



October 27, 2020

Mr. Bradford Billings
State of New Mexico Oil Conservation Division
1220 South St Francis Drive
Santa Fe, NM 87505

RE: 1RP-4898 NEDU 218

Mr. Billings,

In compliance with 19.15.29.15(B) NMAC and the agreement submitted by Apache Corporation on November 8, 2018, Apache Corporation is submitting information related to closure for the release occurring December 14, 2017. Apache is respectfully submitting the closure report based on remediation and studies occurring in 2018 and 2019 that demonstrate the site meeting the requirements of the agency. Unless further information is requested by NMOCD, Apache Corporation considers this release closed.

If there are any questions, please feel free to contact me by telephone at 432-631-6982 or by e-mail at larry.baker@apachecorp.com.

Sincerely,

A handwritten signature in black ink that reads "Larry Baker". The signature is written in a cursive, flowing style.

Larry Baker
Environmental Technician SR.
Apache Corporation

Attachment: Closure Report Dated October 27, 2020



303 Veterans Airpark Lane Midland, TX 79705

Closure Report

October 27, 2020

Re: NEDU 218
Case # 1RP-4898

On 12/14/2017 a release occurred due to a buried fiberglass line failed. The release (GPS: 32.5123389, -103.1364500) is located north of Eunice, New Mexico in unit letter C section 2 township 21S range 37E. A soil bore (GPS: 32.512232, -103.136606) was conducted to delineate the release to a depth of 60 feet. Water was not encountered during the soil bore demonstrating that the depth of groundwater beneath the release is greater than 50 feet. A remediation plan was submitted to OCD and approved on 3/9/2018.

The release area was excavated to depths of 6 to 10 feet. All excavated material was hauled to an OCD approved facility. A portion of the release was over a previously installed 20 mil liner. Three verticals were conducted in the areas outside the liner utilizing a track-hoe with samples collected in regular intervals. Vertical 1 was advanced to a depth of 27 feet. The South P/L vertical was advanced to a depth of 12 feet and the West Vertical was advanced to a depth of 12 feet. Final wall representative samples were collected. All samples were collected and submitted to a commercial laboratory. A 20 mil reinforced liner was installed along the bottom of the excavation and sown to the previous liner. A 10 inch casing was installed at vertical 1 in preparation for a future soil bore to be conducted to further delineate with depth. The liner was fused to the casing to ensure the integrity of the liner was not compromised. The excavation was backfilled with clean imported top soil to ground surface and contoured to the surrounding area. On 7/31/2019 a soil bore was conducted to a depth of 60 feet. All samples were collected and submitted to a commercial laboratory for analysis of chloride. The bore hole was plugged with bentonite to ground surface. Apache Corporation has complete remediation to below table one standards for releases 51-100 feet to groundwater and respectfully request event 1RP-4898 be closed.

Enclosed: C-141, Groundwater Data, Maps, Sample Data, Laboratory Results, Variance Request, and Photos.

Submitted by;

Bruce Baker

Environmental Technician
larry.baker@apachecorp.com
Cell# 432-631-6982

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 2350 W Marland Street, Hobbs, NM 88240	Telephone No. (432) 631-6982
Facility Name NEDU 218	Facility Type Injection Well
Surface Owner State	Mineral Owner State
API No. 30-025-06484	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	2	21S	37E	3546'	FNL	1700'	FWL	Lea

Latitude 32.5123389 Longitude -103.1364500

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 240 barrels of produced water	Volume Recovered 220 barrels of produced water
Source of Release Fiberglass line	Date and Hour of Occurrence 12/14/2017	Date and Hour of Discovery 12/14/2017 at 1:00 p.m.
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Olivia Yu (NMOCD)	
By Whom? Bruce Baker	Date and Hour 12/15/2017 left message at 8:42 a.m. and via email at 8:49 a.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.*

RECEIVED

By Olivia Yu at 9:51 am, Dec 20, 2017

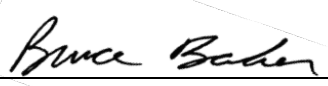

Describe Cause of Problem and Remedial Action Taken.*

The fiberglass line failed. The line was isolated and vacuum trucks were dispatched to pick-up standing fluid.

Describe Area Affected and Cleanup Action Taken.*

The entire release was in the pasture. A corrective action plan will be submitted in accordance with NMOCD regulations.

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: 	OIL CONSERVATION DIVISION	
Printed Name: Bruce Baker	Approved by Environmental Specialist: 	
Title: Environmental Technician	Approval Date: 12/20/2017	Expiration Date:
E-mail Address: larry.baker@apachecorp.com	Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>
Date: 12/19/2017	Phone: (432) 631-6982	

* Attach Additional Sheets If Necessary

1RP-4898

nOY1735437002

pOY1735437400

Incident ID	NRM2006956155
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>61-100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	NRM2006956155
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Larry Baker Title: Environmental Tech SR.
Signature: Larry Baker Date: 10/27/2020
email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: Cristina Eads Date: 12/22/2020

Incident ID	NRM2006956155
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Larry Baker Title: Environmental Tech SR.
Signature: Larry Baker Date: 10/27/2020
email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: Cristina Eads Date: 12/22/2020

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Cristina Eads Date: 12/22/2020

Printed Name: Cristina Eads Title: Environmental Specialist



BH1

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Google earth



TEST HOLES • WATER WELLS

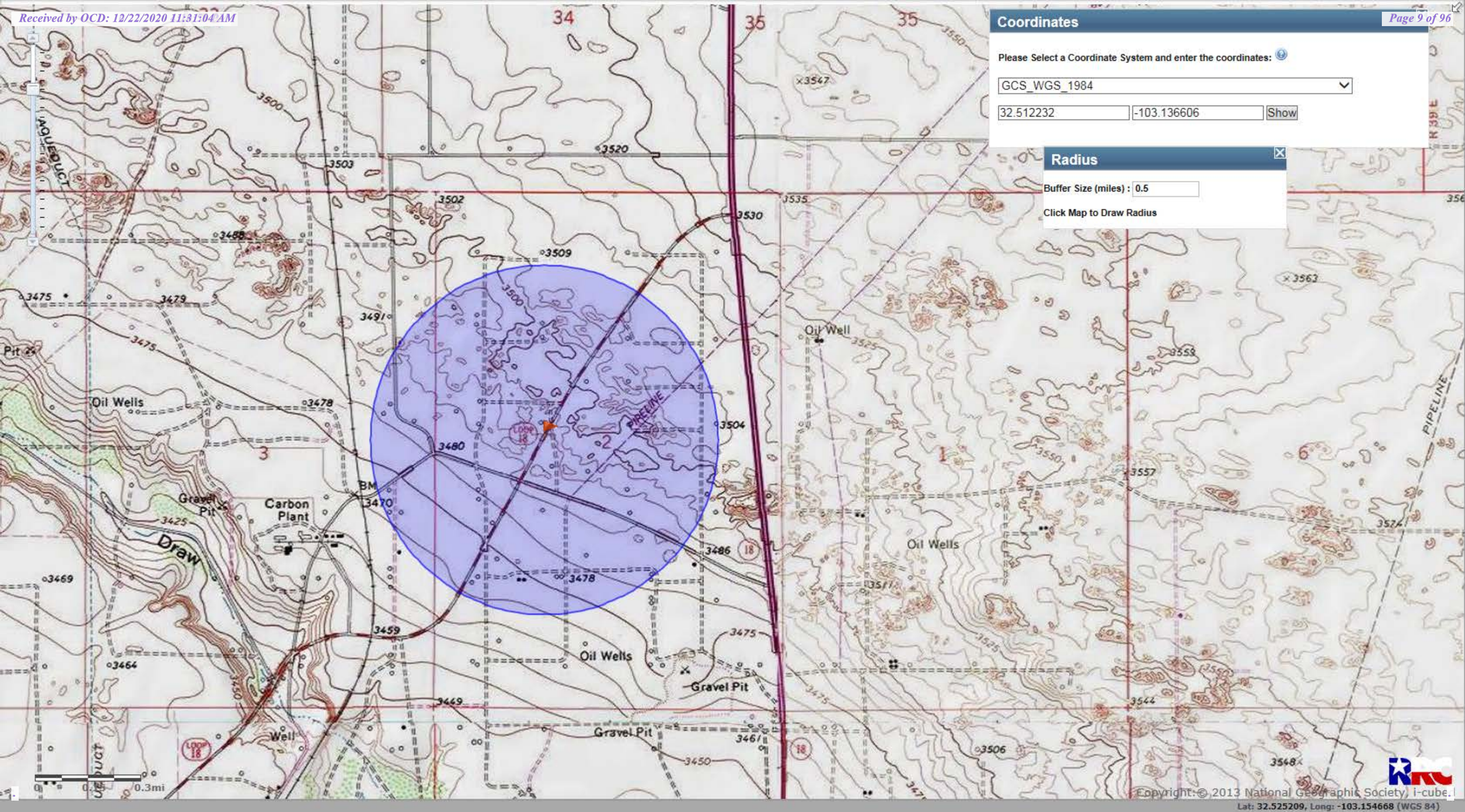
LAMESA, TEXAS 79331

2001 South Hwy. 87

Larson

WELL LOG

Date 7-31-19 Driller Lone S. S. S. S.



Coordinates

Please Select a Coordinate System and enter the coordinates: [?](#)

GCS_WGS_1984

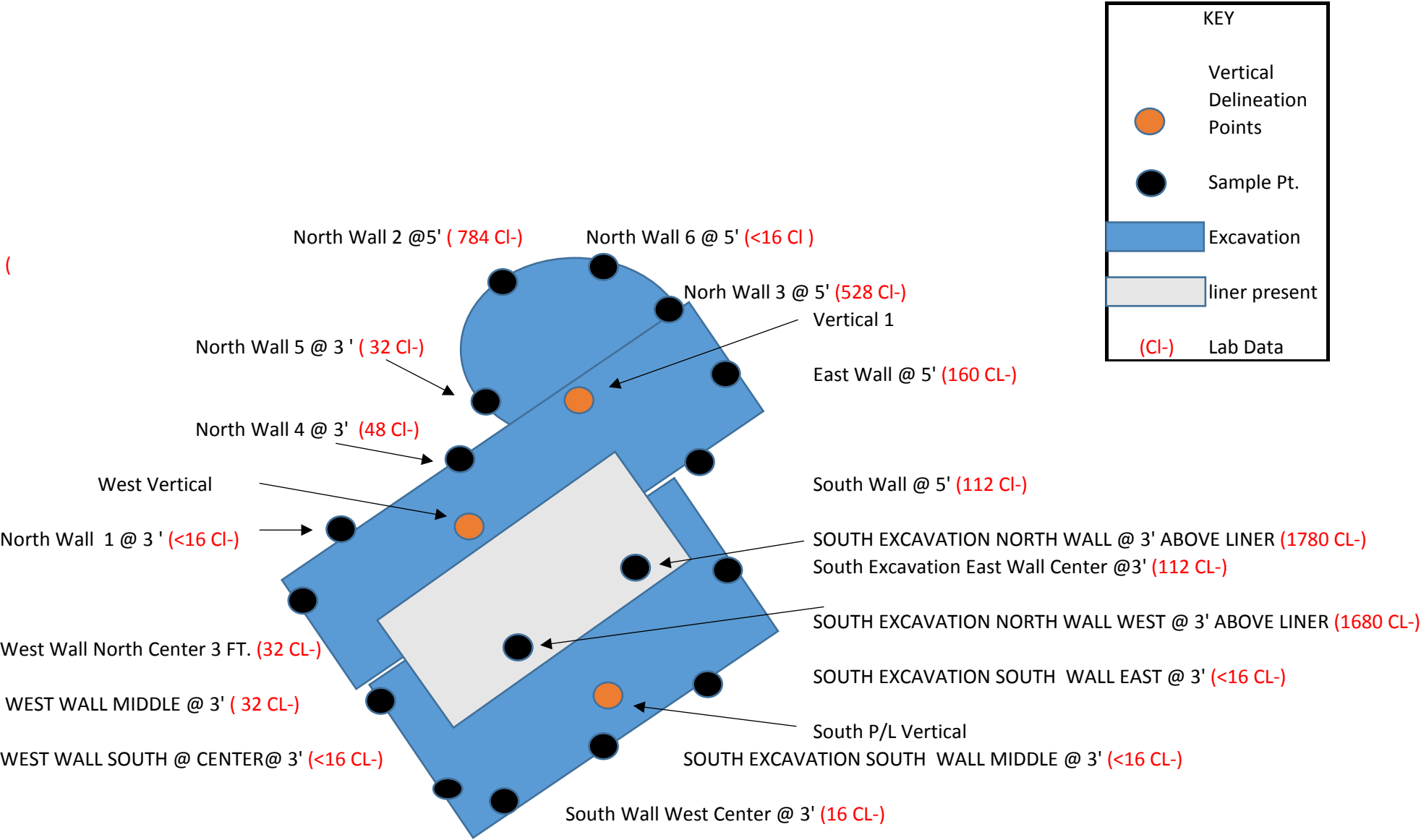
32.512232 -103.136606 Show

Radius

Buffer Size (miles) : 0.5

Click Map to Draw Radius

NEDU 218 sample diagram updated 3-8-2018



Delineation Samples											
Sample Date	Sample ID	Depth	Chloride	Benzene	Toulene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO
2/7/2018	Vertical 1	11'	1200	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		13'	1800	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		15'	2040	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		17'	1840								
		19'	928								
		21'	1960								
		23'	960								
		25'	576								
		27'	800								
3/22/2018	South P/L Vertical	9'	224	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		10'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		11'	160	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		12'	160	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4/4/2018	West Vertical	7'	1230	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		8'	1570	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		9'	1490	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		10'	624	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		11'	48.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
		12'	48.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
Wall Samples											
2/27/2018	NORTH WALL 3		528	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2/27/2018	NORTH WALL 2		784	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2/27/2018	SOUTH WALL 3		112	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2/27/2018	EAST WALL		160	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/7/2018	NORTH WALL 1 @ 3'	3'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/7/2018	NORTH WALL 4 @ 3'	3'	48.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/7/2018	NORTH WALL 5 @ 3'	3'	32.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/7/2018	NORTH WALL 6 @ 5'	5'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/29/2018	WEST WALL NORTH CENTER @ 3'	3'	32.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/29/2018	SOUTH WALL WEST CENTER @ 3'	3'	16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/29/2018	WEST WALL MIDDLE @ 3'	3'	32.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3/29/2018	WEST WALL SOUTH @ CENTER @ 3'	3'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4/3/2018	South Excavation East Wall 3'	3'	112	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4/3/2018	SOUTH EXCAVATION NORTH WALL @ 3' ABOVE LINER	3'	1780	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4/3/2018	SOUTH EXCAVATION NORTH WALL WEST @ 3' ABOVE LINER	3'	1680	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4/4/2018	South Excavation South Wall East 3'	3'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4/4/2018	South Excavation South Wall Middle 3'	3'	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0

Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corporation, NEDU 218
Lea County, New Mexico
32° 30' 44.10 North 103° 08' 11.80 West

Page 1 of 1

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Level:				10	50				100	600
BH-1	15	02/28/2019	In-Situ							678
	20	02/28/2019	In-Situ							848
	25	02/28/2019	In-Situ							1170
	30	02/28/2019	In-Situ							1120
	31	02/28/2019	In-Situ							1250
	40	7/31/2019	In-Situ							1670
	45	7/31/2019	In-Situ							1120
	50	7/31/2019	In-Situ							1810
	55	7/31/2019	In-Situ							1350
	60	7/31/2019	In-Situ							272

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas by EPA 300 (chloride)

Depth in feet below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

<: denotes concentration less than analytical method reporting limit



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

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.

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


CARDINAL
Laboratories

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

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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 @ 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, SM4500CI-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

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received:	02/07/2018	Sampling Date:	02/07/2018
Reported:	02/12/2018	Sampling Type:	Soil
Project Name:	NEDU #218	Sampling Condition:	Cool & Intact
Project Number:	NEDU #218	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

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	

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Celey D. Keene, Lab Director/Quality Manager



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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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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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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

BILL TO Company Name: Apache Corporation Project Manager: Bruce Baker Address: City: Hobbs State: NM Zip: 88240 Phone #: Fax #: Project #: NEDu Q18 Project Owner: Project Name: NEDuA18 Project Location: Sampler Name: Bruce Baker FOR LAB USE ONLY							ANALYSIS REQUEST P.O. #: Company: Attn: Address: City: State: Zip: Phone #: Fax #:													
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	* CONTAINERS	MATRIX	PRESERV	SAMPLING														
H800402	Vertical 1 @ 11'	G 1		GROUNDWATER		DATE	TIME													
	Vertical 1 @ 13'	G 1		WASTEWATER		2-7-18	10:00AM													
	Vertical 1 @ 15'	G 1		SOIL		2-7-18	10:30AM													
	Vertical 1 @ 17'	G 1		OIL		2-7-18	11:30AM													
	Vertical 1 @ 19'	G 1		SLUDGE		2-7-18	11:45AM													
	Vertical 1 @ 21'	G 1		OTHER:		2-7-18	2:00PM													
	Vertical 1 @ 23'	G 1		ACID/BASE:		2-7-18	2:00PM													
	Vertical 1 @ 25'	G 1		ICE / COOL		2-7-18	3:30PM													
	Vertical 1 @ 27'	G 1		OTHER:		2-7-18	3:45PM													
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Relinquished By: Bruce Baker		Date: 2-7-18	Received By: [Signature]																	
Relinquished By:		Date:	Received By:																	
Delivered By: (Circle One)		Date:	Received By:																	
Sampler - UPS - Bus - Other:		Date:	Received By:																	
Sample Condition		CHECKED BY: (initials)																		
Cool Impact																				
Yes No																				
Yes No																				
Remarks:		email to Larry.baker@apachecorp																		



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.

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: 02/27/2018
 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 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	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

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Celey D. Keene, Lab Director/Quality Manager



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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

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Celey D. Keene, Lab Director/Quality Manager



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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

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Celey D. Keene, Lab Director/Quality Manager



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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

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Celey D. Keene, Lab Director/Quality Manager

Page 26 of 96
Received by OCD: 12/22/2020 11:31:04AM



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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



Page 7 of 7

Headache Disorders

Email Results to billary.baker@apacisco.org



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

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/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: 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



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: 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					

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

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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: 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

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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: 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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Celey D. Keene, Lab Director/Quality Manager

Page 33 of 96

Received by OCD: 12/22/2020 11:31:04AM



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

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



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: Apache Corporation		BILL TO		ANALYSIS REQUEST																	
Project Manager: Bruce Baker		P.O. #:																			
Address:		Company:																			
City: Hobbs		Attn:																			
State: NM Zip: 88240		Address:																			
Phone #:		City:																			
Fax #:		State:																			
Project #:		Zip:																			
Project Name: NEBU 218		Phone #:																			
Project Location:		Fax #:																			
Sampler Name: Bruce Baker																					
FOR LAB USE ONLY																					
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX				PRESERV	SAMPLING												
				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	ACID/BASE	ICE / COOL	OTHER	DATE	TIME	CI ⁻	Extended TPH	BTEX				
H800676	North Wall 1 @ 3'		6			<input checked="" type="checkbox"/>							3-7-18	2:00pm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	North Wall 4 @ 3'		6			<input checked="" type="checkbox"/>							3-7-18	2:40pm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	North Wall 5 @ 3'		6			<input checked="" type="checkbox"/>							3-7-18	2:40pm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
	North Wall 6 @ 5'		6			<input checked="" type="checkbox"/>							3-7-18	2:20pm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
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Relinquished By: Bruce Baker		Date: 3-7-18		Received By: Larry Baker		Date: 3-7-18		Time: 3:19pm		Sample Condition		CHECKED BY: TS-THS		REMARKS: Larry Baker @ apache corp.com							
Relinquished By:		Date:		Received By:		Date:		Time:		Cool		CHECKED BY:									
Delivered By: (Circle One) 5:02		Time:		Time:		Time:		Time:		Cool		CHECKED BY:									
Sampler - UPS - Bus - Other: Converted 4:05		Time:		Time:		Time:		Time:		Cool		CHECKED BY:									



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

March 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 03/22/18 16:02.

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.

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 style with a large, stylized 'C' and 'K'.

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:	03/22/2018	Sampling Date:	03/22/2018
Reported:	03/28/2018	Sampling Type:	Soil
Project Name:	NEDU #218	Sampling Condition:	** (See Notes)
Project Number:	NEDU #218	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOUTH P/L VERT. @ 9' (H800837-01)

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	03/23/2018	ND	1.68	84.1	2.00	6.19	
Toluene*	<0.050	0.050	03/23/2018	ND	1.92	96.2	2.00	2.63	
Ethylbenzene*	<0.050	0.050	03/23/2018	ND	2.01	100	2.00	1.39	
Total Xylenes*	<0.150	0.150	03/23/2018	ND	6.19	103	6.00	2.10	
Total BTX	<0.300	0.300	03/23/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	224	16.0	03/26/2018	ND	432	108	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	03/26/2018	ND	205	103	200	6.45	
DRO >C10-C28*	<10.0	10.0	03/26/2018	ND	221	111	200	8.20	
EXT DRO >C28-C36	<10.0	10.0	03/26/2018	ND					

Surrogate: 1-Chlorooctane 92.8 % 41-142

Surrogate: 1-Chlorooctadecane 95.0 % 37.6-147

Cardinal Laboratories

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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: 03/22/2018
 Reported: 03/28/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/22/2018
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Jodi Henson

Sample ID: SOUTH P/L VERT. @ 10' (H800837-02)

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	03/23/2018	ND	1.68	84.1	2.00	6.19	
Toluene*	<0.050	0.050	03/23/2018	ND	1.92	96.2	2.00	2.63	
Ethylbenzene*	<0.050	0.050	03/23/2018	ND	2.01	100	2.00	1.39	
Total Xylenes*	<0.150	0.150	03/23/2018	ND	6.19	103	6.00	2.10	
Total BTEx	<0.300	0.300	03/23/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 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	80.0	16.0	03/26/2018	ND	432	108	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	03/26/2018	ND	205	103	200	6.45	
DRO >C10-C28*	<10.0	10.0	03/26/2018	ND	221	111	200	8.20	
EXT DRO >C28-C36	<10.0	10.0	03/26/2018	ND					

Surrogate: 1-Chlorooctane 95.9 % 41-142

Surrogate: 1-Chlorooctadecane 91.5 % 37.6-147

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: 03/22/2018
 Reported: 03/28/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/22/2018
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Jodi Henson

Sample ID: SOUTH P/L VERT. @ 11' (H800837-03)

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	03/23/2018	ND	1.68	84.1	2.00	6.19		
Toluene*	<0.050	0.050	03/23/2018	ND	1.92	96.2	2.00	2.63		
Ethylbenzene*	<0.050	0.050	03/23/2018	ND	2.01	100	2.00	1.39		
Total Xylenes*	<0.150	0.150	03/23/2018	ND	6.19	103	6.00	2.10		
Total BTEx	<0.300	0.300	03/23/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.3 % 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	160	16.0	03/26/2018	ND	432	108	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	03/26/2018	ND	205	103	200	6.45	
DRO >C10-C28*	<10.0	10.0	03/26/2018	ND	221	111	200	8.20	
EXT DRO >C28-C36	<10.0	10.0	03/26/2018	ND					

Surrogate: 1-Chlorooctane 98.8 % 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



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: 03/22/2018
 Reported: 03/28/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/22/2018
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Jodi Henson

Sample ID: SOUTH P/L VERT. @ 12' (H800837-04)

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	03/23/2018	ND	1.68	84.1	2.00	6.19		
Toluene*	<0.050	0.050	03/23/2018	ND	1.92	96.2	2.00	2.63		
Ethylbenzene*	<0.050	0.050	03/23/2018	ND	2.01	100	2.00	1.39		
Total Xylenes*	<0.150	0.150	03/23/2018	ND	6.19	103	6.00	2.10		
Total BTEx	<0.300	0.300	03/23/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 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	160	16.0	03/26/2018	ND	432	108	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	03/26/2018	ND	205	103	200	6.45	
DRO >C10-C28*	<10.0	10.0	03/26/2018	ND	221	111	200	8.20	
EXT DRO >C28-C36	<10.0	10.0	03/26/2018	ND					

Surrogate: 1-Chlorooctane 94.1 % 41-142

Surrogate: 1-Chlorooctadecane 92.1 % 37.6-147

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

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.
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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

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

(575) 393-2326 FAX (575) 393-2476

BILL TO

ANALYSIS REQUEST

Company Name:

Apache

P.O. #:

Project Manager:

Bruce Baker

Company:

Address:

Attn:

City:

Hobbs

Address:

State:

NM

City:

Zip:

88240

State:

Phone #:

432-631-6882

Fax #:

Project #:

Project Owner:

Project Location:

NEdu 218

Phone #:

Sample Name:

Bruce Baker

Fax #:

FOR LAB USE ONLY

Lab I.D.

Sample I.D.

H8D0887

1

South P/L Vert. @ 9'

(G/RAB OR (C)OMP.

CONTAINERS

GROUNDWATER

WASTEWATER

SOIL

OIL

SLUDGE

OTHER :

ACID/BASE:

ICE / COOL

OTHER :

DATE

TIME

CI-

Extended TPH

Btex

2

South P/L Vert. @ 10'

G 1

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

3

South P/L Vert. @ 11'

G 1

✓

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✓

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4

South P/L Vert. @ 12'

G 1

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✓

✓

✓

✓

✓

✓

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✓

5

South P/L Vert. @ 13'

G 1

✓

✓

✓

✓

✓

✓

✓

✓

+ Cardinal cannot accept verbal change



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

April 02, 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 03/29/18 16:10.

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.

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



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: 03/29/2018
 Reported: 04/02/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/29/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST WALL NORTH CENTER @ 3' (H800890-01)

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	04/02/2018	ND	2.05	103	2.00	1.03	
Toluene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	0.715	
Ethylbenzene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	1.89	
Total Xylenes*	<0.150	0.150	04/02/2018	ND	6.10	102	6.00	1.71	
Total BTX	<0.300	0.300	04/02/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	04/02/2018	ND	448	112	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	04/02/2018	ND	236	118	200	4.81	
DRO >C10-C28*	<10.0	10.0	04/02/2018	ND	211	105	200	5.19	
EXT DRO >C28-C36	<10.0	10.0	04/02/2018	ND					

Surrogate: 1-Chlorooctane 95.1 % 41-142

Surrogate: 1-Chlorooctadecane 91.5 % 37.6-147

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: 03/29/2018
 Reported: 04/02/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/29/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SOUTH WALL WEST CENTER @ 3' (H800890-02)

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	04/02/2018	ND	2.05	103	2.00	1.03		
Toluene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	0.715		
Ethylbenzene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	1.89		
Total Xylenes*	<0.150	0.150	04/02/2018	ND	6.10	102	6.00	1.71		
Total BTX	<0.300	0.300	04/02/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 105 % 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	04/02/2018	ND	448	112	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	04/02/2018	ND	236	118	200	4.81	
DRO >C10-C28*	<10.0	10.0	04/02/2018	ND	211	105	200	5.19	
EXT DRO >C28-C36	<10.0	10.0	04/02/2018	ND					

Surrogate: 1-Chlorooctane 99.0 % 41-142

Surrogate: 1-Chlorooctadecane 96.4 % 37.6-147

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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: 03/29/2018
 Reported: 04/02/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/29/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST WALL MIDDLE @ 3' (H800890-03)

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	04/02/2018	ND	2.05	103	2.00	1.03		
Toluene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	0.715		
Ethylbenzene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	1.89		
Total Xylenes*	<0.150	0.150	04/02/2018	ND	6.10	102	6.00	1.71		
Total BTEX	<0.300	0.300	04/02/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 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	32.0	16.0	04/02/2018	ND	448	112	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	04/02/2018	ND	236	118	200	4.81	
DRO >C10-C28*	<10.0	10.0	04/02/2018	ND	211	105	200	5.19	
EXT DRO >C28-C36	<10.0	10.0	04/02/2018	ND					

Surrogate: 1-Chlorooctane 108 % 41-142

Surrogate: 1-Chlorooctadecane 105 % 37.6-147

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

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

Received: 03/29/2018
 Reported: 04/02/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 03/29/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST WALL SOUTH @ CENTER@ 3' (H800890-04)

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	04/02/2018	ND	2.05	103	2.00	1.03		
Toluene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	0.715		
Ethylbenzene*	<0.050	0.050	04/02/2018	ND	2.10	105	2.00	1.89		
Total Xylenes*	<0.150	0.150	04/02/2018	ND	6.10	102	6.00	1.71		
Total BTX	<0.300	0.300	04/02/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	04/02/2018	ND	448	112	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	04/02/2018	ND	236	118	200	4.81	
DRO >C10-C28*	<10.0	10.0	04/02/2018	ND	211	105	200	5.19	
EXT DRO >C28-C36	<10.0	10.0	04/02/2018	ND					

Surrogate: 1-Chlorooctane 93.2 % 41-142

Surrogate: 1-Chlorooctadecane 89.0 % 37.6-147

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

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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



Written changes to (575) 393-2326
Corrected 1-25-20

Page 7 of 7



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

April 04, 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 04/03/18 14:04.

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/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 style with a large, stylized 'C' and 'K'.

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: 04/03/2018
 Reported: 04/04/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/03/2018
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Jodi Henson

Sample ID: SOUTH EXCAVATION EAST WALL CENTER @ 3' (H800919-01)

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	04/03/2018	ND	2.04	102	2.00	2.98	
Toluene*	<0.050	0.050	04/03/2018	ND	2.04	102	2.00	3.12	
Ethylbenzene*	<0.050	0.050	04/03/2018	ND	2.04	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	04/03/2018	ND	6.34	106	6.00	2.24	
Total BTEX	<0.300	0.300	04/03/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 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	04/04/2018	ND	400	100	400	7.69		

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	04/03/2018	ND	200	99.8	200	5.16	
DRO >C10-C28*	<10.0	10.0	04/03/2018	ND	228	114	200	12.7	
EXT DRO >C28-C36	<10.0	10.0	04/03/2018	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 97.3 % 37.6-147

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: 04/03/2018
 Reported: 04/04/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/03/2018
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Jodi Henson

Sample ID: SOUTH EXCAVATION NORTH WALL @ 3' ABOVE LINER (H800

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	04/03/2018	ND	2.04	102	2.00	2.98		
Toluene*	<0.050	0.050	04/03/2018	ND	2.04	102	2.00	3.12		
Ethylbenzene*	<0.050	0.050	04/03/2018	ND	2.04	102	2.00	2.49		
Total Xylenes*	<0.150	0.150	04/03/2018	ND	6.34	106	6.00	2.24		
Total BTEX	<0.300	0.300	04/03/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 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	1780	16.0	04/04/2018	ND	400	100	400	7.69		

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	04/03/2018	ND	200	99.8	200	5.16	
DRO >C10-C28*	<10.0	10.0	04/03/2018	ND	228	114	200	12.7	
EXT DRO >C28-C36	<10.0	10.0	04/03/2018	ND					

Surrogate: 1-Chlorooctane 105 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

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: 04/03/2018
 Reported: 04/04/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/03/2018
 Sampling Type: Soil
 Sampling Condition: ** (See Notes)
 Sample Received By: Jodi Henson

Sample ID: SOUTH EXCAVATION NORTH WALL WEST @ 3' ABOVE LINER

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	04/03/2018	ND	2.04	102	2.00	2.98		
Toluene*	<0.050	0.050	04/03/2018	ND	2.04	102	2.00	3.12		
Ethylbenzene*	<0.050	0.050	04/03/2018	ND	2.04	102	2.00	2.49		
Total Xylenes*	<0.150	0.150	04/03/2018	ND	6.34	106	6.00	2.24		
Total BTEX	<0.300	0.300	04/03/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	1680	16.0	04/04/2018	ND	432	108	400	3.64	QM-07	

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	04/03/2018	ND	200	99.8	200	5.16	
DRO >C10-C28*	<10.0	10.0	04/03/2018	ND	228	114	200	12.7	
EXT DRO >C28-C36	<10.0	10.0	04/03/2018	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 100 % 37.6-147

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

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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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



Company Name: Apache

[illegible]

Relinquished By:	Bruce Baker	4-5-16	Aechi Henderson
		Time: 2:04 pm	
Date:			Received By:

† Cardinal cannot accept verbal changes. Please fax written changes to (875) 393-2326



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

April 05, 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 04/04/18 15:16.

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.

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



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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SOUTH EXCAVATION SOUTH WALL EAST @ 3' (H800930-01)

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	04/04/2018	ND	1.96	98.2	2.00	1.74	
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82	
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32	
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14	
Total BTX	<0.300	0.300	04/04/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 110 % 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	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 82.3 % 37.6-147

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*=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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

**Sample ID: SOUTH EXCAVATION SOUTH WALL MIDDLE @ 3' (H800930-C
 BTEX 8021B**

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	04/04/2018	ND	1.96	98.2	2.00	1.74	
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82	
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32	
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14	
Total BTEX	<0.300	0.300	04/04/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 94.3 % 41-142

Surrogate: 1-Chlorooctadecane 71.8 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

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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A handwritten signature in cursive script, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



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

April 05, 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 04/04/18 15:06.

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.

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 style with a large, stylized 'C' and 'K'.

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:	04/04/2018	Sampling Date:	04/04/2018
Reported:	04/05/2018	Sampling Type:	Soil
Project Name:	NEDU #218	Sampling Condition:	Cool & Intact
Project Number:	NEDU #218	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: WEST VERTICAL @ 7' (H800931-01)

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	04/04/2018	ND	1.96	98.2	2.00	1.74	
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82	
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32	
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14	
Total BTEX	<0.300	0.300	04/04/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	1230	16.0	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 107 % 41-142

Surrogate: 1-Chlorooctadecane 90.0 % 37.6-147

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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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST VERTICAL @ 8' (H800931-02)

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	04/04/2018	ND	1.96	98.2	2.00	1.74		
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82		
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32		
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14		
Total BTX	<0.300	0.300	04/04/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 109 % 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	1570	16.0	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 81.7 % 37.6-147

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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST VERTICAL @ 9' (H800931-03)

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	04/04/2018	ND	1.96	98.2	2.00	1.74		
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82		
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32		
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14		
Total BTX	<0.300	0.300	04/04/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 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	1490	16.0	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 101 % 41-142

Surrogate: 1-Chlorooctadecane 79.5 % 37.6-147

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*=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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST VERTICAL @ 10' (H800931-04)

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	04/04/2018	ND	1.96	98.2	2.00	1.74		
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82		
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32		
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14		
Total BTX	<0.300	0.300	04/04/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	624	16.0	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 83.1 % 37.6-147

Cardinal Laboratories

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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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST VERTICAL @ 11' (H800931-05)

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	04/04/2018	ND	1.96	98.2	2.00	1.74	
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82	
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32	
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14	
Total BTX	<0.300	0.300	04/04/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 108 % 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	48.0	16.0	04/05/2018	ND	432	108	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 100 % 41-142

Surrogate: 1-Chlorooctadecane 81.2 % 37.6-147

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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: 04/04/2018
 Reported: 04/05/2018
 Project Name: NEDU #218
 Project Number: NEDU #218
 Project Location: NONE GIVEN

Sampling Date: 04/04/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: WEST VERTICAL @ 12' (H800931-06)

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	04/04/2018	ND	1.96	98.2	2.00	1.74	
Toluene*	<0.050	0.050	04/04/2018	ND	2.03	101	2.00	1.82	
Ethylbenzene*	<0.050	0.050	04/04/2018	ND	2.05	103	2.00	1.32	
Total Xylenes*	<0.150	0.150	04/04/2018	ND	5.98	99.7	6.00	1.14	
Total BTX	<0.300	0.300	04/04/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 107 % 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	48.0	16.0	04/05/2018	ND	416	104	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	04/05/2018	ND	192	95.8	200	1.12	
DRO >C10-C28*	<10.0	10.0	04/05/2018	ND	206	103	200	0.00195	
EXT DRO >C28-C36	<10.0	10.0	04/05/2018	ND					

Surrogate: 1-Chlorooctane 99.7 % 41-142

Surrogate: 1-Chlorooctadecane 78.6 % 37.6-147

Cardinal Laboratories

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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

Notes and Definitions

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

Cardinal Laboratories

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701**



Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Apache NEDU 218

Project Number: 19-0112-02

Location:

Lab Order Number: 9C01006



NELAP/TCEQ # T104704516-18-9

Report Date: 03/11/19

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Apache NEDU 218
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 (15')	9C01006-01	Soil	02/28/19 10:20	03-01-2019 09:08
BH-1 (20')	9C01006-02	Soil	02/28/19 10:23	03-01-2019 09:08
BH-1 (25')	9C01006-03	Soil	02/28/19 10:30	03-01-2019 09:08
BH-1 (30')	9C01006-04	Soil	02/28/19 10:32	03-01-2019 09:08
BH-1 (35')	9C01006-05	Soil	02/28/19 10:35	03-01-2019 09:08

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Apache NEDU 218
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

BH-1 (15')
9C01006-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	678	5.75	mg/kg dry	5	P9C0711	03/07/19	03/08/19	EPA 300.0
% Moisture	13.0	0.1	%	1	P9C0514	03/05/19	03/05/19	ASTM D2216

Larson & Associates, Inc.	Project: Apache NEDU 218	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (20')
9C01006-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods									
Chloride	848	5.32	mg/kg dry	5	P9C0711	03/07/19	03/08/19	EPA 300.0	
% Moisture	6.0	0.1	%	1	P9C0514	03/05/19	03/05/19	ASTM D2216	

Larson & Associates, Inc.

Project: Apache NEDU 218

Fax: (432) 687-0456

P.O. Box 50685

Project Number: 19-0112-02

Midland TX, 79710

Project Manager: Mark Larson

BH-1 (25')**9C01006-03 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.**General Chemistry Parameters by EPA / Standard Methods**

Chloride	1170	5.32	mg/kg dry	5	P9C0711	03/07/19	03/08/19	EPA 300.0	
% Moisture	6.0	0.1	%	1	P9C0514	03/05/19	03/05/19	ASTM D2216	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Larson & Associates, Inc.	Project: Apache NEDU 218	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (30')
9C01006-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	1120	5.26	mg/kg dry	5	P9C0711	03/07/19	03/08/19	EPA 300.0	
% Moisture	5.0	0.1	%	1	P9C0514	03/05/19	03/05/19	ASTM D2216	

Larson & Associates, Inc.	Project: Apache NEDU 218	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (35')
9C01006-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	1250	5.32	mg/kg dry	5	P9C0711	03/07/19	03/08/19	EPA 300.0	
% Moisture	6.0	0.1	%	1	P9C0514	03/05/19	03/05/19	ASTM D2216	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Apache NEDU 218
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9C0514 - *** DEFAULT PREP ***										
Blank (P9C0514-BLK1)				Prepared & Analyzed: 03/05/19						
% Moisture	ND	0.1	%							
Duplicate (P9C0514-DUP1)				Source: 9C01003-25		Prepared & Analyzed: 03/05/19				
% Moisture	16.0	0.1	%		16.0			0.00	20	
Duplicate (P9C0514-DUP2)				Source: 9C01007-02		Prepared & Analyzed: 03/05/19				
% Moisture	10.0	0.1	%		8.0			22.2	20	
Batch P9C0711 - *** DEFAULT PREP ***										
Blank (P9C0711-BLK1)				Prepared: 03/07/19 Analyzed: 03/08/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9C0711-BS1)				Prepared: 03/07/19 Analyzed: 03/08/19						
Chloride	412	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P9C0711-BSD1)				Prepared: 03/07/19 Analyzed: 03/08/19						
Chloride	403	1.00	mg/kg wet	400		101	80-120	2.10	20	
Duplicate (P9C0711-DUP1)				Source: 9C01005-05		Prepared: 03/07/19 Analyzed: 03/08/19				
Chloride	352	1.03	mg/kg dry		364			3.34	20	
Duplicate (P9C0711-DUP2)				Source: 9C01011-03		Prepared: 03/07/19 Analyzed: 03/09/19				
Chloride	9450	57.5	mg/kg dry		9500			0.613	20	
Matrix Spike (P9C0711-MS1)				Source: 9C01005-05		Prepared: 03/07/19 Analyzed: 03/08/19				
Chloride	940	1.03	mg/kg dry	515	364	112	80-120			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Apache NEDU 218
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

BULK Samples received in Bulk soil containers
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:



Date:

3/11/2019

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

Page 10 of 10

TRRP report?		S=SOIL		P=PAINT	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		W=WATER		SL=SLUDGE	
TIME ZONE:		A=AIR		OT=OTHER	
Time zone/State:		9C01006			
Field Sample I.D.		Lab #	Date	Time	Matrix
BH-1, 15'		2428/A	10:20	5	1
BH-1, 20'			10:23		1
BH-1, 25'			10:30		1
BH-1, 30'			10:32		1
BH-1, 35'			10:35		1
TOTAL					
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
LABORATORY:					
TURN AROUND TIME		LABORATORY USE ONLY:			
NORMAL <input checked="" type="checkbox"/>		RECEIVING TEMP: 12.2°C			
1 DAY <input type="checkbox"/>		CUSTODY SEALS: <input type="checkbox"/> BROKEN <input type="checkbox"/> INTACT <input type="checkbox"/> NOT USED			
2 DAY <input type="checkbox"/>		CARRIER BILL #			
OTHER <input type="checkbox"/>		<input checked="" type="checkbox"/> HAND DELIVERED			
		FIELD NOTES			
		ANALYSES			
		BTX <input type="checkbox"/> MTBE <input type="checkbox"/>			
		TPH 418.1 <input type="checkbox"/> TPH 1005 <input type="checkbox"/> TPH 1006 <input type="checkbox"/>			
		GASOLINE MOD 8015 <input type="checkbox"/>			
		DIESEL - MOD 8015 <input type="checkbox"/>			
		OIL - MOD 8015 <input type="checkbox"/>			
		VOC 8260 <input type="checkbox"/>			
		SVOC 8270 <input type="checkbox"/> PAH 8270 <input type="checkbox"/> HOLDPAH <input type="checkbox"/>			
		8081 PESTICIDES <input type="checkbox"/> 8151 HERBICIDES <input type="checkbox"/>			
		8082 PCBs <input type="checkbox"/>			
		TCLP - METALS (RCRA) <input type="checkbox"/> TCLP VOC <input type="checkbox"/>			
		TCLP - PEST <input type="checkbox"/> HERB <input type="checkbox"/> OTHER LIST <input type="checkbox"/>			
		TOTAL METALS (RCRA) <input type="checkbox"/> D.W. 200.8 <input type="checkbox"/> TCLP <input type="checkbox"/>			
		LEAD - TOTAL <input type="checkbox"/> RCI <input type="checkbox"/> TOX <input type="checkbox"/> FLASHPOINT <input type="checkbox"/>			
		TDS <input type="checkbox"/> TSS <input type="checkbox"/> % MOISTURE <input type="checkbox"/> CYANIDE <input type="checkbox"/>			
		PH <input type="checkbox"/> HEXAVALENT CHROMIUM <input type="checkbox"/>			
		EXPLOSIVES <input type="checkbox"/> PECTHLORATE <input type="checkbox"/>			
		CHLORIDES <input type="checkbox"/> ANIONS <input type="checkbox"/> ALKALINITY <input type="checkbox"/>			

**PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701**



Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: NEDU 218 Road Boring

Project Number: 19-0112-02

Location:

Lab Order Number: 9G31004



NELAP/TCEQ # T104704516-18-9

Report Date: 08/08/19

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: NEDU 218 Road Boring
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 (40')	9G31004-01	Soil	07/31/19 10:15	07-31-2019 16:31
BH-1 (45')	9G31004-02	Soil	07/31/19 10:23	07-31-2019 16:31
BH-1 (50')	9G31004-03	Soil	07/31/19 10:39	07-31-2019 16:31
BH-1 (55')	9G31004-04	Soil	07/31/19 10:45	07-31-2019 16:31
BH-1 (60')	9G31004-05	Soil	07/31/19 10:48	07-31-2019 16:31

Larson & Associates, Inc.	Project: NEDU 218 Road Boring	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (40')
9G31004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	1670	11.1	mg/kg dry	10	P9H0605	08/06/19	08/06/19	EPA 300.0	
% Moisture	10.0	0.1	%	1	P9H0501	08/05/19	08/05/19	ASTM D2216	

Larson & Associates, Inc.	Project: NEDU 218 Road Boring	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (45')
9G31004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	1120	5.21	mg/kg dry	5	P9H0605	08/06/19	08/06/19	EPA 300.0	
% Moisture	4.0	0.1	%	1	P9H0501	08/05/19	08/05/19	ASTM D2216	

Larson & Associates, Inc.	Project: NEDU 218 Road Boring	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (50')
9G31004-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	1810	5.49	mg/kg dry	5	P9H0605	08/06/19	08/07/19	EPA 300.0	
% Moisture	9.0	0.1	%	1	P9H0501	08/05/19	08/05/19	ASTM D2216	

Larson & Associates, Inc.

Project: NEDU 218 Road Boring

Fax: (432) 687-0456

P.O. Box 50685

Project Number: 19-0112-02

Midland TX, 79710

Project Manager: Mark Larson

BH-1 (55')**9G31004-04 (Soil)**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.**General Chemistry Parameters by EPA / Standard Methods**

Chloride	1350	5.56	mg/kg dry	5	P9H0605	08/06/19	08/07/19	EPA 300.0	
% Moisture	10.0	0.1	%	1	P9H0501	08/05/19	08/05/19	ASTM D2216	

Permian Basin Environmental Lab, L.P.

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permian Basin Environmental Lab.

1400 Rankin HWY Midland, TX 79701 432-686-7235

Larson & Associates, Inc.	Project: NEDU 218 Road Boring	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

BH-1 (60')
9G31004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	272	1.10	mg/kg dry	1	P9H0605	08/06/19	08/07/19	EPA 300.0	
% Moisture	9.0	0.1	%	1	P9H0501	08/05/19	08/05/19	ASTM D2216	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: NEDU 218 Road Boring
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9H0501 - *** DEFAULT PREP ***										
Blank (P9H0501-BLK1)	Prepared & Analyzed: 08/05/19									
% Moisture	ND	0.1	%							
Duplicate (P9H0501-DUP1)	Source: 9G31004-05 Prepared & Analyzed: 08/05/19									
% Moisture	10.0	0.1	%		9.0			10.5	20	
Duplicate (P9H0501-DUP2)	Source: 9H01004-12 Prepared & Analyzed: 08/05/19									
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P9H0501-DUP3)	Source: 9H01005-03 Prepared & Analyzed: 08/05/19									
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P9H0501-DUP4)	Source: 9H01006-14 Prepared & Analyzed: 08/05/19									
% Moisture	29.0	0.1	%		12.0			82.9	20	
Duplicate (P9H0501-DUP5)	Source: 9H01007-20 Prepared & Analyzed: 08/05/19									
% Moisture	ND	0.1	%		8.0			200	20	
Duplicate (P9H0501-DUP6)	Source: 9H01007-35 Prepared & Analyzed: 08/05/19									
% Moisture	9.0	0.1	%		9.0			0.00	20	
Duplicate (P9H0501-DUP7)	Source: 9H01007-48 Prepared & Analyzed: 08/05/19									
% Moisture	21.0	0.1	%		5.0			123	20	
Batch P9H0605 - *** DEFAULT PREP ***										
Blank (P9H0605-BLK1)	Prepared & Analyzed: 08/06/19									
Chloride	ND	1.00	mg/kg wet							

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Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P9H0605 - * DEFAULT PREP *****

LCS (P9H0605-BS1) Prepared & Analyzed: 08/06/19

Chloride	412	1.00	mg/kg wet	400		103	80-120			
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LCS Dup (P9H0605-BSD1) Prepared & Analyzed: 08/06/19

Chloride	412	1.00	mg/kg wet	400		103	80-120	0.112	20	
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Calibration Blank (P9H0605-CCB1) Prepared & Analyzed: 08/06/19

Chloride	0.00		mg/kg wet							
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Calibration Blank (P9H0605-CCB2) Prepared & Analyzed: 08/06/19

Chloride	0.00		mg/kg wet							
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Calibration Check (P9H0605-CCV1) Prepared & Analyzed: 08/06/19

Chloride	19.9		mg/kg	20.0		99.7	0-200			
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Calibration Check (P9H0605-CCV2) Prepared & Analyzed: 08/06/19

Chloride	20.3		mg/kg	20.0		102	0-200			
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Calibration Check (P9H0605-CCV3) Prepared: 08/06/19 Analyzed: 08/07/19

Chloride	20.1		mg/kg	20.0		100	0-200			
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Matrix Spike (P9H0605-MS1) Source: 9H06015-01 Prepared & Analyzed: 08/06/19

Chloride	525	1.04	mg/kg dry	521	1.45	101	80-120			
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Matrix Spike (P9H0605-MS2) Source: 9G30014-01 Prepared & Analyzed: 08/06/19

Chloride	3070	12.3	mg/kg dry	1230	1770	105	80-120			
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Matrix Spike Dup (P9H0605-MSD1) Source: 9H06015-01 Prepared & Analyzed: 08/06/19

Chloride	507	1.04	mg/kg dry	521	1.45	97.1	80-120	3.56	20	
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P.O. Box 50685	Project Number: 19-0112-02	
Midland TX, 79710	Project Manager: Mark Larson	

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P9H0605 - *** DEFAULT PREP ***

Matrix Spike Dup (P9H0605-MSD2)	Source: 9G30014-01			Prepared & Analyzed: 08/06/19						
Chloride	3090	12.3	mg/kg dry	1230	1770	106	80-120	0.473	20	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: NEDU 218 Road Boring
Project Number: 19-0112-02
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

ROI Received on Ice
BULK Samples received in Bulk soil containers
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:



Date: 8/8/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Marson & Associates, Inc.
Environmental Consultants

507 N. Marientfield, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

TRRP report?
☐ Yes ☒ No

S=SOIL
W=WATER
A=AIR
P=PAINT
SL=SLUDGE
OT=OTHER

TIME ZONE:
Time zone/State:

MST

Field
Sample I.D.

Lab #

Date

Time

Matrix

of Containers

HCl

HNO₃H₂SO₄ ☐ NaOH ☐

ICE

UNPRESERVED

ANALYSES

BTEX ☐ MTBE ☐
TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐
GASOLINE MOD 8015 ☐
DIESEL - MOD 8015 ☐
OIL - MOD 8015 ☐
VOC 8260 ☐
SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐
8081 PESTICIDES ☐ 8161 HERBICIDES ☐
TBLP - METALS (RCRA) ☐ TCLP VOC ☐
TCLP - PEST ☐ HERB ☐ Semi-VOC ☐
TOTAL METALS (RCRA) ☐ OTHER LIST ☐
LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐
RC1 ☐ TOX ☐ FLASHPOINT ☐
TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐
PH ☐ HEXAVALENT CHROMIUM ☐
EXPLOSIVES ☐ PECTHLORETE ☐
CHLORIDES ☐ ANIONS ☐ ALKALINITY ☐
300

FIELD NOTES

DATE: 7/31/2019
PO#:
PROJECT LOCATION OR NAME: NEDY 218 Road Boring
LA PROJECT #: 19-0112-02
COLLECTOR: RO/EN

PAGE 1 OF 1

Page 12 of 12

No 0714

CHAIN-OF-CUSTODY

TOTAL

5

RECEIVED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

LABORATORY: p84

TURN AROUND TIME

NORMAL ☒1 DAY ☐2 DAY ☐OTHER ☐

LABORATORY USE ONLY: 11.4

RECEIVING TEMP: 6.4 THERM: 0.4

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

CARRIER BILL #

HAND DELIVERED



303 Veterans Airpark Lane Midland, TX 79705

Variance Request

Apache Corporation would like to request a variance to leave the contamination in the top four feet that are above reclamation standards of 600 chlorides at North Wall # 2, South Excavation North Wall @ 3' above liner, and South Excavation North Wall West @ 3' above liner. The North Wall # 2 was not further due to the close proximity to the paved highway and Apache was concerned about public safety. The two South Excavation North Wall samples above the liner were not excavated due to close proximity to the pipeline and could not safely utilize a hydro-vac. Those two points will be remediated in 2021 in association with Event # 2005558733.

Submitted by;

Bruce Baker

Environmental Technician

larry.baker@apachecorp.com

Cell# 432-631-6982



Photo of Excavation



Photo of Excavation



Photo of Sowing New Liner to Existing Liner



Photo of Sowing New Liner to Existing Liner



Photo of Backfilling



Photo of Installing 10" Casing for BH 1



Photo of 10" Casing Complete With Liner



Photo of Liner for South Excavation

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 10873

CONDITIONS OF APPROVAL

Operator: #1000	APACHE CORPORATION Midland, TX79705	303 Veterans Airpark Ln	OGRID: 873	Action Number: 10873	Action Type: C-141
OCD Reviewer ceads	Condition None				