

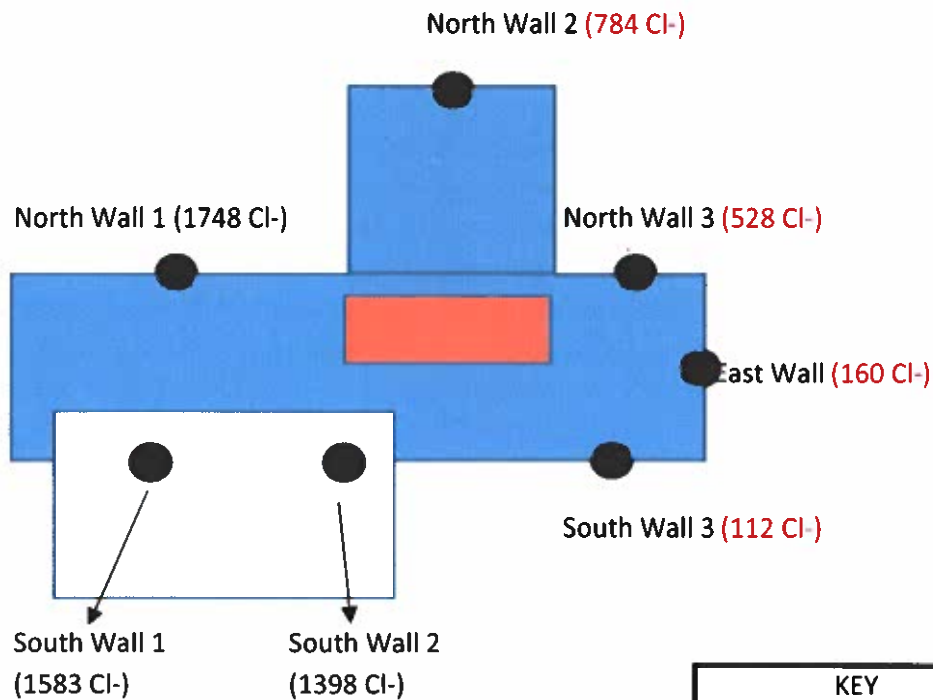
NEDU Water-Flood Injection line release





## NEDU 218 Excavation Sample Diagram

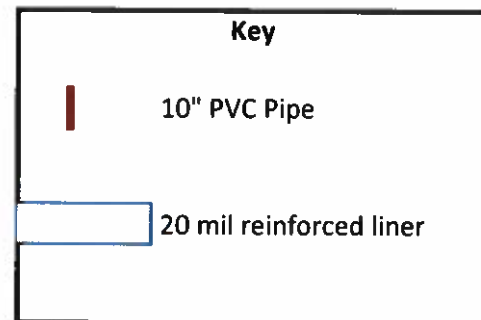
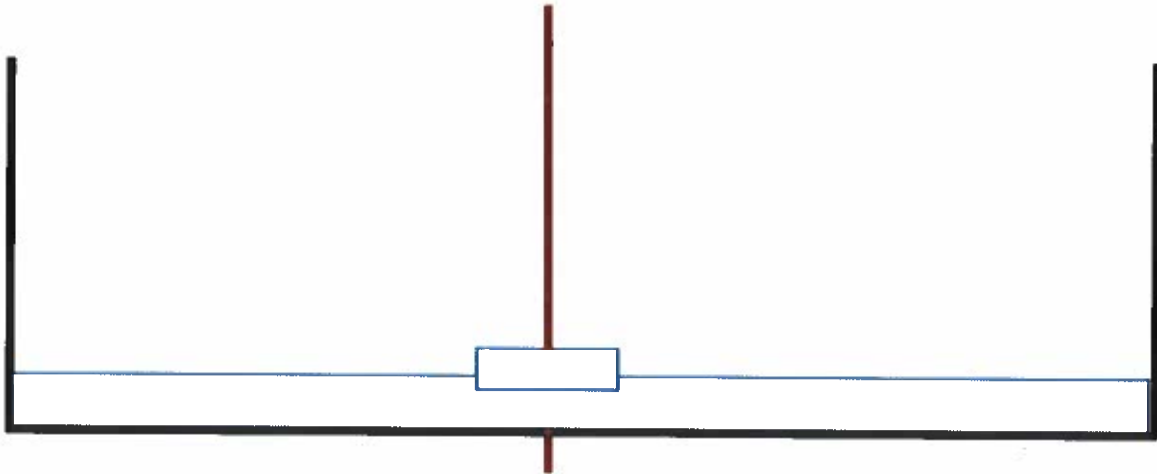
### PRELIMINARY RESULTS



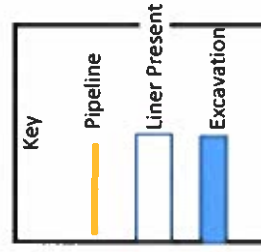
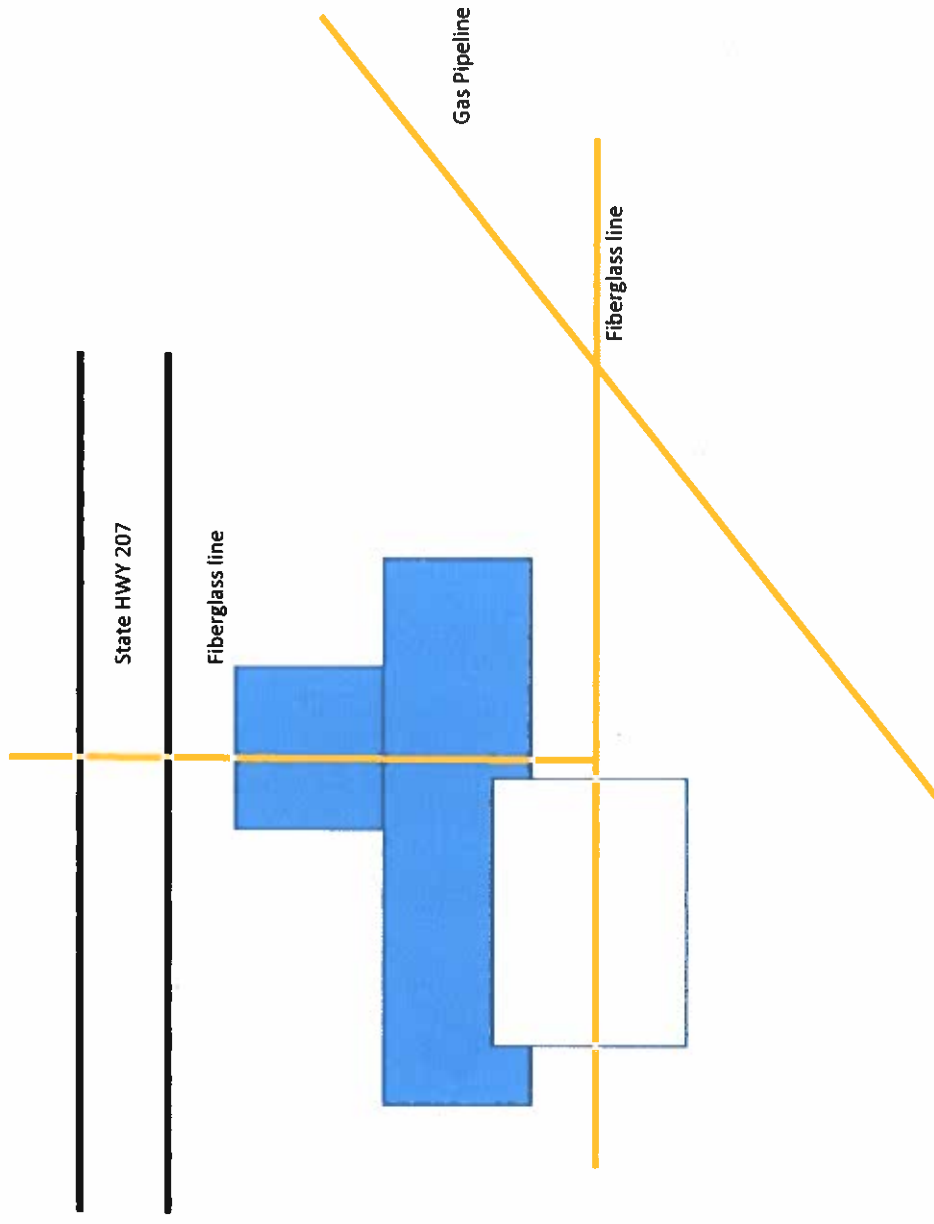
Vertical Chloride Values		
Depth	Lab	Field
11'	1200	1036
12'		1237
13'	1800	1233
14'		1170
15'	2040	1309
16'		986
17'	1840	1376
18'		921
19'	928	776
20'		1839
21'	1960	1889
22'		719
23'	960	782
24'		996
25'	576	459
26'		527
27'	800	740

KEY	
	Vertical
	Sample Pt.
	Excavation
	liner present
(Cl-)	Lab Data
(Cl-)	Field Data

## NEDU 218 Remediation Proposal



# NEDU 218 Site Overview





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

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February 12, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU #218

Enclosed are the results of analyses for samples received by the laboratory on 02/07/18 17:04.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/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



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

**Analytical Results For:**

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

Received: 02/07/2018  
Reported: 02/12/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 02/07/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: VERTICAL 1 @ 11' (H800402-01)**

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	02/09/2018	ND	1.75	87.4	2.00	23.7	
Toluene*	<0.050	0.050	02/09/2018	ND	1.77	88.5	2.00	22.3	
Ethylbenzene*	<0.050	0.050	02/09/2018	ND	1.76	87.9	2.00	23.4	
Total Xylenes*	<0.150	0.150	02/09/2018	ND	5.25	87.5	6.00	22.5	
Total BTEX	<0.300	0.300	02/09/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 113 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1200	16.0	02/09/2018	ND	416	104	400	3.77	

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	02/11/2018	ND	161	80.6	200	12.9	
DRO >C10-C28*	<10.0	10.0	02/11/2018	ND	183	91.3	200	18.5	
EXT DRO >C28-C36	<10.0	10.0	02/11/2018	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 99.2 % 37.6-147

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



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

**Analytical Results For:**

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

Received: 02/07/2018  
Reported: 02/12/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 02/07/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: VERTICAL 1 @ 13' (H800402-02)**

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	02/09/2018	ND	1.75	87.4	2.00	23.7	
Toluene*	<0.050	0.050	02/09/2018	ND	1.77	88.5	2.00	22.3	
Ethylbenzene*	<0.050	0.050	02/09/2018	ND	1.76	87.9	2.00	23.4	
Total Xylenes*	<0.150	0.150	02/09/2018	ND	5.25	87.5	6.00	22.5	
Total BTEX	<0.300	0.300	02/09/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 114 % 72-148

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1800	16.0	02/09/2018	ND	416	104	400	3.77	

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	02/12/2018	ND	161	80.6	200	12.9	
DRO >C10-C28*	<10.0	10.0	02/12/2018	ND	183	91.3	200	18.5	
EXT DRO >C28-C36	<10.0	10.0	02/12/2018	ND					

Surrogate: 1-Chlorooctane 96.6 % 41-142

Surrogate: 1-Chlorooctadecane 92.4 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 02/07/2018  
 Reported: 02/12/2018  
 Project Name: NEDU #218  
 Project Number: NEDU #218  
 Project Location: NONE GIVEN

 Sampling Date: 02/07/2018  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: VERTICAL 1 @ 15' (H800402-03)**

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	02/09/2018	ND	1.75	87.4	2.00	23.7	
Toluene*	<0.050	0.050	02/09/2018	ND	1.77	88.5	2.00	22.3	
Ethylbenzene*	<0.050	0.050	02/09/2018	ND	1.76	87.9	2.00	23.4	
Total Xylenes*	<0.150	0.150	02/09/2018	ND	5.25	87.5	6.00	22.5	
Total BTEX	<0.300	0.300	02/09/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 115 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2040	16.0	02/09/2018	ND	432	108	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	02/12/2018	ND	161	80.6	200	12.9	
DRO >C10-C28*	<10.0	10.0	02/12/2018	ND	183	91.3	200	18.5	
EXT DRO >C28-C36	<10.0	10.0	02/12/2018	ND					

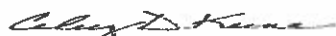
Surrogate: 1-Chlorooctane 84.1 % 41-142

Surrogate: 1-Chlorooctadecane 78.7 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 02/07/2018  
 Reported: 02/12/2018  
 Project Name: NEDU #218  
 Project Number: NEDU #218  
 Project Location: NONE GIVEN

 Sampling Date: 02/07/2018  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: VERTICAL 1 @ 17' (H800402-04)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1840	16.0	02/09/2018	ND	432	108	400	0.00	

**Sample ID: VERTICAL 1 @ 19' (H800402-05)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	928	16.0	02/09/2018	ND	432	108	400	0.00	

**Sample ID: VERTICAL 1 @ 21' (H800402-06)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1960	16.0	02/09/2018	ND	432	108	400	0.00	

**Sample ID: VERTICAL 1 @ 23' (H800402-07)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	960	16.0	02/09/2018	ND	432	108	400	0.00	

**Sample ID: VERTICAL 1 @ 25' (H800402-08)**

Chloride, SM4500CI-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	02/09/2018	ND	432	108	400	0.00	

Cardinal Laboratories

\* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

**Analytical Results For:**

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

Received: 02/07/2018  
Reported: 02/12/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 02/07/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: VERTICAL 1 @ 27' (H800402-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	800	16.0	02/09/2018	ND	432	108	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
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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Cardinal Laboratories

\*=Accredited Analyte

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---

Celey D. Keene, Lab Director/Quality Manager



## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

(5/5) 393-2326 FAX (5/5) 393-2410

# BILL TO

# ANALYSIS REQUEST

Company Name: Apache Corporation  
Project Manager: Bruce Baker  
Address:  
City: Hobbs State: NM Zip: 88240  
Phone #: Fax #:

P.O. #:  
Company:  
Attn:  
Address:  
City:  
State: Zip:  
Phone #:  
Fax #:

Project #: NEDU 018 Project Owner:  
Project Location: NEDU 18  
Sample Name: Bruce Baker  
FOR LAB USE ONLY

MATRIX PRESERV SAMPLING

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
H800402	Vertical 1 @ 11'	G	I			/							2-7-18	10:00AM
	Vertical 1 @ 13'	G	I			/							2-7-18	10:20AM
	Vertical 1 @ 15'	G	I			/							2-7-18	11:00AM
	Vertical 1 @ 17'	G	I			/							2-7-18	11:30AM
	Vertical 1 @ 19'	G	I			/							2-7-18	11:45AM
	Vertical 1 @ 21'	G	I			/							2-7-18	2:30PM
	Vertical 1 @ 23'	G	I			/							2-7-18	3:00PM
	Vertical 1 @ 25'	G	I			/							2-7-18	3:30PM
	Vertical 1 @ 27'	G	I			/							2-7-18	3:45PM

C1- (Rush 8015m)  
TPH Extended  
BETA

PLEASE NOTE: Liability and Damages. Customer's liability and damages are limited by the amount paid by the client for the service. All claims involving those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Client within 30 days after completion of the applicable service. In no event shall Client be liable for incidental or consequential expenses, 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 services hereunder by Client, regardless of whether such claim is based upon any of the above stated theories or otherwise.

Relinquished By: Received By: Date: 2-7-18 Time: 2:04 PM

Relinquished By: Bruce Baker Received By: [Signature] Date: [Blank] Time: [Blank]

Delivered By: (Circle One) 5:00 Sample Condition Cool Intact Yes No Checked BY: [Signature]  
Sampler - UPS - Bus - Other: Estimated 5:30

PHONE Result: Yes No Add'l Phone #: Fax Result: Yes No Add'l Fax #:

REMARKS: email to Larry.baker@apache corp



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

February 28, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU #218

Enclosed are the results of analyses for samples received by the laboratory on 02/27/18 15:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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: 02/27/2018  
Reported: 02/28/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 02/27/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: NORTH WALL 3 (H800576-01)**

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	02/27/2018	ND	2.20	110	2.00	2.87	
Toluene*	<0.050	0.050	02/27/2018	ND	2.19	109	2.00	1.92	
Ethylbenzene*	<0.050	0.050	02/27/2018	ND	2.14	107	2.00	2.27	
Total Xylenes*	<0.150	0.150	02/27/2018	ND	6.56	109	6.00	2.95	
Total BTEX	<0.300	0.300	02/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	02/28/2018	ND	448	112	400	3.64	

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	02/28/2018	ND	219	109	200	2.10	
DRO >C10-C28*	<10.0	10.0	02/28/2018	ND	206	103	200	1.61	
EXT DRO >C28-C36	<10.0	10.0	02/28/2018	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 96.2 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 02/27/2018  
Reported: 02/28/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 02/27/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: NORTH WALL 2 (H800576-02)**

BTEX 80218		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/27/2018	ND	2.20	110	2.00	2.87	
Toluene*	<0.050	0.050	02/27/2018	ND	2.19	109	2.00	1.92	
Ethylbenzene*	<0.050	0.050	02/27/2018	ND	2.14	107	2.00	2.27	
Total Xylenes*	<0.150	0.150	02/27/2018	ND	6.56	109	6.00	2.95	
Total BTEX	<0.300	0.300	02/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 104 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	784	16.0	02/28/2018	ND	448	112	400	3.64	

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	02/28/2018	ND	219	109	200	2.10	
DRO >C10-C28*	<10.0	10.0	02/28/2018	ND	206	103	200	1.61	
EXT DRO >C28-C36	<10.0	10.0	02/28/2018	ND					

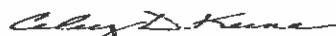
Surrogate: 1-Chlorooctane 94.5 % 41-142

Surrogate: 1-Chlorooctadecane 87.1 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 02/27/2018  
Reported: 02/28/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 02/27/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: SOUTH WALL 3 (H800576-03)**

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	02/27/2018	ND	2.20	110	2.00	2.87	
Toluene*	<0.050	0.050	02/27/2018	ND	2.19	109	2.00	1.92	
Ethylbenzene*	<0.050	0.050	02/27/2018	ND	2.14	107	2.00	2.27	
Total Xylenes*	<0.150	0.150	02/27/2018	ND	6.56	109	6.00	2.95	
Total BTEX	<0.300	0.300	02/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 106 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	02/28/2018	ND	448	112	400	3.64	

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	02/28/2018	ND	219	109	200	2.10	
DRO >C10-C28*	<10.0	10.0	02/28/2018	ND	206	103	200	1.61	
EXT DRO >C28-C36	<10.0	10.0	02/28/2018	ND					

Surrogate: 1-Chlorooctane 105 % 41-142

Surrogate: 1-Chlorooctadecane 96.8 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 02/27/2018  
 Reported: 02/28/2018  
 Project Name: NEDU #218  
 Project Number: NEDU #218  
 Project Location: NONE GIVEN

 Sampling Date: 02/27/2018  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: EAST WALL (H800576-04)**

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	02/27/2018	ND	2.20	110	2.00	2.87	
Toluene*	<0.050	0.050	02/27/2018	ND	2.19	109	2.00	1.92	
Ethylbenzene*	<0.050	0.050	02/27/2018	ND	2.14	107	2.00	2.27	
Total Xylenes*	<0.150	0.150	02/27/2018	ND	6.56	109	6.00	2.95	
Total BTEX	<0.300	0.300	02/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 105 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	02/28/2018	ND	448	112	400	3.64	

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	02/28/2018	ND	219	109	200	2.10	
DRO >C10-C28*	<10.0	10.0	02/28/2018	ND	206	103	200	1.61	
EXT DRO >C28-C36	<10.0	10.0	02/28/2018	ND					


Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 95.5 % 37.6-147

Cardinal Laboratories

\* = Accredited Analyte

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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





# CARDINAL Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

**BILL TO**

**ANALYSIS REQUEST**

Company Name: Hobbs Corporation

Project Manager: Bruce Baker

Address:

City: Hobbs

State: NM Zip: 88240

Phone #: 432-631-6982

Fax #:

Project #:

Project Owner:

Project Name: NEdu 218

Project Location:

Sample Name: Bruce Baker

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H800576

1 North Wall 3

2 North Wall 2

3 South Wall 3

4 East Wall 1

(G)RAB OR (C)OMP.

# CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER:

ACID/BASE:

ICE / COOL

OTHER:

DATE

TIME

DATE

TIME

CI-

Extended TPH

BTEX

Relinquished By:

Date: 2-27-18

Time: 3:00pm

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

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Relinquished By:

Date: 2-27-18

Time: 3:00pm

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

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Received By:

Date:

Time:

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Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Received By:

Date:

Time:

Delivered By: (Circle One)

4:12

Sample Condition

Cool

Intact

Yes

Yes

No

No

Checked By:

(Initials)

10/4/15

10/4/15

10/4/15

10/4/15

10/4/15

10/4/15

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10/4/15



## New Mexico Office of the State Engineer Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,

O=orphaned,

C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">L 13546 POD1</a>		L	LE	4	4	3	34	20S	38E	675011	3600037	1314	88		
<a href="#">CP 00197</a>	O	CP	LE	1	4	1	01	21S	37E	676611	3598599*	1585	85		
<a href="#">CP 00197 POD1</a>		CP	LE	1	4	1	01	21S	37E	676611	3598599*	1585	85		
<a href="#">CP 00286 POD1</a>		CP	LE	2	1	2	10	21S	37E	674019	3597338*	1714	70		
<a href="#">CP 00552</a>		CP	LE		2	4	04	21S	37E	672700	3598022*	2433	90	75	15
<a href="#">CP 00553</a>		CP	LE		2	4	04	21S	37E	672700	3598022*	2433	90	75	15

Average Depth to Water: 75 feet

Minimum Depth: 75 feet

Maximum Depth: 75 feet

**Record Count: 6**

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 675030

**Northing (Y):** 3598723

**Radius:** 3000

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

3/5/18 3:14 PM

WATER COLUMN/ AVERAGE  
DEPTH TO WATER

## NEDU 218 Photos



Photo Facing South West



Photo Facing North West

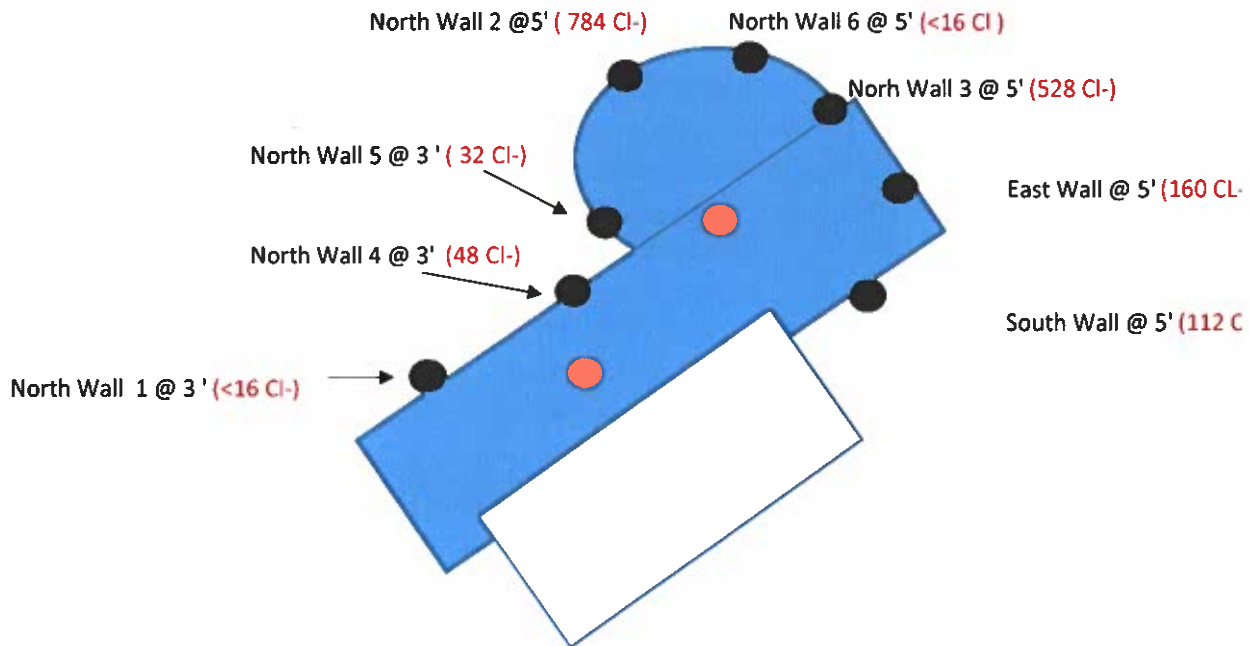




Photo Facing North



Photo Facing West



KEY	
	Proposed site for future soil bores
	Sample Pt.
	Excavation
	liner present
(Cl-)	Lab Data





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

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March 08, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU #218

Enclosed are the results of analyses for samples received by the laboratory on 03/07/18 15:10.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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: 03/07/2018  
Reported: 03/08/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 03/07/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: NORTH WALL 1 @ 3' (H800676-01)**

BTEX 80218		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/07/2018	ND	2.16	108	2.00	3.51	
Toluene*	<0.050	0.050	03/07/2018	0.050	2.15	108	2.00	2.84	
Ethylbenzene*	<0.050	0.050	03/07/2018	ND	2.09	105	2.00	2.74	
Total Xylenes*	<0.150	0.150	03/07/2018	ND	6.34	106	6.00	3.04	
Total BTEX	<0.300	0.300	03/07/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 91.9 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	03/07/2018	ND	480	120	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	03/07/2018	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	03/07/2018	ND	195	97.4	200	4.55	
EXT DRO >C28-C36	<10.0	10.0	03/07/2018	ND					

Surrogate: 1-Chlorooctane 87.4 % 41-142

Surrogate: 1-Chlorooctadecane 76.3 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 03/07/2018  
Reported: 03/08/2018  
Project Name: NEDU #218  
Project Number: NEDU #218  
Project Location: NONE GIVEN

Sampling Date: 03/07/2018  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: NORTH WALL 4 @ 3' (H800676-02)**

BTEX 80218		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	03/07/2018	ND	2.16	108	2.00	3.51	
Toluene*	<0.050	0.050	03/07/2018	0.050	2.15	108	2.00	2.84	
Ethylbenzene*	<0.050	0.050	03/07/2018	ND	2.09	105	2.00	2.74	
Total Xylenes*	<0.150	0.150	03/07/2018	ND	6.34	106	6.00	3.04	
Total BTEX	<0.300	0.300	03/07/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 92.4 % 72-148

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	03/07/2018	ND	480	120	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	03/07/2018	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	03/07/2018	ND	195	97.4	200	4.55	
EXT DRO >C28-C36	<10.0	10.0	03/07/2018	ND					

Surrogate: 1-Chlorooctane 81.1 % 41-142

Surrogate: 1-Chlorooctadecane 69.7 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 03/07/2018  
 Reported: 03/08/2018  
 Project Name: NEDU #218  
 Project Number: NEDU #218  
 Project Location: NONE GIVEN

 Sampling Date: 03/07/2018  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: NORTH WALL 5 @ 3' (H800676-03)**

BTX 80218		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	03/07/2018	ND	2.16	108	2.00	3.51		
Toluene*	<0.050	0.050	03/07/2018	0.050	2.15	108	2.00	2.84		
Ethylbenzene*	<0.050	0.050	03/07/2018	ND	2.09	105	2.00	2.74		
Total Xylenes*	<0.150	0.150	03/07/2018	ND	6.34	106	6.00	3.04		
Total BTX	<0.300	0.300	03/07/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 92.0 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	32.0	16.0	03/07/2018	ND	480	120	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	03/07/2018	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	03/07/2018	ND	195	97.4	200	4.55	
EXT DRO >C28-C36	<10.0	10.0	03/07/2018	ND					

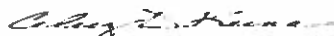
Surrogate: 1-Chlorooctane 86.7 % 41-142

Surrogate: 1-Chlorooctadecane 70.0 % 37.6-147

Cardinal Laboratories

\*=Accredited Analyte

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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: 03/07/2018  
 Reported: 03/08/2018  
 Project Name: NEDU #218  
 Project Number: NEDU #218  
 Project Location: NONE GIVEN

 Sampling Date: 03/07/2018  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Tamara Oldaker

**Sample ID: NORTH WALL 6 @ 5' (H800676-04)**

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	03/08/2018	ND	2.16	108	2.00	3.51	
Toluene*	<0.050	0.050	03/08/2018	0.050	2.15	108	2.00	2.84	
Ethylbenzene*	<0.050	0.050	03/08/2018	ND	2.09	105	2.00	2.74	
Total Xylenes*	<0.150	0.150	03/08/2018	ND	6.34	106	6.00	3.04	
Total BTEX	<0.300	0.300	03/08/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 92.0 % 72-148

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	03/07/2018	ND	480	120	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	03/07/2018	ND	205	102	200	1.57	
DRO >C10-C28*	<10.0	10.0	03/07/2018	ND	195	97.4	200	4.55	
EXT DRO >C28-C36	<10.0	10.0	03/07/2018	ND					

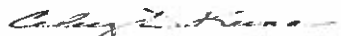
Surrogate: 1-Chlorooctane 82.9 % 41-142

Surrogate: 1-Chlorooctadecane 69.0 % 37.6-147

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\* = Accredited Analyte

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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



NEDU 218 Updated Photos 3-8-2018

