186	93.2	200	8.01	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	187	93.6	200	8.54	

Surrogate: 1-Chlorooctane 113 % 65.2-140

Surrogate: 1-Chlorooctadecane 124 % 63.6-154

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**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 6 WEST WALL 1 (H402627-21)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	2.08	104	2.00	2.16	
Toluene*	<0.050	0.050	08/28/2014	ND	2.12	106	2.00	2.21	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	2.17	108	2.00	2.63	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	6.81	113	6.00	1.95	
Total BTEx	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 109 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	416	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	10.3	200	100	200	0.943	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	203	102	200	1.18	

Surrogate: 1-Chlorooctane 112 % 65.2-140

Surrogate: 1-Chlorooctadecane 127 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 6 WEST WALL 2 (H402627-22)**

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/28/2014	ND	2.08	104	2.00	2.16	
Toluene*	<0.050	0.050	08/28/2014	ND	2.12	106	2.00	2.21	
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	2.17	108	2.00	2.63	
Total Xylenes*	<0.150	0.150	08/28/2014	ND	6.81	113	6.00	1.95	
Total BTEx	<0.300	0.300	08/28/2014	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	224	16.0	08/27/2014	ND	416	104	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/27/2014	10.3	200	100	200	0.943	
DRO >C10-C28	<10.0	10.0	08/27/2014	ND	203	102	200	1.18	

Surrogate: 1-Chlorooctane 118 % 65.2-140

Surrogate: 1-Chlorooctadecane 134 % 63.6-154

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**Analytical Results For:**

APACHE - EUNICE  
BRUCE BAKER  
P. O. BOX 1849  
EUNICE NM, 88231  
Fax To: 394-2425

Received:	08/27/2014	Sampling Date:	08/15/2014
Reported:	08/29/2014	Sampling Type:	Soil
Project Name:	EMPIRE ABO UNIT #08	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

**Sample ID: EXC 6 NORTH WALL (H402627-23)**

BTX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/28/2014	ND	2.08	104	2.00	2.16		
Toluene*	<0.050	0.050	08/28/2014	ND	2.12	106	2.00	2.21		
Ethylbenzene*	<0.050	0.050	08/28/2014	ND	2.17	108	2.00	2.63		
Total Xylenes*	<0.150	0.150	08/28/2014	ND	6.81	113	6.00	1.95		
Total BTX	<0.300	0.300	08/28/2014	ND						

Surrogate: 4-Bromofluorobenzene (PID) 115 % 89.4-126

Chloride, SM4500CI-B		mg/kg		Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	08/27/2014	ND	416	104	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	08/28/2014	10.3	200	100	200	0.943	
DRO >C10-C28	<10.0	10.0	08/28/2014	ND	203	102	200	1.18	

Surrogate: 1-Chlorooctane 122 % 65.2-140

Surrogate: 1-Chlorooctadecane 139 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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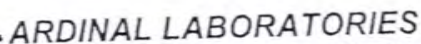
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Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

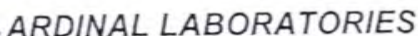
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Relinquished By: <i>Rele Hump</i> Date: <i>8/27/14</i> Time: <i>9:00</i>				Received By: <i>Jodi Benson</i> Date: _____ Time: _____		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No REMARKS:		Add'l Phone #: _____ Add'l Fax #: _____	
Relinquished By: _____ Date: _____ Time: _____				Received By: _____ Date: _____ Time: _____		email results Knorman@rice-ecs.com KJones@riceswd.com; jkamplain@rice-ecs.com hconder@rice-ecs.com; Lweinheimer@rice-ecs.com Khumphrey@rice-ecs.com sedwards@rice-ecs.com, lflores@rice-ecs.com			
Delivered By: (Circle One) Sampler - UPS - Bus - Other:				Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No		CHECKED BY: <i>GH</i> (Initials)			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54










## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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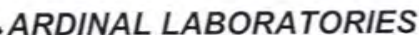
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Relinquished By:		Date:	Received By:	Phone Result:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
		Time:		Fax Result:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:		Date:	Received By:	REMARKS:		
		Time:		email results Knorman@rice-ecs.com KJones@riceswd.com; jkamplain@rice-ecs.com hconder@rice-ecs.com; Lweinheimer@rice-ecs.com Khumphrey@rice-ecs.com sedwards@rice-ecs.com, lflores@rice-ecs.com		
Delivered By: (Circle One)			Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other:			Cool Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No	(Initials) 		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

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101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

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Relinquished By: 		Date: 8/27/14 Time: 4:00		Received By: Jodi Henson		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #: _____	
Relinquished By:		Date:		Received By:		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #: _____	
		Time:				REMARKS:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:				Sample Condition Cool <input checked="" type="checkbox"/> Intact <input type="checkbox"/> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No		CHECKED BY: (Initials) 	
				1.80		email: hconder@riceswd.com; lflores@rice-ecs.com; lweinheimer@rice-ecs.com; knorman@rice-ecs.com; jkamplain@rice-ecs.com; sedwards@rice-ecs.com; cursanic@rice-ecs.com Environmental Tech: @rice-ecs.com	

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#54



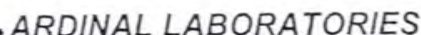


CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page 30 of 30

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Relinquished By:		Date:		Received By:		Phone Result:		Fax Result:		Add'l Phone #:	
Kyle Humphrey		8/27/14		Jodi Henson		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Phone #:	
Relinquished By:		Time:		Received By:		REMARKS:		email results		Knorman@rice-ecs.com	
		Date:				Kjones@riceswd.com; jkamplain@rice-ecs.com hconder@rice-ecs.com;				Lweinheimer@rice-ecs.com	
		Time:				Khumphrey@rice-ecs.com				sedwards@rice-ecs.com, lflores@rice-ecs.com	
Delivered By: (Circle One)		Sample Condition		CHECKED BY:							
Sampler - UPS - Bus - Other:		Cool Intact		1.89		JH					
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									

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#54



September 09, 2014

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EMPIRE ABO #08

Enclosed are the results of analyses for samples received by the laboratory on 09/09/14 8:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

APACHE CORP - HOBBS  
BRUCE BAKER  
2350 W. MARLAND BLVD.  
HOBBS NM, 88240  
Fax To: (575) 393-2432

Received: 09/09/2014  
Reported: 09/09/2014  
Project Name: EMPIRE ABO #08  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 09/08/2014  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: EXCAVATION 2 WEST WALL 1 (H402790-01)****Chloride, SM4500Cl-B****mg/kg****Analyzed By: AP**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>32.0</b>	16.0	09/09/2014	ND	416	104	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

---

Cardinal Laboratories

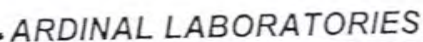
\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603  
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

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Relinquished By: <i>Kyle Humphrey</i>		Date: <i>9/19/14</i> Time: <i>8:30</i>	Received By: <i>Jodi Benson</i>		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Phone #:
Relinquished By:		Date: Time:	Received By:		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:			Sample Condition Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> <i>-2.8°C</i>	CHECKED BY: (Initials) <i>JH</i>	REMARKS: email results Knorman@rice-ecs.com Kjones@riceswd.com; jkamplain@rice-ecs.com hconder@rice-ecs.com; Lweinheimer@rice-ecs.com Khumphrey@rice-ecs.com sedwards@rice-ecs.com, lflores@rice-ecs.com

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

#54

# Appendix C

## Photo Documentation

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967



# Apache Empire Abo Unit #08

Unit Letter M, Section 3, & Unit Letter D, Section 10, T18S, R27E



Initial release area, facing south

12/19/13



Initial release area, facing north

12/19/13



Initial release area, facing south

12/19/13



Initial release area, facing southeast

12/19/13





Installing soil bores, facing east

2/6/14



Gauging SB-4 to determine evidence of groundwater, facing south

2/8/14



Conducting excavation at Excavation 1, facing south

7/24/14



Exporting soil, facing southeast

7/25/14





Conducting excavation at Excavation 4, facing south  
7/28/14



Conducting excavation at Excavation 5, facing west  
7/29/14



Conducting excavation at Excavation 3, facing east  
7/31/14



Conducting excavation at Excavation 2, facing  
southeast  
8/1/14





Conducting excavation at Excavation 6, facing northeast 8/1/14



Importing soil, facing east 9/8/14



Backfilling excavations, facing north 9/29/14



Disking site prior to seeding, facing north 10/17/14





Seeding site, facing west

10/17/14



Seeding site, facing northwest

10/17/14



Disking seed into soil, facing north

10/17/14



Site completed, facing south

10/17/14

# Appendix D

Final C-141

**RICE Environmental Consulting and Safety (RECS)**  
P.O. Box 2948 Hobbs, NM 88241  
Phone 575.393.2967

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

**Release Notification and Corrective Action**

**OPERATOR**

☐ Initial Report ☒ Final Report

Name of Company	Apache Corporation	Contact	Bruce Baker
Address	8 Ellison Lane Eunice, NM 88231	Telephone No.	(432) 631-6982
Facility Name	Empire Abo Unit O-8	Facility Type	Oil Well
Surface Owner	BLM	Mineral Owner	
		API No.	30-015-00844

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	3	18S	27E					Eddy

Latitude: 32°46'8.886"N Longitude: 104°16'25.563"W

**NATURE OF RELEASE**

Type of Release	Oil and Produced Water	Volume of Release	8 barrels (6 barrels water and 2 barrels oil)	Volume Recovered	2 barrels (1 barrel oil and 1 barrel water)
Source of Release	Flow-line	Date and Hour of Occurrence		Date and Hour of Discovery	12/19/13 at 8:00 a.m.
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Left message with Jeffery Robertson (BLM)		
By Whom?		Date and Hour	12/19/2013 at 2:00 p.m.		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.\*

Describe Cause of Problem and Remedial Action Taken.\* The steel flow line was pressured up and released fluid from two previous line repair clamps. Well was shut in and vacuum truck was dispatched to pick-up fluid. Line was replaced with a new poly line.

Describe Area Affected and Cleanup Action Taken.\* RECS was on site beginning on December 19<sup>th</sup>, 2013 to assess and GPS map the site. On February 6<sup>th</sup>, 2014, 3 soil bores were installed at the site to assess the level of contamination. Representative samples from the bores were taken to a commercial laboratory for analysis. Based on the laboratory sampling, a CAP was submitted to NMOCD and BLM on May 7<sup>th</sup>, 2014. BLM approved the CAP on May 8<sup>th</sup>, 2014 and NMOCD approved the CAP on May 15<sup>th</sup>, 2014. CAP activities began at the site on July 18<sup>th</sup>, 2014. Excavation 1 was dug to 4 ft bgs, and Excavation 4 was dug to 2 ft bgs. Final wall and bottom samples were taken and sent to a commercial laboratory for analysis. On August 8<sup>th</sup>, 2014, Apache requested permission from BLM and NMOCD to backfill Excavation 1 and 4 with clean, imported soil. NMOCD approved the request to backfill the site on August 8<sup>th</sup>, 2014, and BLM approved the request to backfill the site on August 14<sup>th</sup>, 2014. The remainder of the release was excavated as stated in the approved CAP. Excavation 2 was scraped down to 2 ft bgs, Excavation 5 was scraped down to 1 ft bgs, and Excavation 3 and Excavation 6 were excavated to 4 ft bgs. Final wall samples from each of these scrapes and composite bottom samples from Excavations 2 and 5 were taken to a commercial laboratory for analysis. On September 3<sup>rd</sup>, 2014, Apache requested permission to backfill the remainder of the excavations with clean, imported soil. BLM gave verbal approval to backfill the site on September 9<sup>th</sup>, 2014, while NMOCD approved the site to backfilled on September 5<sup>th</sup>, 2014. As part of the approval from NMOCD to backfill the site, NMOCD requested that the West Wall 1 in Excavation 2 be expanded to obtain chloride readings below regulatory standards. The area around West Wall 1 was excavated further to the west and re-sampled on September 8<sup>th</sup>, 2014. In response to this new data, on September 11<sup>th</sup>, 2014, NMOCD gave their approval to backfill the remaining excavations. All excavated soil was taken to an NMOCD approved facility for disposal. Clean soil was imported to the site to replace the contaminated soil taken for disposal. The remaining excavations were backfilled with the clean, imported soil and contoured to the surrounding area. On October 17<sup>th</sup>, 2014, the disturbed area was seeded with BLM mix #3.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: <i>Bruce Baker</i>	<b>OIL CONSERVATION DIVISION</b>		
Printed Name: Bruce Baker	Approved by Environmental Specialist:		
Title: Environmental Tech	Approval Date:	Expiration Date:	
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 1-2-2015	Phone: (432) 631-6982		