



2350 W Marland Blvd Hobbs, NM 88240

Remediation Plan

February 13, 2019

Re: NEDU Injection Truck Line

API# 30-025-37028

Case # 1RP-5285

To: Christina Hernandez

Environmental Specialist-New Mexico Oil Conservation Division Energy, Minerals and
Natural Resources Department 1625 N. French Drive Hobbs, New Mexico 88240

Background:

On 11/12/2018 a release occurred due to a buried injection line failed resulting in the loss of produced water. An initial C-141 was submitted to NMOCD and approved on 12/20/2018. The release (GPS Coordinates 32.49149 -103.14369) is located north of Eunice New Mexico in unit letter I section 10 township 21S range 37E. The release did impact a significant watercourse Monument Draw located east of the source of the release. A 2000 meter radius survey was conducted utilizing the NMOSE and USGS web site for wells in the area. The two closest wells average depth to groundwater is 28.5 feet below ground surface.

To date the release area has been contained utilizing shovels to push up dirt berms around the release. Nine verticals were installed utilizing a backhoe with samples being collected in one foot intervals to various depths. All samples collected were submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX.

Remediation Plan:

Apache Corporation proposes that during remediation activities to further delineate sample point 2 and sample point 7 to chloride values less than 600 mg/kg. The entire release area will be excavated to various depths until table one standards are met for releases that occur in areas less than 50 feet to groundwater. Once the excavation is complete Apache Corporation proposes that five point composite field samples be collected not to exceed 200 square feet. All the samples collect will be field titrated utilizing method SM 4500CLB and submit every other sample to a commercial laboratory for analysis of Chloride, TPH, and BTEX. The sidewall five point composite samples will be collected and field titrated not to exceed 200 square feet and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. NMOCD will be notified 48 hours prior to final samples being collected. All excavated material (~3,000 yards) will be hauled to an NMOCD approved facility. The site will be backfilled with clean imported top soil and contoured to the surrounding area. The site will be seeded with approval from the NMSLO.

Enclosed: Initial C-141, Groundwater Data, Maps, Sample Data, Laboratory Results, Photos,
Revegetation Plan

Submitted by;

Bruce Baker

Environmental Technician

larry.baker@apachecorp.com

Cell# 432-631-6982

Off# 575-393-7106

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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	NCH1835433141
District RP	1RP-5285
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	Apache Corporation	OGRID	873
Contact Name	Bruce Baker	Contact Telephone	432-631-6982
Contact email	larry.baker@apachecorp.com	Incident #	NCH1835433141 NEDU INJECTION TRUNK LINE @ 30-025-37028
Contact mailing address	2350 W. Marland BLVD Hobbs, NM 88240		

Location of Release Source

Latitude 32.49149 Longitude -103.14369
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	NEDU Injection Trunk Line	Site Type	Injection Line
Date Release Discovered	11/12/2018	API# (if applicable)	30-025-37028 (nearest well)

Unit Letter	Section	Township	Range	County
I	10	21S	37E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 200 barrels	Volume Recovered (bbls) 10 recovered
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release A buried injection line failed causing a release of produced water.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? The release was over 25 barrels
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Bruce Baker notified Jim Griswold and Olivia Yu via email on 11/14/2018 at 7:25 a.m.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
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: <u>Bruce Baker</u>	Title: <u>Environmental Technician SR.</u>
Signature: <u>Bruce Baker</u>	Date: <u>11/21/2018</u>
email: <u>larry.baker@apachecorp.com</u>	Telephone: <u>431-631-6982</u>
OCD Only Received by: RECEIVED By CHernandez at 9:15 am, Dec 20, 2018	

Incident ID	
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>285</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 checked="" type="checkbox"/> Yes <input 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 checked="" type="checkbox"/> Yes <input 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

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Printed Name: Bruce Baker Title: Environmental Tech SR.
Signature: Bruce Baker Date: 2-13-19
email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

Incident ID	
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: Bruce Baker Title: Environmental Tech.
 Signature: Bruce Baker Date: 2-13-19
 email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: Vanessa Fields Date: 2/14/2019

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

Signature: Vanessa Fields Date: 2/21/2019

Volume Calculation

$16,225 \times .2 = 3,245$ cubic feet $\times 7.48$ gallon per cubic foot = 24,272 gallons / 42 gallons to barrel = 577 barrels $\times .33$ soil porosity = 190 barrels + 10 barrels recovered = 200 barrels lost.



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Data Category:

Groundwater ▼

Geographic Area:

New Mexico ▼

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Agency code = usgs

site_no list =

- 322921103083001

Minimum number of levels = 1

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USGS 322921103083001 21S.37E.11.311114

Available data for this site

Groundwater: Field measurements ▼

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Lea County, New Mexico

Hydrologic Unit Code 13070007

Latitude 32°29'21", Longitude 103°08'30" NAD27

Land-surface elevation 3,431 feet above NAVD88

The depth of the well is 76 feet below land surface.

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

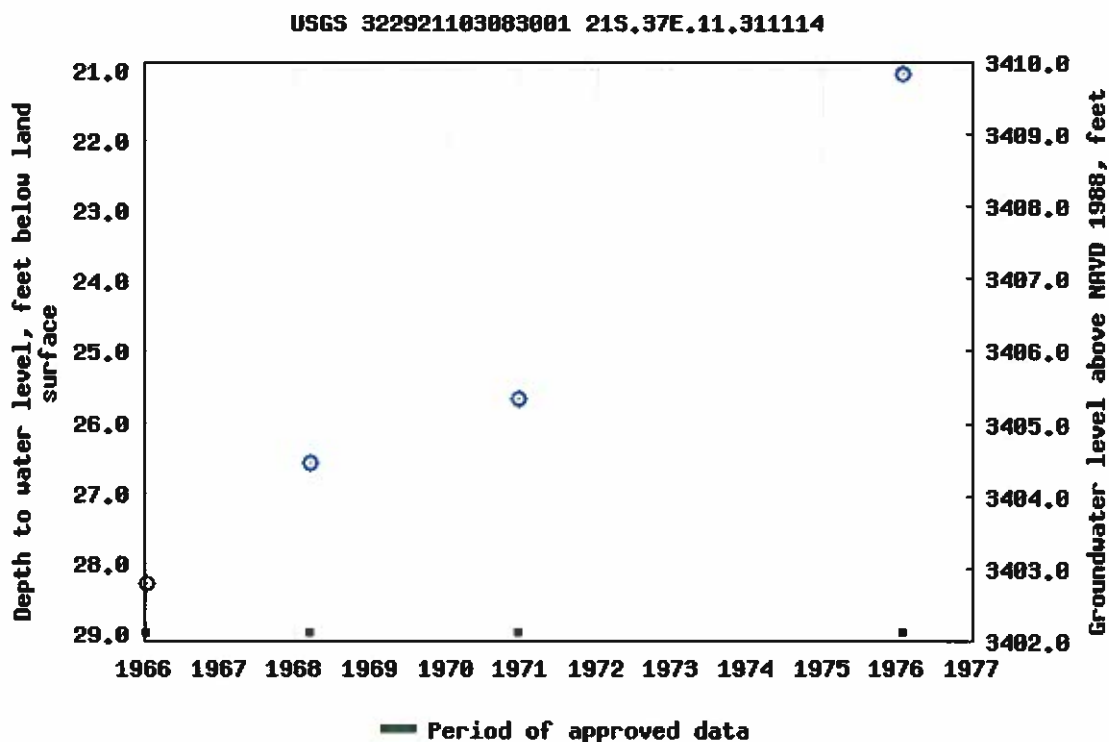
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Title: Groundwater for New Mexico: Water Levels

URL: [https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?](https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?site_no=322921103083001&agency_c...)

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0.94 0.89 nadww01





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Agency code = usgs

site_no list =

- 322932103082701

Minimum number of levels = 1

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USGS 322932103082701 21S.37E.11.311111

Available data for this site

Groundwater: Field measurements ▼

GO

Lea County, New Mexico

Hydrologic Unit Code --

Latitude 32°29'32", Longitude 103°08'27" NAD27

Land-surface elevation 3,410 feet above NAVD88

The depth of the well is 75 feet below land surface.

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

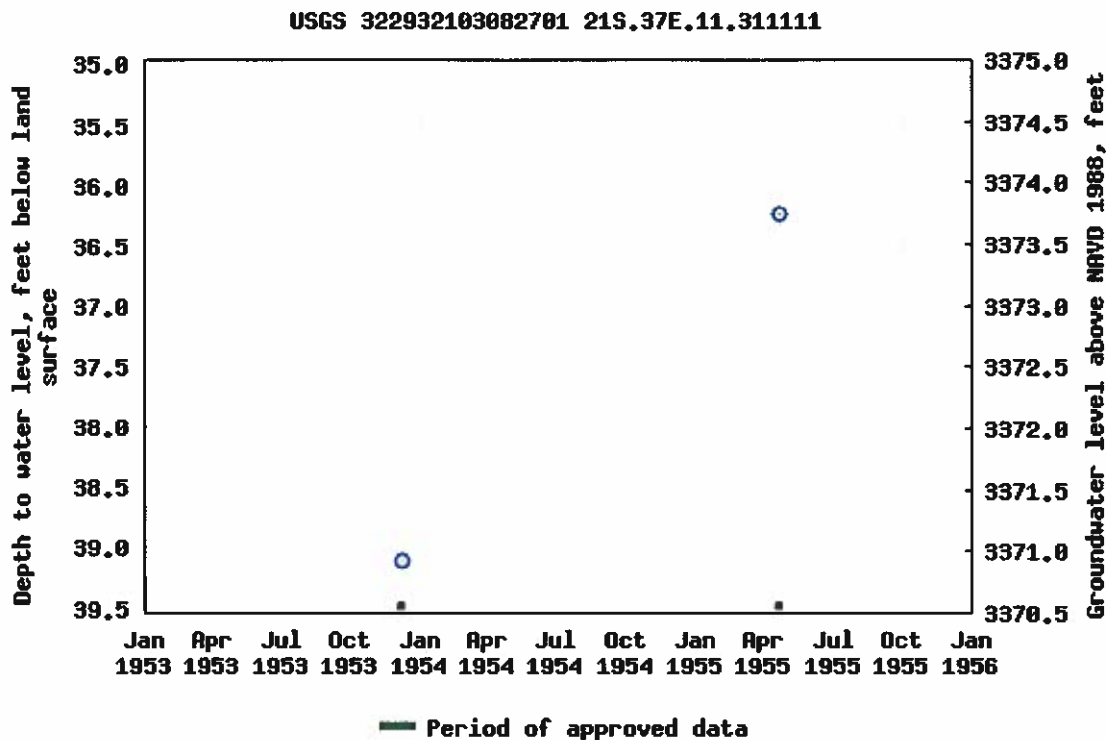
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Breaks in the plot represent a gap of at least one year between field measurements.

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Page Last Modified: 2019-02-13 13:55:27 EST

5.12 0.91 nadww01





New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

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

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

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 00286 POD1		CP	LE	2	1	2	10	21S	37E	674019	3597338*	949	70		
CP 01741 POD1		CP	LE	1	3	4	03	21S	37E	673895	3597759	1387	45		
CP 01185 POD1		CP	LE	1	3	14	21S	37E	674598	3594689	1773	70			
CP 01185 POD2		CP	LE	1	3	14	21S	37E	674623	3594674	1791	70			
CP 00554		CP	LE	2	2	16	21S	37E	672744	3595610*	1796	80	70	10	
CP 01110 POD1		CP	LE	1	3	14	21S	37E	674586	3594648	1811	70			
CP 01110 POD2		CP	LE	1	3	14	21S	37E	674586	3594648	1811	70			
CP 01110 POD3		CP	LE	1	3	14	21S	37E	674586	3594648	1811	70			
CP 01110 POD4		CP	LE	1	3	14	21S	37E	674586	3594648	1811	20			
CP 01110 POD5		CP	LE	1	3	14	21S	37E	674586	3594648	1811	20			
CP 01185 POD3		CP	LE	1	3	14	21S	37E	674592	3594620	1840	70			
CP 01185 POD4		CP	LE	1	3	14	21S	37E	674633	3594610	1856	70			
CP 01574 POD1		CP	LE	2	4	4	15	21S	37E	674559	3594598	1858	68	57	11
CP 01574 POD2		CP	LE	1	3	3	14	21S	37E	674666	3594578	1893	68	57	11

Average Depth to Water: **61 feet**

Minimum Depth: **57 feet**

Maximum Depth: **70 feet**

Record Count: 14

UTM NAD83 Radius Search (in meters):

Easting (X): 674336

Northing (Y): 3596443

Radius: 2000

*UTM location was derived from PLSS - see Help

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

2/13/19 11:29 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



Google earth

Image Date: 11/2/2017 12:29:41.307 N: 33.9084346 W: 84.2211 E: 79.56 ...

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USGS 322921103083001

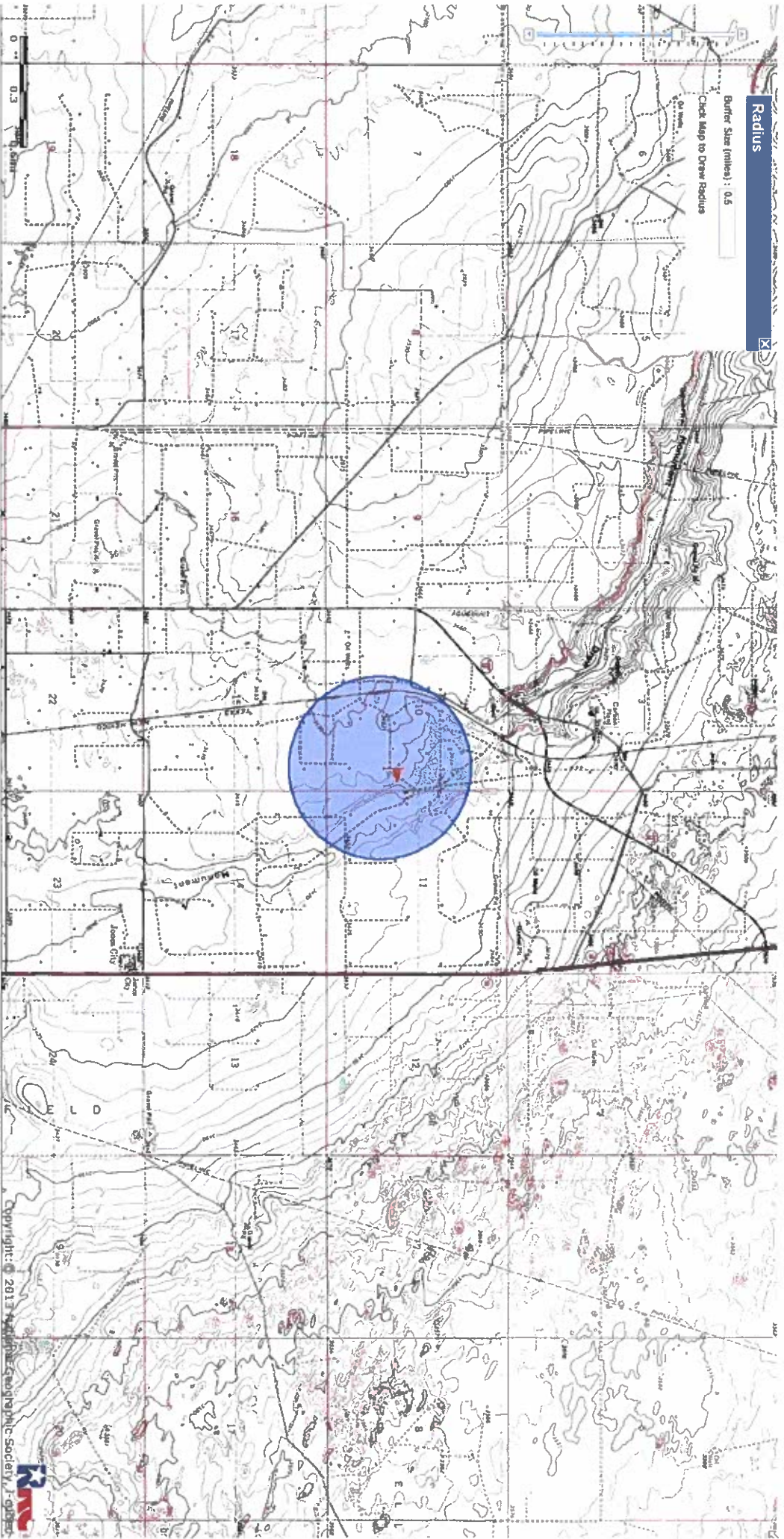
USGS 322932103082701

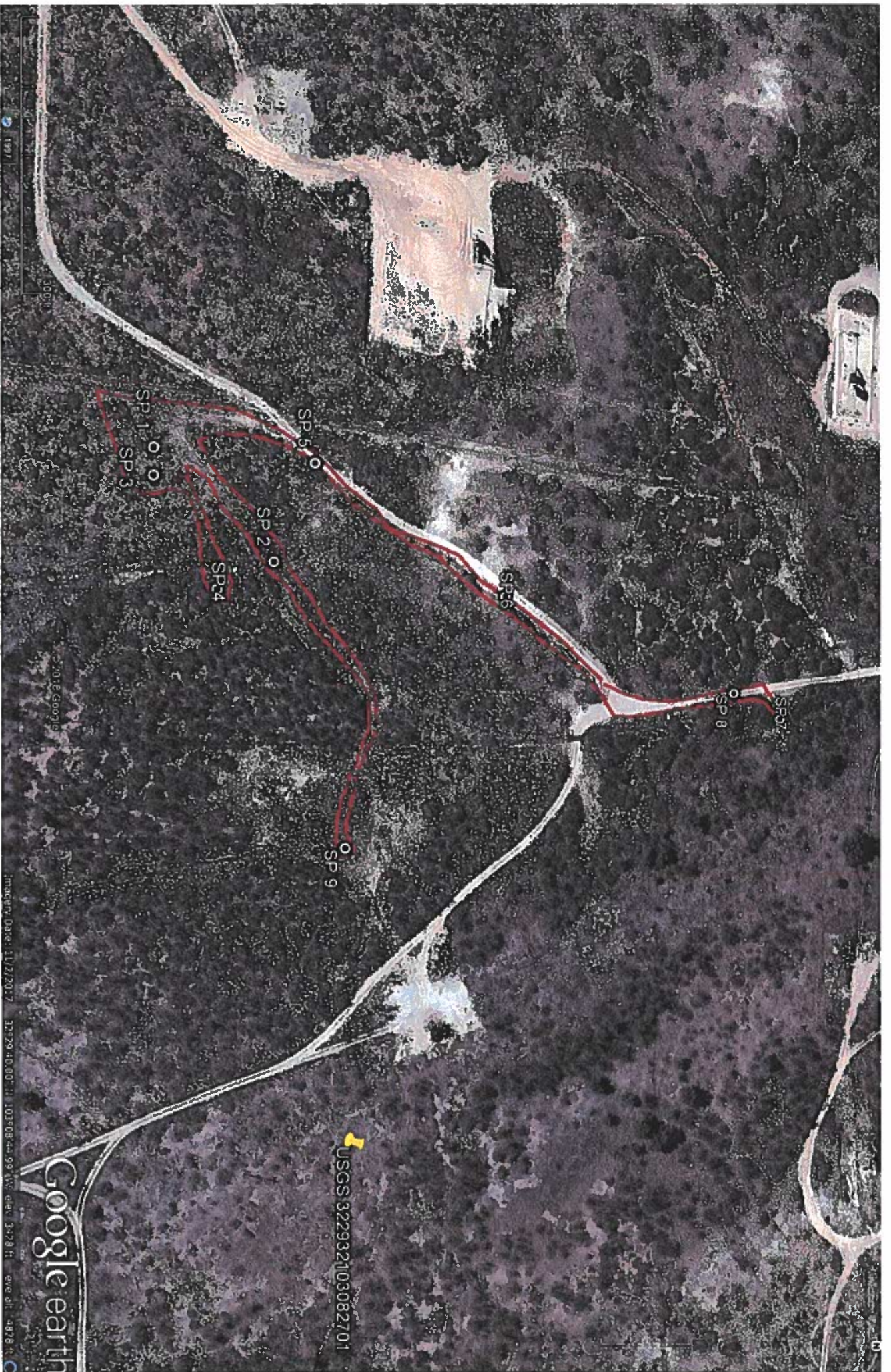
SP1 SP3 SP5 SP24 SP6 SP8 SP7 SP9

Radius

Buffer Size (miles) : 0.5

Click Map to Draw Radius





NEDU North Injection Trunkline

SP 1 32.4916 -103.1435									
Depth	Lab Cl-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO
Surface	4960	0.072	0.288	<0.050	1.77	2.13	<10.0	71.9	<10.0
1'	336	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2'	240	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
SP 2 32.4920 -103.1431									
Depth	Lab Cl-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO
Surface	6800	<0.050	0.052	0.067	0.199	0.318	<10.0	28.7	<10.0
1'	1340	<0.050	0.061	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2'	2240	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	14.1	<10.0
3'	1880	<0.050	0.092	0.064	0.188	0.344	<10.0	28.7	<10.0
4'	3000	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
SP 3 32.4916 -103.1434									
Depth	Lab Cl-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO
Surface	6320	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
1'	3040	0.198	0.13	<0.050	<0.150	0.328	<10.0	<10.0	<10.0
2'	432	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
SP 4 32.4918 -103.1430									
Depth	Lab Cl-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO
Surface	64	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
1'	16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2'	16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3'	16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
SP 5 32.4921 -103.1435									
Depth	Lab Cl-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO
Surface	1040	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	613	203
1'	304	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
SP 6 32.4928 -103.1430									
Depth	Lab Cl-	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO

Surface	3200	<0.050	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	48.5	<10.0
1'	3600	<0.050	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
2'	2000	<0.050	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
3'	1280	<0.050	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
4'	384	<0.050	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0
SP 7 32.4940 -103.1424										
Depth	Lab Cl-	Benzene	Toluene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	
Surface	1780	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
SP 8 32.4937 -103.1425										
Depth	Lab Cl-	Benzene	Toluene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	
Surface	2400	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	48.5	<10.0	
1'	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
2'	32	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
SP 9 32.4922 -103.1420										
Depth	Lab Cl-	Benzene	Toluene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	
Surface	1520	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
1'	1840	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
2'	2000	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
3'	3120	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	
4'	416	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	

November 26, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU INJECTION TRUNKLINE

Enclosed are the results of analyses for samples received by the laboratory on 11/19/18 16:05.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #1 SURFACE (H803383-01)

BTEX 8021B		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.072	0.050	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	0.288	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	1.77	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	2.13	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 119 % 73.3-129

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4960	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04	
DRO >C10-C28*	71.9	10.0	11/21/2018	ND	192	95.9	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

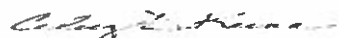
Surrogate: 1-Chlorooctane 89.2 % 41-142

Surrogate: 1-Chlorooctadecane 95.2 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #1 1' (H803383-02)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 94.3 % 73.3-129

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	336	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	192	95.9	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 89.1 % 41-142

Surrogate: 1-Chlorooctadecane 94.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #1 2' (H803383-03)

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	11/22/2018	ND	2.20	110	2.00	2.51		
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05		
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51		
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35		
Total BTEX	<0.300	0.300	11/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 97.0 % 73.3-129

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
Chloride	240	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04		
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	192	95.9	200	4.07		
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND						

Surrogate: 1-Chlorooctane 90.5 % 41-142

Surrogate: 1-Chlorooctadecane 96.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #2 SURFACE (H803383-04)

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	11/22/2018	ND	2.20	110	2.00	2.51		
Toluene*	0.052	0.050	11/22/2018	ND	2.19	110	2.00	3.05		
Ethylbenzene*	0.067	0.050	11/22/2018	ND	2.11	106	2.00	3.51		
Total Xylenes*	0.199	0.150	11/22/2018	ND	6.29	105	6.00	3.35		
Total BTEX	0.318	0.300	11/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 97.5 % 73.3-129

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	6800	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04	
DRO >C10-C28*	28.7	10.0	11/21/2018	ND	192	95.9	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 89.6 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/19/2018	Sampling Date:	11/19/2018
Reported:	11/26/2018	Sampling Type:	Soil
Project Name:	NEDU INJECTION TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EUNICE NM		

Sample ID: VERTICAL #2 1' (H803383-05)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	0.061	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 96.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1340	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	192	95.9	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 92.2 % 41-142

Surrogate: 1-Chlorooctadecane 99.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 11/19/2018
 Reported: 11/26/2018
 Project Name: NEDU INJECTION TRUNKLINE
 Project Number: NONE GIVEN
 Project Location: EUNICE NM

 Sampling Date: 11/19/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: VERTICAL #2 2' (H803383-06)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 95.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2240	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04	
DRO >C10-C28*	14.1	10.0	11/21/2018	ND	192	95.9	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 84.7 % 41-142

Surrogate: 1-Chlorooctadecane 92.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #2 3' (H803383-07)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	0.092	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	0.064	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	0.188	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	0.344	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 97.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg	Analyzed By: HM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1880	16.0	11/21/2018	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	11/21/2018	ND	193	96.6	200	3.04	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	192	95.9	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 82.6 % 41-142

Surrogate: 1-Chlorooctadecane 88.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/19/2018	Sampling Date:	11/19/2018
Reported:	11/26/2018	Sampling Type:	Soil
Project Name:	NEDU INJECTION TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EUNICE NM		

Sample ID: VERTICAL #2 4' (H803383-08)

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	11/22/2018	ND	2.20	110	2.00	2.51		
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05		
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51		
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35		
Total BTEX	<0.300	0.300	11/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 99.6 % 73.3-129

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3000	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29		
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672		
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND						

Surrogate: 1-Chlorooctane 81.1 % 41-142

Surrogate: 1-Chlorooctadecane 79.7 % 37.6-147

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #3 SURFACE (H803383-09)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 97.7 % 73.3-129

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	6320	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 85.5 % 41-142

Surrogate: 1-Chlorooctadecane 83.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/19/2018	Sampling Date:	11/19/2018
Reported:	11/26/2018	Sampling Type:	Soil
Project Name:	NEDU INJECTION TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EUNICE NM		

Sample ID: VERTICAL #3 1' (H803383-10)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.198	0.050	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	0.130	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	0.328	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 96.6 % 73.3-129

Chloride, SM4500Cl-8		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3040	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

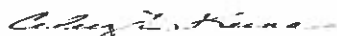
Surrogate: 1-Chlorooctane 89.8 % 41-142

Surrogate: 1-Chlorooctadecane 88.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/19/2018	Sampling Date:	11/19/2018
Reported:	11/26/2018	Sampling Type:	Soil
Project Name:	NEDU INJECTION TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EUNICE NM		

Sample ID: VERTICAL #3 2' (H803383-11)

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	11/22/2018	ND	2.20	110	2.00	2.51		
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05		
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51		
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35		
Total BTEX	<0.300	0.300	11/22/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 98.3 % 73.3-129

Chloride, SM4500Cl-B			mg/kg							Analyzed By: HM
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	432	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29		
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672		
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND						

Surrogate: 1-Chlorooctane 82.5 % 41-142

Surrogate: 1-Chlorooctadecane 81.9 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #4 SURFACE (H803383-12)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 97.6 % 73.3-129

Chloride, SM4500Cl-B			mg/kg		Analyzed By: HM				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

Surrogate: 1-Chlorooctane 81.6 % 41-142

Surrogate: 1-Chlorooctadecane 83.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #4 1' (H803383-13)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 94.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

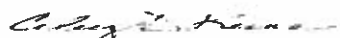
Surrogate: 1-Chlorooctane 84.1 % 41-142

Surrogate: 1-Chlorooctadecane 85.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/19/2018	Sampling Date:	11/19/2018
Reported:	11/26/2018	Sampling Type:	Soil
Project Name:	NEDU INJECTION TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	EUNICE NM		

Sample ID: VERTICAL #4 2' (H803383-14)

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	11/22/2018	ND	2.20	110	2.00	2.51	
Toluene*	<0.050	0.050	11/22/2018	ND	2.19	110	2.00	3.05	
Ethylbenzene*	<0.050	0.050	11/22/2018	ND	2.11	106	2.00	3.51	
Total Xylenes*	<0.150	0.150	11/22/2018	ND	6.29	105	6.00	3.35	
Total BTEX	<0.300	0.300	11/22/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 99.4 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					


Surrogate: 1-Chlorooctane 80.8 % 41-142

Surrogate: 1-Chlorooctadecane 81.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/19/2018
Reported: 11/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/19/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Jodi Henson

Sample ID: VERTICAL #4 3' (H803383-15)

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	11/24/2018	ND	2.15	108	2.00	2.25	
Toluene*	<0.050	0.050	11/24/2018	ND	2.07	103	2.00	0.874	
Ethylbenzene*	<0.050	0.050	11/24/2018	ND	2.01	100	2.00	1.42	
Total Xylenes*	<0.150	0.150	11/24/2018	ND	5.90	98.4	6.00	1.89	
Total BTEX	<0.300	0.300	11/24/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 97.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: HM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	11/21/2018	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	11/21/2018	ND	187	93.5	200	3.29	
DRO >C10-C28*	<10.0	10.0	11/21/2018	ND	204	102	200	0.672	
EXT DRO >C28-C36	<10.0	10.0	11/21/2018	ND					

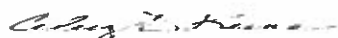
Surrogate: 1-Chlorooctane 83.1 % 41-142

Surrogate: 1-Chlorooctadecane 85.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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.
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

Company Name: <u>Apache</u>		P.O. #:		BILL TO		ANALYSIS REQUEST	
Project Manager: <u>Bruce Baker</u>		Company:					
Address: <u>Apache</u>		Attn:					
City: <u>Hobbs</u> State: <u>NM</u> Zip: <u>88240</u>		Address:					
Phone #: <u>432-631-6982</u> Fax #:		City:					
Project #:		State:		Zip:			
Project Name: <u>Nadu Injection Fracture</u>		Phone #:					
Sample Name: <u>Juan Bernal</u>		Fax #:					
FOR LAB USE ONLY		MATRIX		PRESERV		SAMPLING	
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL
				SLUDGE	OTHER:	ACID/BASE	ICE / COOL
				OTHER:			
				DATE	TIME		
H803383	Vertical #1 Surface	G 1	1	11-19-18	1:15 pm	✓	✓
1	Vertical #1 1 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
2	Vertical #1 2 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
3	Vertical #1 3 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
4	Vertical #1 Surface	G 1	1	11-19-18	1:15 pm	✓	✓
5	Vertical #2 1 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
6	Vertical #2 2 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
7	Vertical #2 3 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
8	Vertical #2 4 Foot	G 1	1	11-19-18	1:15 pm	✓	✓
9	Vertical #3 Surface	G 1	1	11-19-18	2:05 pm	✓	✓
10	Vertical #3 1 Foot	G 1	1	11-19-18	2:10 pm	✓	✓

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Relinquished By: Reedell Hovner Date: 11/19/18 Received By: Reedell Hovner Date: 11/19/18

Relinquished By: Reedell Hovner Date: 11/19/18 Received By: Reedell Hovner Date: 11/19/18

Delivered By: (Circle One) UPS 3:04 PM Sample Condition: Intact Checked By:

Sampler - UPS - Bus - Other: 3:04 PM Yes No Yes No

REMARKS:

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

Fax Result: ☐ Yes ☐ No Add'l Fax #:

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

+ Cardinal cannot account verbal rhymed Please for written rhymed in 15751 202.2226



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

November 29, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU INJECTION TRUNKLINE

Enclosed are the results of analyses for samples received by the laboratory on 11/20/18 14:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #5 SURFACE (H803402-01)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 96.0 % 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	1040	16.0	11/28/2018	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	11/26/2018	ND	208	104	200	0.163	
DRO >C10-C28*	613	10.0	11/26/2018	ND	234	117	200	0.618	
EXT DRO >C28-C36	203	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane 73.2 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #5 1' (H803402-02)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 95.8 % 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	304	16.0	11/28/2018	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	11/26/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/26/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

Surrogate: 1-Chlorooctane 82.9 % 41-142

Surrogate: 1-Chlorooctadecane 90.6 % 37.6-147

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***=Accredited Analyte**

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #6 SURFACE (H803402-03)

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	11/27/2018	ND	2.07	104	2.00	6.57		
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45		
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48		
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61		
Total BTX	<0.300	0.300	11/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 98.3 % 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	3200	16.0	11/28/2018	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	11/26/2018	ND	200	100	200	13.2	
DRO >C10-C28*	48.5	10.0	11/26/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/26/2018	ND					

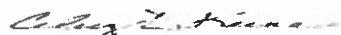
Surrogate: 1-Chlorooctane 81.3 % 41-142

Surrogate: 1-Chlorooctadecane 88.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received:	11/20/2018	Sampling Date:	11/20/2018
Reported:	11/29/2018	Sampling Type:	Soil
Project Name:	NEDU INJECTION TRUNKLINE	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	EUNICE NM		

Sample ID: VERTICAL #6 1' (H803402-04)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 96.5 % 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	3600	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 79.3 % 41-142

Surrogate: 1-Chlorooctadecane 85.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #6 2' (H803402-05)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 98.2 % 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	2000	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 81.2 % 41-142

Surrogate: 1-Chlorooctadecane 89.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #6 3' (H803402-06)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 99.5 % 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	1280	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 79.4 % 41-142

Surrogate: 1-Chlorooctadecane 86.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #6 4' (H803402-07)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 97.3 % 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	384	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 81.1 % 41-142

Surrogate: 1-Chlorooctadecane 88.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #7 SURFACE (H803402-08)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 99.8 % 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	1780	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 75.8 % 41-142

Surrogate: 1-Chlorooctadecane 82.5 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #8 SURFACE (H803402-09)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 95.5 % 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	2400	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 78.4 % 41-142

Surrogate: 1-Chlorooctadecane 85.2 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #8 1' (H803402-10)

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	11/27/2018	ND	2.07	104	2.00	6.57		
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45		
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48		
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61		
Total BTEX	<0.300	0.300	11/27/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 96.1 % 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	80.0	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2		
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5		
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND						

Surrogate: 1-Chlorooctane 77.8 % 41-142

Surrogate: 1-Chlorooctadecane 84.3 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/20/2018
Reported: 11/29/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 11/20/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #8 2' (H803402-11)

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	11/27/2018	ND	2.07	104	2.00	6.57	
Toluene*	<0.050	0.050	11/27/2018	ND	2.04	102	2.00	6.45	
Ethylbenzene*	<0.050	0.050	11/27/2018	ND	1.97	98.4	2.00	5.48	
Total Xylenes*	<0.150	0.150	11/27/2018	ND	5.79	96.5	6.00	5.61	
Total BTEX	<0.300	0.300	11/27/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 100 % 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	32.0	16.0	11/28/2018	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	11/27/2018	ND	200	100	200	13.2	
DRO >C10-C28*	<10.0	10.0	11/27/2018	ND	221	111	200	10.5	
EXT DRO >C28-C36	<10.0	10.0	11/27/2018	ND					

Surrogate: 1-Chlorooctane 82.8 % 41-142

Surrogate: 1-Chlorooctadecane 88.7 % 37.6-147

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

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***=Accredited Analyte**

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Celey D. Keene, Lab Director/Quality Manager

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

+ Cardinal cannot accept verbal changes



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: <u>Hyache</u>				BILL TO				ANALYSIS REQUEST			
Project Manager: <u>Bruce Baker</u>				P.O. #:							
Address:				Company:							
City: <u>Hobbs</u>				Attn:							
State: <u>N.M.</u>				Address:							
Phone #: <u>532-631-6982</u>				City:							
Fax #:				State:							
Project #: <u>18N1150375</u>				Project Owner:							
Project Name: <u>NEDU injection pump line</u>				State:							
Project Location:				Zip:							
Sample Name: <u>Tuan Bernal</u>				Phone #:							
FOR LAB USE ONLY				Fax #:							
Lab I.D. Sample I.D.		(G)RAB OR (C)OMP		MATRIX		PRESERV		SAMPLING			
		# CONTAINERS									
Lab I.D. Sample I.D.		<input checked="" type="checkbox"/> GROUNDWATER		<input checked="" type="checkbox"/> WASTEWATER		<input checked="" type="checkbox"/> SOIL		<input checked="" type="checkbox"/> SLUDGE		<input checked="" type="checkbox"/> OTHER:	
		<input checked="" type="checkbox"/> ACID/BASE:		<input checked="" type="checkbox"/> ICE / COOL		<input checked="" type="checkbox"/> OTHER:					
		DATE		TIME							
		DATE		TIME							
		DATE		TIME							
		DATE		TIME							
Relinquished By:		Date:		Received By:		Date:		Time:		REMARKS:	
<u>Donald Houston</u>		<u>11-20-18</u>		<u>Quiana Edwards</u>		<u>11-20-18</u>		<u>12:40 PM</u>		<u>CL</u> <u>EXT. TPH</u> <u>BTX</u>	
Delivered By: (Circle One)		Sample Condition		CHECKED BY:		Phone Result:		Add'l Phone #:			
Sampler - UPS - Bus - Other:		<input type="checkbox"/> Cool <input type="checkbox"/> Intact		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No			
<u>3.0c #497</u>				<u>40-</u>							



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

November 30, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU INJECTION TRUNKLINE

Enclosed are the results of analyses for samples received by the laboratory on 11/26/18 13:35.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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

Analytical Results For:

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

Received: 11/26/2018
Reported: 11/30/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: 18NV150375
Project Location: EUNICE NM

Sampling Date: 11/26/2018
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #9 SURFACE (H803439-01)

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	11/29/2018	ND	1.92	95.9	2.00	5.23		
Toluene*	<0.050	0.050	11/29/2018	ND	1.90	95.0	2.00	6.49		
Ethylbenzene*	<0.050	0.050	11/29/2018	ND	1.86	92.8	2.00	5.42		
Total Xylenes*	<0.150	0.150	11/29/2018	ND	5.58	92.9	6.00	4.89		
Total BTEX	<0.300	0.300	11/29/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 94.6 % 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	1520	16.0	11/29/2018	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	11/29/2018	ND	206	103	200	7.28	
DRO >C10-C28*	<10.0	10.0	11/29/2018	ND	215	107	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	11/29/2018	ND					

Surrogate: 1-Chlorooctane 84.3 % 41-142

Surrogate: 1-Chlorooctadecane 97.4 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 11/26/2018
Reported: 11/30/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: 18NV150375
Project Location: EUNICE NM

Sampling Date: 11/26/2018
Sampling Type: Soil
Sampling Condition: ** (See Notes)
Sample Received By: Tamara Oldaker

Sample ID: VERTICAL #9 1' (H803439-02)

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	11/29/2018	ND	1.92	95.9	2.00	5.23		
Toluene*	<0.050	0.050	11/29/2018	ND	1.90	95.0	2.00	6.49		
Ethylbenzene*	<0.050	0.050	11/29/2018	ND	1.86	92.8	2.00	5.42		
Total Xylenes*	<0.150	0.150	11/29/2018	ND	5.58	92.9	6.00	4.89		
Total BTEX	<0.300	0.300	11/29/2018	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 97.3 % 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	1840	16.0	11/29/2018	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	11/29/2018	ND	206	103	200	7.28	
DRO >C10-C28*	<10.0	10.0	11/29/2018	ND	215	107	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	11/29/2018	ND					

Surrogate: 1-Chlorooctane 83.0 % 41-142

Surrogate: 1-Chlorodecane 90.6 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

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

Cardinal Laboratories***=Accredited Analyte**

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Celey D. Keene, Lab Director/Quality Manager

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

December 26, 2018

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU INJECTION TRUNKLINE

Enclosed are the results of analyses for samples received by the laboratory on 12/18/18 16:45.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. 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 fluid and cursive, with the first name "Celey" being more prominent.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/18/2018
Reported: 12/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 12/18/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: VERTICAL 9 @ 3' (H803691-01)

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	12/21/2018	ND	2.26	113	2.00	0.196	
Toluene*	<0.050	0.050	12/21/2018	ND	2.22	111	2.00	0.484	
Ethylbenzene*	<0.050	0.050	12/21/2018	ND	2.20	110	2.00	0.628	
Total Xylenes*	<0.150	0.150	12/21/2018	ND	6.63	110	6.00	0.101	
Total BTEX	<0.300	0.300	12/21/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 99.5 % 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	3120	16.0	12/20/2018	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	12/20/2018	ND	190	94.8	200	3.55	
DRO >C10-C28*	<10.0	10.0	12/20/2018	ND	207	103	200	8.43	
EXT DRO >C28-C36	<10.0	10.0	12/20/2018	ND					

Surrogate: 1-Chlorooctane 96.3 % 41-142

Surrogate: 1-Chlorooctadecane 99.5 % 37.6-147

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***=Accredited Analyte**

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 12/18/2018
Reported: 12/26/2018
Project Name: NEDU INJECTION TRUNKLINE
Project Number: NONE GIVEN
Project Location: EUNICE NM

Sampling Date: 12/18/2018
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Celey D. Keene

Sample ID: VERTICAL 9 @ 4' (H803691-02)

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	12/21/2018	ND	2.06	103	2.00	1.70	
Toluene*	<0.050	0.050	12/21/2018	ND	2.02	101	2.00	1.54	
Ethylbenzene*	<0.050	0.050	12/21/2018	ND	2.02	101	2.00	1.51	
Total Xylenes*	<0.150	0.150	12/21/2018	ND	6.13	102	6.00	1.91	
Total BTEX	<0.300	0.300	12/21/2018	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 101 % 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	416	16.0	12/20/2018	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	12/20/2018	ND	190	94.8	200	3.55	
DRO >C10-C28*	<10.0	10.0	12/20/2018	ND	207	103	200	8.43	
EXT DRO >C28-C36	<10.0	10.0	12/20/2018	ND					

Surrogate: 1-Chlorooctane 96.8 % 41-142

Surrogate: 1-Chlorooctadecane 102 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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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Celey D. Keene, Lab Director/Quality Manager

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

+ Cardinal cannot prevent verbal change. Place for written rhymed in 1575! 202, 229A

WGS84 32.49144,
±107ft-103.14365

ft 3438
±10ft

°T NW332
±15



Created with
free version of
GPS Camera 55

12Feb19 12:54 Ad-hoc
Hobbs, NM 88231, United States 12-Feb-19 12:54:38

WGS84 32.49157,
±107ft-103.14364

ft 3437
±10ft

°T NW325
±15



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free version of
GPS Camera 55

12Feb19 12:55 Ad-hoc
Hobbs, NM 88231, United States 12-Feb-19 12:55:02



WGS84: 32.49238,
-107.14267
Alt 3370 ft
±420ft
T SE 136
±15

12Feb19 12:51 Ad-hoc
Carlsbad, NM 88220, United States © 12-Feb-19 12:51:08

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the version of
GPS Camera 3.5



NEDU Injection Trunk Line
1RP-5285
Revegetation
and
Noxious Weed Plan

Revegetation Plan:

All the disturbed areas in the pasture will be properly prepared and seeded with shallow seed mixture. The disturbed area will be monitored to ensure successful revegetation is achieved. If revegetation is not successful after a couple of growing seasons the site will be reseeded.

Noxious Weed Plan:

Apache Corporation will treat noxious weeds if they become established within the area of remediation. Weed control will be maintained on the disturbed land where noxious weeds exist both prior to remediation and restoration. Apache Corporation will consult with the Authorized Officer for acceptable weed control methods if necessary.