



303 Veterans Airpark Lane Midland, TX 79705

## **Remediation Plan**

September 4, 2020

Re: NEDU Injection Line  
Case # NRM2017547777

### **Background:**

On 6/4/2020 a release was discovered due to a 45 connection on injection line developed a hole resulting in the loss of produced water. The release (GPS: 32.49876, -103.15274) is located north of Eunice, New Mexico in unit letter C section 10 township 21S range 37E. The release area is in an area with the potential of a raised aquifer. On 8/18/2020 a soil bore was conducted up gradient of the release to determine the depth of ground water below the release. The bore hole was advanced to a depth of 70 feet and the bore hole was left open for 72 hours and water was gauged at a depth of 60.1 feet.

On 6/5/2020 a vertical was conducted utilizing a backhoe at SP 1 with samples being collected in regular intervals. All samples collected were field titrated for chlorides and representative samples were submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. On 6/11/2020 a vertical was conducted utilizing a backhoe at SP 2 with samples being collected in regular intervals. All samples collected were field titrated for chlorides and representative samples were submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. On 9/3/2020 5 point horizontal composite samples were collected and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. All laboratory results were below table one standards for release greater than 50 feet to ground water.

### **Remediation Plan:**

Apache Corporation proposes that the release be excavated to a depth of 5 feet. After the excavation is complete final 5 point wall composite samples will be collected not exceeding 200 square feet and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. Once wall laboratory analysis are below reclamation standards in rule 19.15.29 a 20 mil reinforced liner will be installed at the bottom of the excavation.

All excavated soil (325 yards) will be disposed of at an OCD approved disposal facility. The excavation will be backfilled with clean imported soil and contoured to the surrounding area. The disturbed area will be reseeded to surface landowner guidelines. The remediation will be completed within 90 days of OCD approval of the plan.

Enclosed: C-141, Groundwater Data, Maps, Sample Data, Laboratory Results, and Field Notes.

Submitted by;

*Bruce Baker*

**Environmental Technician**

[larry.baker@apachecorp.com](mailto:larry.baker@apachecorp.com)

**Cell# 432-631-6982**

**Off# 432-818-1000**

Incident ID	NRM2017547777
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>60.1</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 <b>not</b> 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	NRM2017547777
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: 9/4/2020  
email: larry.baker@apachecorp.com Telephone: 432-631-6982

**OCD Only**

Received by: Cristina Eads Date: 09/04/2020

Incident ID	NRM2017547777
District RP	
Facility ID	
Application ID	

## Remediation Plan

**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: 9/4/2020  
email: larry.baker@apachecorp.com Telephone: 432-631-6982

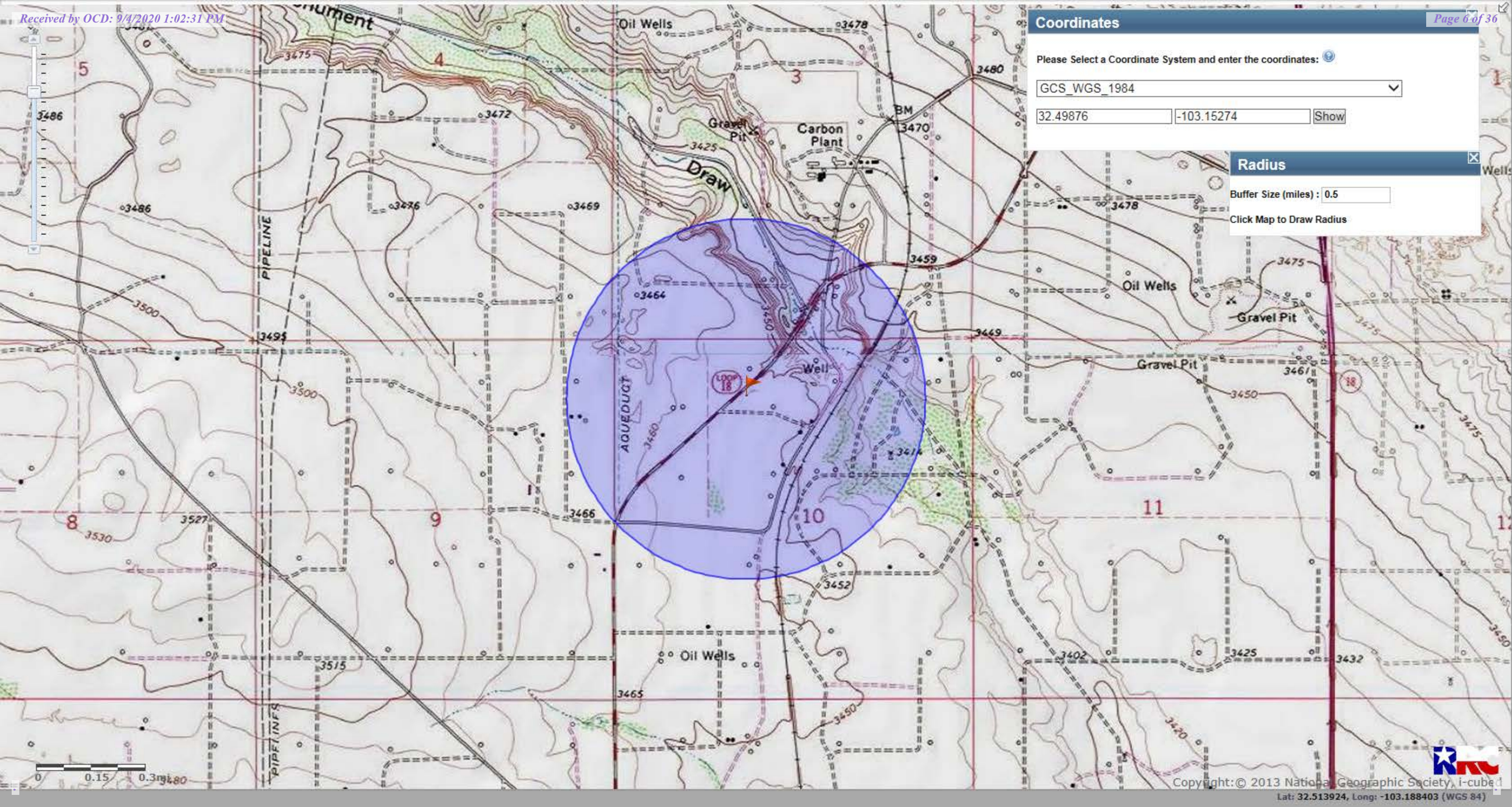
**OCD Only**

Received by: Cristina Eads Date: 09/04/2020

☒ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: Cristina Eads Date: 10/29/2020





Coordinates

Please Select a Coordinate System and enter the coordinates:

GCS\_WGS\_1984

32.49876 -103.15274 Show

Radius

Buffer Size (miles) : 0.5

Click Map to Draw Radius

0 0.15 0.3mi



## BORING RECORD

GEOLOGIC UNIT	DEPTH	Start: 13:55 Finish: 16:30 DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING										SAMPLE			REMARKS		
					PPM X _____										NUMBER	PID READING	RECOVERY	DEPTH	BACKGROUND PID READING	
					2	4	6	8	10	12	14	16	18							
08/21/20 Water Level 60.1'	0	Fine Sand, 2.5 Yr 4/8, Red, Subrounded, Well Sorted	SW																1	
	5																	5		
	10																	10		
	15	Caliche, 7.5 Yr 8/3, Pink to White	Caliche															15		
	20																20			
	25																25			
	30																30			
	35	Fine Sand, 7.5 Yr 6/4, Light Brown, Subrounded, Well Sorted	SW															35		
	40																40			
	45																45			
	50	Fine Sand, 7.5 Yr 6/6, Reddish Yellow, Subrounded, Well Sorted	SW															50		
	55																55			
	60																60			
	65	Fine to Medium Sand, 2.5 Yr 5/8, Red, Well Rounded	SW															65		
70																70				
75																75				
		Fine to Medium Sand, 2.5 Yr 5/8, Red, Well Rounded, Small Clast, 0-7 mm	SW																	
		Total Depth: 70'																		



ONE CONTINUOUS AUGER SAMPLER



WATER TABLE (TIME OF BORING)



STANDARD PENETRATION TEST



LABORATORY TEST LOCATION



UNDISTURBED SAMPLE



PENETROMETER (TONS/ SQ. FT.)



WATER TABLE (24 HRS)



NR NO RECOVERY

JOB NUMBER : Apache/20-0101-03

HOLE DIAMETER : 4"

LOCATION : NEDU Injection Line

LAI GEOLOGIST: St. Germain

DRILLING CONTRACTOR : SDC

DRILLING METHOD : Air Rotary





HC3

SP2

HC4

HC2

SP1

HC1

BH1

32.49932 -103.15306

© 2020 Google

Google earth



Sample Date	Sample ID	Depth		Chloride	Benzene	Toulene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	GPS Coordinates
6/5/2020	SP1	S	3236	1760	<0.050	0.063	0.085	0.205	0.354	<10.0	218	<10.0	32.49875 -103.15270
		1'	2717										
		2'	3284	880	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	49.5	<10.0	
		3'	2376										
		4'	2099	528	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
		5'	3210										
		6'	3258	3280	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
		7'	2909										
		8'	3928	5360	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
		9'	3945										
		10'	2830										
		11'	1589										
		12'	2549										
		13'	2650										
		14'	739	2320	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
		14' 6"	484	288	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
6/11/2020	SP2	S	2811	5680	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.49884 -103.15278
		1'	3284										
		2'	1881										
		3'	3023										
		4'	2586										
		5'	1188										
		6'	817	3680	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
		7'	389	320	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
9/3/2020	HC1	S	120	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.498724, -103.152690
	HC2	S	150	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.498799, -103.152807
	HC3	S	120	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.498850, -103.152816
	HC4	S	150	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.498827, -103.152713



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

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June 11, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU INJECTION LINE

Enclosed are the results of analyses for samples received by the laboratory on 06/05/20 16:27.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is fluid and cursive, with the first name "Celey" and last name "Keene" clearly distinguishable.

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:	06/05/2020	Sampling Date:	06/05/2020
Reported:	06/11/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ SURFACE (H001533-01)**

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	06/08/2020	ND	1.70	84.8	2.00	12.8	
<b>Toluene*</b>	<b>0.063</b>	0.050	06/08/2020	ND	1.72	86.2	2.00	12.7	
<b>Ethylbenzene*</b>	<b>0.085</b>	0.050	06/08/2020	ND	1.75	87.4	2.00	12.8	
<b>Total Xylenes*</b>	<b>0.205</b>	0.150	06/08/2020	ND	5.08	84.7	6.00	12.6	
<b>Total BTX</b>	<b>0.354</b>	0.300	06/08/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.2 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>1760</b>	16.0	06/08/2020	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	06/08/2020	ND	187	93.7	200	7.84	
<b>DRO &gt;C10-C28*</b>	<b>218</b>	10.0	06/08/2020	ND	188	93.9	200	4.40	
EXT DRO >C28-C36	<10.0	10.0	06/08/2020	ND					

Surrogate: 1-Chlorooctane 111 % 44.3-144

Surrogate: 1-Chlorooctadecane 133 % 42.2-156

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:	06/05/2020	Sampling Date:	06/05/2020
Reported:	06/11/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ 2' (H001533-02)**

BTX 8021B		mg/kg		Analyzed By: ms				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/08/2020	ND	1.86	92.8	2.00	10.9	
Toluene*	<0.050	0.050	06/08/2020	ND	1.99	99.7	2.00	12.9	
Ethylbenzene*	<0.050	0.050	06/08/2020	ND	1.87	93.4	2.00	14.1	
Total Xylenes*	<0.150	0.150	06/08/2020	ND	5.87	97.9	6.00	13.6	
Total BTX	<0.300	0.300	06/08/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 130 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	880	16.0	06/08/2020	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	06/08/2020	ND	187	93.7	200	7.84	
DRO >C10-C28*	49.5	10.0	06/08/2020	ND	188	93.9	200	4.40	
EXT DRO >C28-C36	<10.0	10.0	06/08/2020	ND					

Surrogate: 1-Chlorooctane 114 % 44.3-144

Surrogate: 1-Chlorooctadecane 131 % 42.2-156

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:	06/05/2020	Sampling Date:	06/05/2020
Reported:	06/11/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ 4' (H001533-03)**

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	06/10/2020	ND	1.88	93.8	2.00	7.44		
Toluene*	<0.050	0.050	06/10/2020	ND	1.78	89.1	2.00	6.05		
Ethylbenzene*	<0.050	0.050	06/10/2020	ND	1.77	88.4	2.00	5.90		
Total Xylenes*	<0.150	0.150	06/10/2020	ND	5.10	85.0	6.00	5.47		
Total BTX	<0.300	0.300	06/10/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 79.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	06/08/2020	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	06/08/2020	ND	187	93.7	200	7.84	
DRO >C10-C28*	<10.0	10.0	06/08/2020	ND	188	93.9	200	4.40	
EXT DRO >C28-C36	<10.0	10.0	06/08/2020	ND					

Surrogate: 1-Chlorooctane 106 % 44.3-144

Surrogate: 1-Chlorooctadecane 122 % 42.2-156

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:	06/05/2020	Sampling Date:	06/05/2020
Reported:	06/11/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ 6' (H001533-04)**

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	06/10/2020	ND	1.88	93.8	2.00	7.44		
Toluene*	<0.050	0.050	06/10/2020	ND	1.78	89.1	2.00	6.05		
Ethylbenzene*	<0.050	0.050	06/10/2020	ND	1.77	88.4	2.00	5.90		
Total Xylenes*	<0.150	0.150	06/10/2020	ND	5.10	85.0	6.00	5.47		
Total BTEx	<0.300	0.300	06/10/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 81.7 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3280	16.0	06/08/2020	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	06/08/2020	ND	187	93.7	200	7.84	
DRO >C10-C28*	<10.0	10.0	06/08/2020	ND	188	93.9	200	4.40	
EXT DRO >C28-C36	<10.0	10.0	06/08/2020	ND					

Surrogate: 1-Chlorooctane 109 % 44.3-144

Surrogate: 1-Chlorooctadecane 119 % 42.2-156

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager





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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.
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



**CARDINAL**  
Laboratories

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

† Cardinal cannot accept verbal changes. Please email changes to [celey.keene@cardinallabsnm.com](mailto:celey.keene@cardinallabsnm.com)



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

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June 16, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU INJECTION LINE

Enclosed are the results of analyses for samples received by the laboratory on 06/11/20 15:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager





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:	06/11/2020	Sampling Date:	06/11/2020
Reported:	06/16/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ 8' (H001569-01)**

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	06/12/2020	ND	1.84	91.8	2.00	4.63	
Toluene*	<0.050	0.050	06/12/2020	ND	1.88	94.2	2.00	4.74	
Ethylbenzene*	<0.050	0.050	06/12/2020	ND	1.95	97.3	2.00	4.55	
Total Xylenes*	<0.150	0.150	06/12/2020	ND	5.67	94.5	6.00	4.82	
Total BTX	<0.300	0.300	06/12/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.4 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5360	16.0	06/12/2020	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	06/15/2020	ND	193	96.6	200	2.03	
DRO >C10-C28*	<10.0	10.0	06/15/2020	ND	195	97.5	200	2.35	
EXT DRO >C28-C36	<10.0	10.0	06/15/2020	ND					

Surrogate: 1-Chlorooctane 106 % 44.3-144

Surrogate: 1-Chlorooctadecane 114 % 42.2-156

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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:	06/11/2020	Sampling Date:	06/11/2020
Reported:	06/16/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ 14' (H001569-02)**

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	06/12/2020	ND	1.84	91.8	2.00	4.63		
Toluene*	<0.050	0.050	06/12/2020	ND	1.88	94.2	2.00	4.74		
Ethylbenzene*	<0.050	0.050	06/12/2020	ND	1.95	97.3	2.00	4.55		
Total Xylenes*	<0.150	0.150	06/12/2020	ND	5.67	94.5	6.00	4.82		
Total BTEx	<0.300	0.300	06/12/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2320	16.0	06/12/2020	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	06/15/2020	ND	193	96.6	200	2.03	
DRO >C10-C28*	<10.0	10.0	06/15/2020	ND	195	97.5	200	2.35	
EXT DRO >C28-C36	<10.0	10.0	06/15/2020	ND					

Surrogate: 1-Chlorooctane 112 % 44.3-144

Surrogate: 1-Chlorooctadecane 120 % 42.2-156

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:	06/11/2020	Sampling Date:	06/11/2020
Reported:	06/16/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 1 @ 14' 6" (H001569-03)**

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	06/12/2020	ND	1.84	91.8	2.00	4.63	
Toluene*	<0.050	0.050	06/12/2020	ND	1.88	94.2	2.00	4.74	
Ethylbenzene*	<0.050	0.050	06/12/2020	ND	1.95	97.3	2.00	4.55	
Total Xylenes*	<0.150	0.150	06/12/2020	ND	5.67	94.5	6.00	4.82	
Total BTEx	<0.300	0.300	06/12/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	06/12/2020	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	06/15/2020	ND	193	96.6	200	2.03	
DRO >C10-C28*	<10.0	10.0	06/15/2020	ND	195	97.5	200	2.35	
EXT DRO >C28-C36	<10.0	10.0	06/15/2020	ND					

Surrogate: 1-Chlorooctane 112 % 44.3-144

Surrogate: 1-Chlorooctadecane 121 % 42.2-156

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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: 06/11/2020  
 Reported: 06/16/2020  
 Project Name: NEDU INJECTION LINE  
 Project Number: NONE GIVEN  
 Project Location: EUNICE NM

Sampling Date: 06/11/2020  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Kelly Jacobson

**Sample ID: SP 2 @ SURFACE (H001569-04)**

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	06/12/2020	ND	1.84	91.8	2.00	4.63		
Toluene*	<0.050	0.050	06/12/2020	ND	1.88	94.2	2.00	4.74		
Ethylbenzene*	<0.050	0.050	06/12/2020	ND	1.95	97.3	2.00	4.55		
Total Xylenes*	<0.150	0.150	06/12/2020	ND	5.67	94.5	6.00	4.82		
Total BTEx	<0.300	0.300	06/12/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 95.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	5680	16.0	06/12/2020	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	06/15/2020	ND	193	96.6	200	2.03	
DRO >C10-C28*	<10.0	10.0	06/15/2020	ND	195	97.5	200	2.35	
EXT DRO >C28-C36	<10.0	10.0	06/15/2020	ND					

Surrogate: 1-Chlorooctane 115 % 44.3-144

Surrogate: 1-Chlorooctadecane 123 % 42.2-156

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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: 06/11/2020  
 Reported: 06/16/2020  
 Project Name: NEDU INJECTION LINE  
 Project Number: NONE GIVEN  
 Project Location: EUNICE NM

Sampling Date: 06/11/2020  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Kelly Jacobson

**Sample ID: SP 2 @ 6' (H001569-05)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/12/2020	ND	1.84	91.8	2.00	4.63		
Toluene*	<0.050	0.050	06/12/2020	ND	1.88	94.2	2.00	4.74		
Ethylbenzene*	<0.050	0.050	06/12/2020	ND	1.95	97.3	2.00	4.55		
Total Xylenes*	<0.150	0.150	06/12/2020	ND	5.67	94.5	6.00	4.82		
Total BTEx	<0.300	0.300	06/12/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3680	16.0	06/12/2020	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	06/15/2020	ND	193	96.6	200	2.03	
DRO >C10-C28*	<10.0	10.0	06/15/2020	ND	195	97.5	200	2.35	
EXT DRO >C28-C36	<10.0	10.0	06/15/2020	ND					

Surrogate: 1-Chlorooctane 110 % 44.3-144

Surrogate: 1-Chlorooctadecane 118 % 42.2-156

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:	06/11/2020	Sampling Date:	06/11/2020
Reported:	06/16/2020	Sampling Type:	Soil
Project Name:	NEDU INJECTION LINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Kelly Jacobson
Project Location:	EUNICE NM		

**Sample ID: SP 2 @ 7' (H001569-06)**

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	06/12/2020	ND	1.84	91.8	2.00	4.63		
Toluene*	<0.050	0.050	06/12/2020	ND	1.88	94.2	2.00	4.74		
Ethylbenzene*	<0.050	0.050	06/12/2020	ND	1.95	97.3	2.00	4.55		
Total Xylenes*	<0.150	0.150	06/12/2020	ND	5.67	94.5	6.00	4.82		
Total BTEx	<0.300	0.300	06/12/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 96.4 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	06/12/2020	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	06/15/2020	ND	193	96.6	200	2.03	
DRO >C10-C28*	<10.0	10.0	06/15/2020	ND	195	97.5	200	2.35	
EXT DRO >C28-C36	<10.0	10.0	06/15/2020	ND					

Surrogate: 1-Chlorooctane 113 % 44.3-144

Surrogate: 1-Chlorooctadecane 121 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager





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### 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 "C. D. Keene".

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Celey D. Keene, Lab Director/Quality Manager

Page 9 of 9



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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

<b>Company Name:</b> Apache Corporation				<b>P.O. #:</b>				<b>BILL TO</b>				<b>ANALYSIS REQUEST</b>			
<b>Project Manager:</b> Bruce Baker				<b>Company:</b>											
<b>Address:</b>				<b>Attn:</b>											
<b>City:</b>				<b>State:</b>				<b>Zip:</b>							
<b>Phone #:</b>				<b>Fax #:</b>				<b>Address:</b>							
<b>Project #:</b>				<b>Project Owner:</b>				<b>City:</b>							
<b>Project Name:</b> NEDU INTERSECTION LINE				<b>State:</b>				<b>Zip:</b>							
<b>Project Location:</b> NEDU INTERSECTION LINE				<b>Phone #:</b>											
<b>Sampler Name:</b> Jeff Ryeum				<b>Fax #:</b>											

FOR LAB USE ONLY		(G)RAB OR (C)OMP.		# CONTAINERS	MATRIX					PRESERV.	SAMPLING															
Lab I.D.	Sample I.D.				GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME											
H001564	SP2 @ 8'			6										6/11/20	1050	✓	CL-	✓								
	SP1 @ 14'			6										6/11/20	1051	✓	BTEX	✓								
	SP1 @ 14' 6"			6											1052	✓		✓								
	SP2 @ Surface			6											1102	✓		✓								
	SP2 @ 6'			6											1158	✓		✓								
	SP2 @ 7'			6										6/11/20	1153	✓		✓								

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<b>Relinquished By:</b>		<b>Date:</b> 6/11/20		<b>Received By:</b>		<b>Date:</b> 6/11/20		<b>Time:</b> 12:15 PM		<b>Observed Temp. °C</b> 4.4°C		<b>Corrected Temp. °C</b>		<b>Turnaround Time:</b>		<b>Standard</b> <input checked="" type="checkbox"/> <b>Rush</b> <input type="checkbox"/>		<b>Bacteria (only)</b> <input checked="" type="checkbox"/> <b>Cool Intact</b> <input type="checkbox"/>		<b>Sample Condition</b> <input type="checkbox"/>	
<b>Relinquished By:</b>		<b>Date:</b> 6/11/20		<b>Received By:</b>		<b>Date:</b> 6/11/20		<b>Time:</b> 12:15 PM		<b>Observed Temp. °C</b> 4.4°C		<b>Corrected Temp. °C</b>		<b>Turnaround Time:</b>		<b>Standard</b> <input checked="" type="checkbox"/> <b>Rush</b> <input type="checkbox"/>		<b>Bacteria (only)</b> <input checked="" type="checkbox"/> <b>Cool Intact</b> <input type="checkbox"/>		<b>Sample Condition</b> <input type="checkbox"/>	

**REMARKS:**

All Results are emailed. Please provide Email address:

**Verbal Result:** ☐ Yes ☐ No **Add'l Phone #:**

**Thermometer ID #097** **Correction Factor -0.4°C** **#113**



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

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September 03, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU TRUNKLINE

Enclosed are the results of analyses for samples received by the laboratory on 09/03/20 8:36.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (\*). For a complete list of accredited analytes and matrices visit the TCEQ website at [www.tceq.texas.gov/field/qa/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive 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:	09/03/2020	Sampling Date:	09/03/2020
Reported:	09/03/2020	Sampling Type:	Soil
Project Name:	NEDU TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EUNICE NM		

**Sample ID: HC 1 (H002349-01)**

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	09/03/2020	ND	2.06	103	2.00	4.16	
Toluene*	<0.050	0.050	09/03/2020	ND	2.07	104	2.00	4.53	
Ethylbenzene*	<0.050	0.050	09/03/2020	ND	2.05	102	2.00	4.52	
Total Xylenes*	<0.150	0.150	09/03/2020	ND	5.90	98.4	6.00	4.47	
Total BTEX	<0.300	0.300	09/03/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/03/2020	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/03/2020	ND	200	99.9	200	0.170	
DRO >C10-C28*	<10.0	10.0	09/03/2020	ND	210	105	200	6.90	
EXT DRO >C28-C36	<10.0	10.0	09/03/2020	ND					

Surrogate: 1-Chlorooctane 90.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 102 % 42.2-156

Cardinal Laboratories

\*=Accredited Analyte

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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: 09/03/2020  
 Reported: 09/03/2020  
 Project Name: NEDU TRUNKLINE  
 Project Number: NONE GIVEN  
 Project Location: EUNICE NM

Sampling Date: 09/03/2020  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HC 2 (H002349-02)**

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	09/03/2020	ND	2.06	103	2.00	4.16	
Toluene*	<0.050	0.050	09/03/2020	ND	2.07	104	2.00	4.53	
Ethylbenzene*	<0.050	0.050	09/03/2020	ND	2.05	102	2.00	4.52	
Total Xylenes*	<0.150	0.150	09/03/2020	ND	5.90	98.4	6.00	4.47	
Total BTX	<0.300	0.300	09/03/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/03/2020	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/03/2020	ND	200	99.9	200	0.170	
DRO >C10-C28*	<10.0	10.0	09/03/2020	ND	210	105	200	6.90	
EXT DRO >C28-C36	<10.0	10.0	09/03/2020	ND					

Surrogate: 1-Chlorooctane 90.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 98.2 % 42.2-156

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: 09/03/2020  
 Reported: 09/03/2020  
 Project Name: NEDU TRUNKLINE  
 Project Number: NONE GIVEN  
 Project Location: EUNICE NM

Sampling Date: 09/03/2020  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HC 3 (H002349-03)**

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	09/03/2020	ND	2.06	103	2.00	4.16	
Toluene*	<0.050	0.050	09/03/2020	ND	2.07	104	2.00	4.53	
Ethylbenzene*	<0.050	0.050	09/03/2020	ND	2.05	102	2.00	4.52	
Total Xylenes*	<0.150	0.150	09/03/2020	ND	5.90	98.4	6.00	4.47	
Total BTX	<0.300	0.300	09/03/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/03/2020	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/03/2020	ND	200	99.9	200	0.170	
DRO >C10-C28*	<10.0	10.0	09/03/2020	ND	210	105	200	6.90	
EXT DRO >C28-C36	<10.0	10.0	09/03/2020	ND					

Surrogate: 1-Chlorooctane 86.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 96.0 % 42.2-156

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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: 09/03/2020  
 Reported: 09/03/2020  
 Project Name: NEDU TRUNKLINE  
 Project Number: NONE GIVEN  
 Project Location: EUNICE NM

Sampling Date: 09/03/2020  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: HC 4 (H002349-04)**

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	09/03/2020	ND	2.06	103	2.00	4.16	
Toluene*	<0.050	0.050	09/03/2020	ND	2.07	104	2.00	4.53	
Ethylbenzene*	<0.050	0.050	09/03/2020	ND	2.05	102	2.00	4.52	
Total Xylenes*	<0.150	0.150	09/03/2020	ND	5.90	98.4	6.00	4.47	
Total BTX	<0.300	0.300	09/03/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	09/03/2020	ND	400	100	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/03/2020	ND	200	99.9	200	0.170	
DRO >C10-C28*	<10.0	10.0	09/03/2020	ND	210	105	200	6.90	
EXT DRO >C28-C36	<10.0	10.0	09/03/2020	ND					

Surrogate: 1-Chlorooctane 84.7 % 44.3-144

Surrogate: 1-Chlorooctadecane 94.8 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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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

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

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Celey D. Keene, Lab Director/Quality Manager



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

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

NEOM Injection Line 6/15/20

4 Soil SP1 @ Surface - 32.49875, -103.15270

$$10.6 / 30.0 = 2.84 = 1.14 = 3,236$$

4 Soil SP1 @ 1'

$$10.0 / 30.2 = .90 = 3.02 = 2,717$$

4 Soil SP1 @ 2'

$$10.2 / 30.2 = 1.11 = 2.96 = 3,284$$

4 Soil SP1 @ 3'

$$10.6 / 30.1 = 2.83 = .84 = 2,376$$

4 Soil SP1 @ 4'

$$10.0 / 30.0 = 3 = .70 = 2,099$$

4 Soil/Caliche SP1 @ 5'

$$10.0 / 30.3 = 3.03 = 1.06 = 3,210$$

Caliche SP1 @ 6'

$$10.4 / 30.3 = 2.91 = 1.82 = 2,909 \text{ } 3,258$$

Caliche SP1 @ 7'

$$10.4 / 30.3 = 2.91 = 2,909 \quad (- \text{ on } 6/11/20 -)$$

Caliche SP1 @ 8'

$$10.0 / 30.0 = 3 = 1.31 = 3,928$$

Caliche SP1 @ 9'

$$10.1 / 30.2 = 2.99 = 1.32 = 3,945$$

Caliche SP1 @ 10'

$$10.1 / 30.1 = 2.98 = .95 = 2,830$$



Caliche SP1 @ 11'

$$10.0 / 70.0 = 3 = .53 = 1,589$$

Caliche SP1 @ 12'

$$10.0 / 30.0 = 3 = .85 = 2,549$$

Caliche SP1 @ 13'

$$10.3 / 30.2 = 2.93 = .70 = 2,050$$

Caliche SP1 @ 14'

$$10.2 / 30.2 = 2.96 = .25 = 739$$

Caliche SP1 @ 14'6"

$$10.0 / 30.3 = 3.03 = .16 = 484$$

Top Soil SP2 @ Surface - 32.49884, -103.15278

$$10.2 / 30.2 = 2.96 = .95 = 2,811$$

Top Soil SP2 @ 1'

$$10.2 / 30.0 = 2.94 = 1.11 = 3,284$$

Brown Dirt/  
Caliche

SP2 @ 2'

$$10.3 / 30.3 = 2.94 = .64 = 1,881$$

Caliche SP2 @ 3'

$$10.4 / 30.0 = 2.88 = 1.05 = 3,023$$

Caliche SP2 @ 4'

$$10.3 / 30.3 = 2.94 = .88 = 2,586$$

Caliche SP2 @ 5'

$$10.6 / 30.0 = 2.83 = .42 = 1,188$$

caliche

SP2 @ 6'

$$10.0 / 30.3 = 3.03 = .27 = 817$$

caliche

SP2 @ 7'

$$10.1 / 30.3 = 3 = .13 = 389$$



NEDU TRAJECTORY LINE 9/3/20 Horizontals

SAND

HC1 - 32.498724, -103.152690

0714

$$10.0 / 30.1 = 3.01 = .04 = 120 \checkmark$$

SAND

HC2 - 32.498759, -103.152807

0716

$$10.0 / 30.2 = 3.02 = .05 = 150 \checkmark$$

SAND

HC3 - 32.498850, -103.152816

0718

$$10.0 / 30.2 = 3.02 = .04 = 120 \checkmark$$

SAND

HC4 - 32.498827, -103.152713

0720

$$10.0 / 30.1 = 3.01 = .05 = 150 \checkmark$$