DAVID FEATHER
ENVIRONMENTAL SUPERVISOR
DIRECT: (432) 818-1615
E-MAIL: DAVID.FEATHER@APACHECORP.COM

October 22, 2019

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

RE: 1RP-1654 NEDU 225

Mr. Billings,

In compliance with 19.15.29.15(B) NMAC and the agreement submitted by Apache Corporation on November 8, 2018, Apache Corporation is submitting information related to closure for the release occurring October 26, 2007. Apache is respectfully submitting the closure report based on studies occurring in 2019 that demonstrate the site meeting the requirements of the agency. Unless further information is requested by NMOCD, Apache Corporation considers this release closed.

If there are any questions, please feel free to contact me by telephone at 432-818-1615 or by e-mail at David.Feather@ApacheCorp.com.

Sincerely,

David Feather
Environmental Supervisor
Apache Corporation - Permian Basin Region

Attachment: Closure Report Dated October 18, 2019

Trinity Oilfield Services & Rentals, LLC

Environmental Site Summary & Closure Request

Company: Apache Corporation **Address:** 2530 W. Marland St., Hobbs, NM 88240 **Telephone #:** (575) 393-7106

Site Name: NEDU Well #225 **NMOCD Reference#:** 1RP-1654

Surface Owner: WFM Ranch, Ltd. & State of NM **Mineral Owner:** State of NM & US BLM

Unit Letter: L (NW/SW) **Section:** 2 **Township:** 21S **Range:** 37E **County:** Lea **GPS Coordinates:** 32.508026 N -103.142436 W

Date/Time of Release: 10/26/2007 **Type of Release:** ☑ Crude Oil ☑ Produced Water

Volume(s) Released: 5 bbls Crude Oil & 50 bbls Produced Water **Volume(s) Recovered:** 3 bbls Crude Oil & 17 bbls Produced Water

Closure Criteria for Impacted Soil (mg/kg; See Appendix C, "Closure Criteria Justification"):

Benzene: 10 **BTEX:** 50 **GRO+DRO:** 1,000 **TPH:** ☐ 100 ☑ 2,500 **Chloride:** ☐ 600 ☑ 10,000 ☐ 20,000

Background Information:

On October 26, 2007, Apache Corporation (Apache) discovered a release at the Northeast Drinkard Unit (NEDU) #225 well site. Failure of a section of 2-inch transfer line resulted in the release of approximately 5 barrels (bbls) of crude oil and 50 bbls of produced water. The release impacted an area of the adjacent pasture measuring approximately 100 feet x 70 feet. During initial response activities, the damaged section of pipeline was replaced, and a vacuum truck was utilized to recover approximately 3 bbls of crude oil and 17 bbls of produced water.

The release was immediately reported to the New Mexico Oil Conservation Division's (NMOCD) Hobbs District Office. The NMOCD "Release Notification & Corrective Action" form (C-141) is provided as Appendix A. A "Site Location Map" is provided as Figure 1.

Remediation of the affected area took place at some point following the release. However, no extant documentation or work records of such activities could be located. In addition, no records or analytical results from soil sampling could be obtained from Cardinal Laboratories.

On July 25, 2019, Apache requested Trinity Oilfield Services & Rentals, LLC (Trinity), assume remediation activities at the release site.

Summary of Field Activities:

On August 1, 2019, representatives of Trinity conducted a sampling event to assess the current state of the site. A hand auger was utilized to advance a series of 5 boreholes (SP-1 through SP-5) in the inferred affected area around the wellhead to investigate the extent of impacted soil. The boreholes were advanced to the extent practicable to the hard rock layer running underneath the site, which was encountered approximately 2 feet below ground surface (bgs). Soil samples were collected at ground surface, 1 foot bgs, and 2 feet bgs from each location, and confirmation samples were submitted to Cardinal Laboratories in Hobbs, New Mexico, for analysis of chloride, total petroleum hydrocarbons (TPH), and benzene, toluene, ethylbenzene, and/or total xylene (BTEX) concentrations using Environmental Protection Agency (EPA) Methods 4500-Cl B, SW 846-8015 Mod, and SW 846-8021B, respectively.

Laboratory analytical results indicated TPH and BTEX constituent concentrations were below the laboratory method detection limit (MDL) in all submitted soil samples, with the exceptions of samples SP-3 @ Surface and SP-4 @ 1', which exhibited TPH concentrations of 83.2 mg/kg and 35.6 mg/kg, respectively. Chloride concentrations ranged from less than the laboratory MDL in soil samples SP-1 @ Surface, SP-4 @ Surface, SP-5 @ Surface, and SP-5 @ 2' to 784 mg/kg in soil sample SP-3 @ 1'.

Locations of the auger holes are depicted in Figures 2 and 3, "Sample Location Map" and "Sample Location Map (Historical Aerial)", respectively. Laboratory analytical results are summarized in Table 1, and an analytical report is provided in Appendix D.

Trinity Oilfield Services & Rentals, LLC

Environmental Site Summary & Closure Request

Variance & Site Closure Requests:

Soil samples collected from the inferred impacted area were analyzed by an NMOCD-approved laboratory, and concentrations of chloride, TPH, and BTEX were below the Closure Criteria listed in Table I of Section 19.15.29.12 of the New Mexico Administrative Code (NMAC) for a site where depth to groundwater is 51 to 100 feet bgs (see Appendix C, "Closure Criteria Justification", for more information). However, the chloride concentration in soil sample SP-3 @ 1' (784 mg/kg) is slightly over the 600 mg/kg limit specified in Section 19.15.29.13.D(1) NMAC. Additional delineation and/or excavation in this area would be hindered by the presence of active aboveground and buried pipelines running along the eastern edge of the release site.

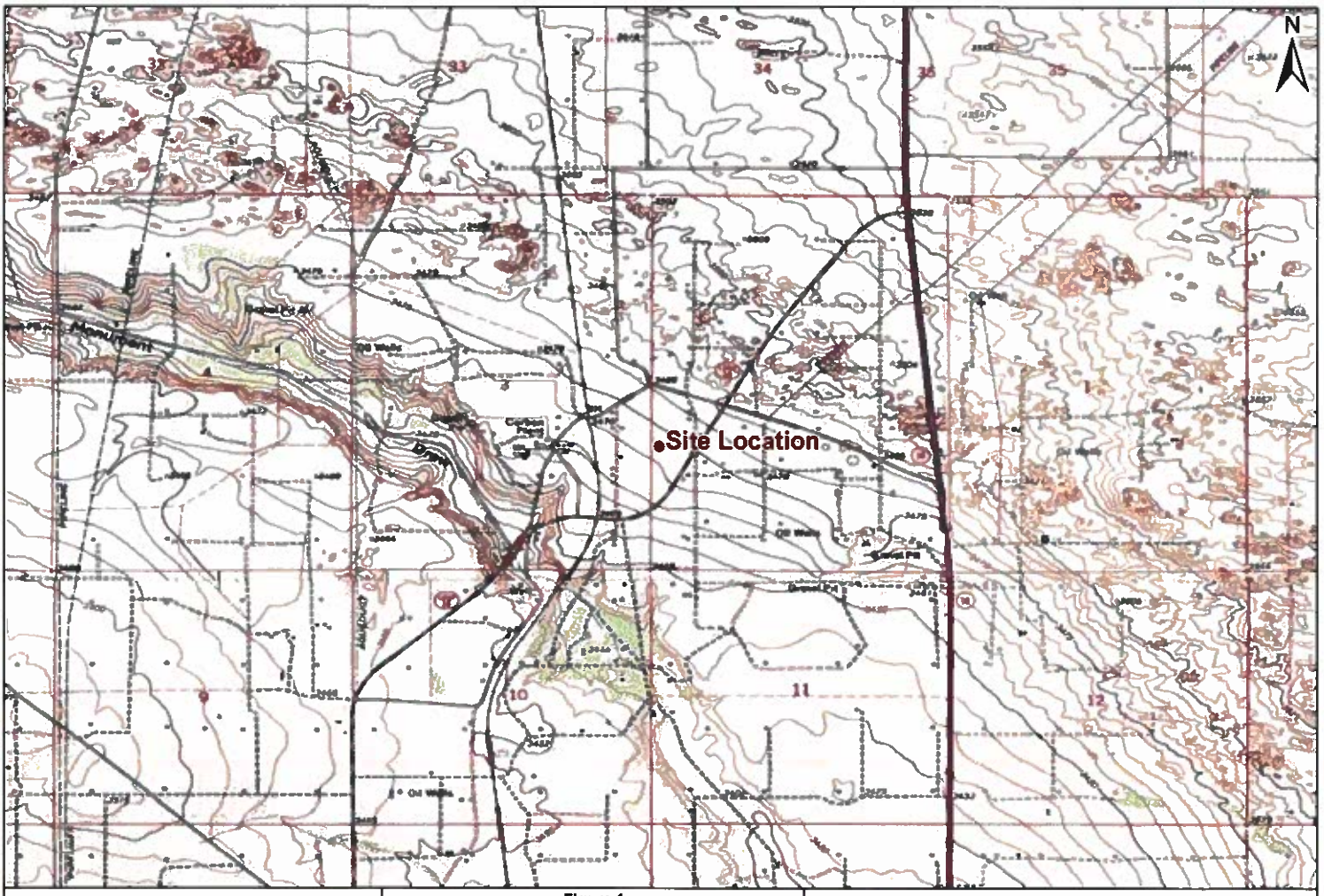
The chloride contamination in the area represented by soil sample SP-3 @ 1' has been vertically delineated. Trinity ran the EPA's Multimedia Exposure Assessment Model (MULTIMED) to determine if the contamination poses a threat to groundwater quality. The model indicates that the peak concentration of chloride in the underlying groundwater contributed by the in-situ contamination would be approximately 33.46 mg/L in 581 years with no liner (see Appendix E). Since the estimated increase in chloride concentration is below the New Mexico Water Quality Control Commission standard of 250 mg/L, pursuant to Section 19.15.29.12.C(3) NMAC, leaving the contamination in-situ "does not cause an imminent risk to human health, the environment, or ground water". In addition, vegetation regrowth at the site has been occurring at a steady rate (see photographs in Appendix B). Based on this information, Trinity, on behalf of Apache, hereby requests 1.) a variance from the requirements of Section 19.15.29.13.D(1) NMAC and 2.) the NMOCD grant closure to the NEDU Well #225 release site.

Enclosures:

Figure 1: Site Location Map
Figure 2: Sample Location Map
Figure 2: Sample Location Map (Historical Aerial)
Table 1: Concentrations of Benzene, BTEX, TPH & Chloride in Soil
Appendix A: Release Notification & Corrective Action (Form C-141)
Appendix B: Photographs
Appendix C: Closure Criteria Justification
Appendix D: Laboratory Analytical Results
Appendix E: Multimedia Exposure Assessment Model (MULTIMED)

10/18/2019
Ben J. Arguijo
Project Manager

Figures



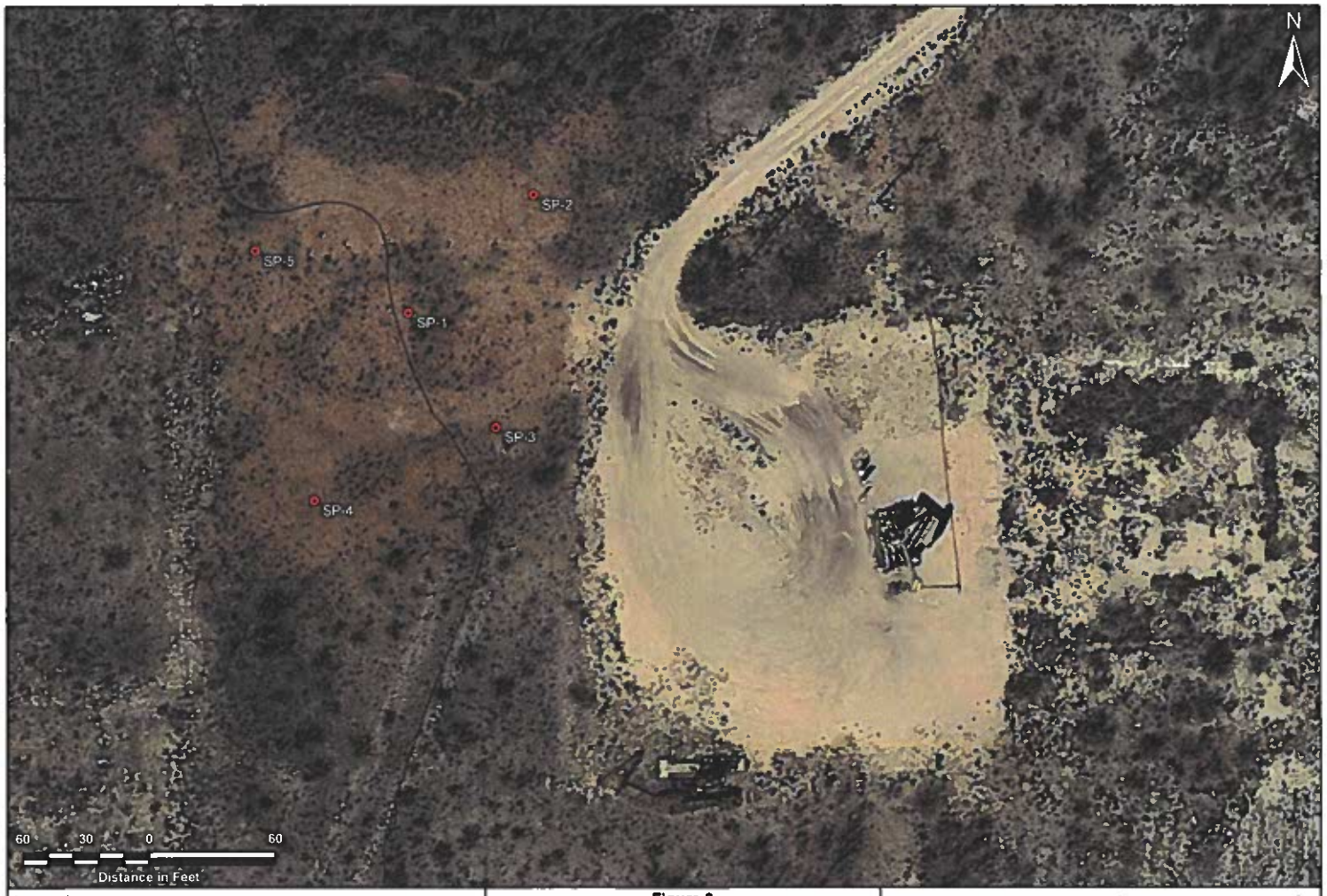
0.5 0.25 0 0.5
Miles

Figure 1
Site Location Map
Apache Corporation
NEDU Well #225
Lea County, New Mexico
NMOCD Reference #: 1RP-1654

TRINITY OILFIELD SERVICES

Trinity Oilfield Services & Rentals, LLC
P.O. Box 2587
Hobbs, NM 88241

Drawn By: BJA	Checked By: JEH
October 4, 2019	Scale: 1" = 0.5mi



Legend

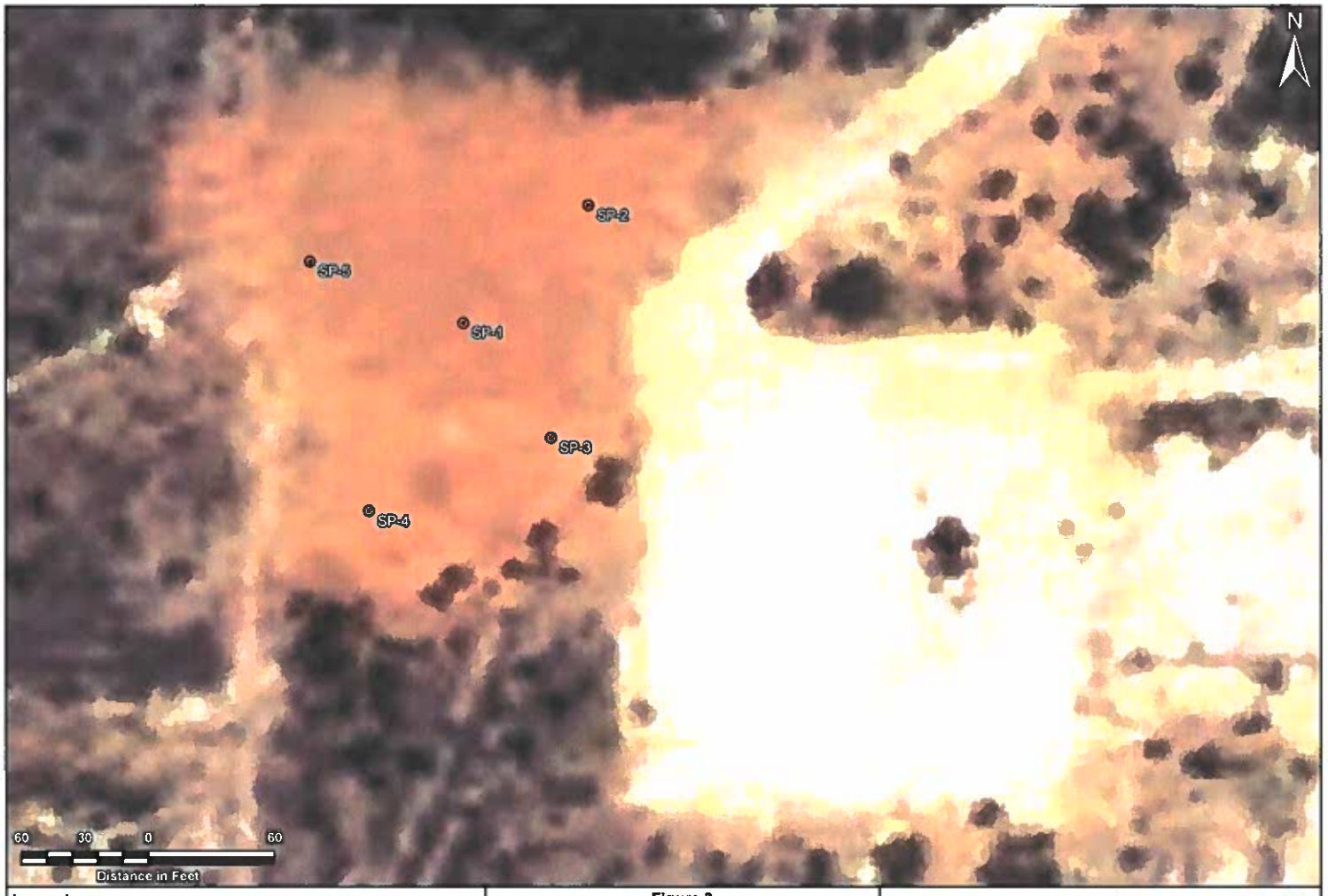
- Auger Hole

Figure 2
Sample Location Plan
Apache Corporation
NEDU Well #225
Lea County, New Mexico
NMOCD Reference #: 1RP-1654

TRINITY OILFIELD SERVICES

Trinity Oilfield Services & Rentals, LLC
P.O. Box 2587
Hobbs, NM 88241

Drawn By: BJA	Checked By: JEH
October 4, 2019	Scale: 1" = 60'



Legend

- Auger Hole

Figure 3
Sample Location Map (Historical Aerial)
Apache Corporation
NEDU Well #225
Lea County, New Mexico
NMOCD Reference #: 1RP-1654

TRINITY

Trinity Oilfield Services & Rentals, LLC
P.O. Box 2587
Hobbs, NM 88241

Drawn By: BJA	Checked By: JEH
October 4, 2019	Scale: 1" = 60'

Tables

TABLE 1
CONCENTRATIONS OF BENZENE, BTEX, TPH & CHLORIDE IN SOIL

APACHE CORPORATION
NEDU WELL #225
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE #: 1RP-1654

TRINITY

SAMPLE LOCATION	SAMPLE DEPTH (BGS)	SAMPLE DATE	SOIL STATUS	EPA SW-846 Method 8021B					EPA SW-846 Method 8015M					4500-Cl B
				BENZENE (mg/kg)	TOLUENE (mg/kg)	ETHYL-BENZENE (mg/kg)	TOTAL XYLENES (mg/kg)	TOTAL BTEX (mg/kg)	GRO C6-C12 (mg/kg)	DRO C12-C28 (mg/kg)	GRO+ DRO (mg/kg)	MRO C28-C35 (mg/kg)	TPH C6-C35 (mg/kg)	CHLORIDE (mg/kg)
NMOCD Closure Limits (mg/kg)				10	NE	NE	NE	50	NE	NE	1,000	NE	2,500	10,000
SP-1 @ Surface	Surface	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SP-1 @ 1'	1'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SP-1 @ 2'	2'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	64.0
SP-2 @ Surface	Surface	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	32.0
SP-2 @ 1'	1'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SP-2 @ 2'	2'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SP-3 @ Surface	Surface	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	64.4	64.4	18.8	83.2	48.0
SP-3 @ 1'	1'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0 150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	784
SP-3 @ 2'	2'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	256
SP-4 @ Surface	Surface	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SP-4 @ 1'	1'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	35.6	35.6	<10.0	35.6	16.0
SP-4 @ 2'	2'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SP-5 @ Surface	Surface	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0
SP-5 @ 1'	1'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	16.0
SP-5 @ 2'	2'	8/1/2019	In-Situ	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	<10.0	<10.0	<16.0

NE = Not Established
- = Not Analyzed
Concentrations in BOLD exceed the NMOCD Closure Limit

Appendices

Appendix A

Release Notification &

Corrective Action (Form C-141)

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artiesa, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr , Santa Fe, NM 8750

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1120 South St. Francis Dr.
Santa Fe, NM 97505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropraite District Office in accordance with Rule 116 on back side of form

Relaese Notification and Corrective Action

OPERATOR

☑ Initial Report ☐ Final Report

Name of Company	Apache Corporation	Contact	Billy L Stockton
Address	POBox 1150 SundownTx 79372	Telephone No.	806-893-9575
Facility Name	NEDU well #225	Facility Type	Fluid Transfer Line

Surface Owner	Mineral Owner	API # 30-025-34249

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	2	21S	37E	2540	South	175	West	Lea

Latitude _____ Longitude _____

WTR 20'

NATURE OF RELEASE

Type of Release	Oil & Water	Volume of Release	5 oil x 50 water	Volume Recovered	3 x 17
Source of Release	Flowline	Date/Hour of Occurrence	10.26.07 12:30pm	Date /Hour of Discovery	10.26 13:30
Was Immediate Notice Given? ☑ Yes ☐ No ☐ Not Required		If Yes, To Whom?	Larry Johnson		
By Whom?	Guinn Burks	Date and Hour	10/26/07 4:45:00 PM (left message)		
Was a Watercourse Reached? ☐ Yes ☑ No		If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, describe Fully*

NOV 2007 Received Hobbs OCD

Describe Cause of Problem and Remedial Action Taken.*

Failure in 2 inch transfer line; Shut in source; repaired line; recovered all free fluid.

Describe Area Affected and Cleanup Action Taken.*

Approx 70 ft x 100 ft area effected. Elke Environmental (Project Manager - John Good) has been hired to remediate this location as per New Mexico - OCD requirements.

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

Signature: Billy L Stockton		Oil Conservation Division	
Printed Name:	Billy L Stockton	Approved by the District Supervisor: G Johnson ENVIRONMENTAL ENGINEER	
Title:	EH&S Environmental Tech	Approval Date: 11.8.07	Expiration Date: 12.31.07
Email Address:	billy.stockton@apachecorp.com	Conditions of Approval: Submit Final By	Attached RP# 1654
Date: 10.30.07	Phone: 806-893-9575		

*Attach Additional Sheets if Necessary

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

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?	75' (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☑ 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)?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☑ 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?	☐ Yes ☑ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☑ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☑ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☑ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☑ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☑ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☑ Yes ☐ 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.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	
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: Bruce Baker Title: Environmental Tech SR.

Signature: Bruce Baker Date: 10-22-19

email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	PAC0731254016
District RP	1RP-1654
Facility ID	
Application ID	

Closure

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

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

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☑ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Bruce Baker Title: Environmental Tech SR.

Signature: Bruce Baker Date: 10-22-19

email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: Bradford Billings Date: 07/07/2021

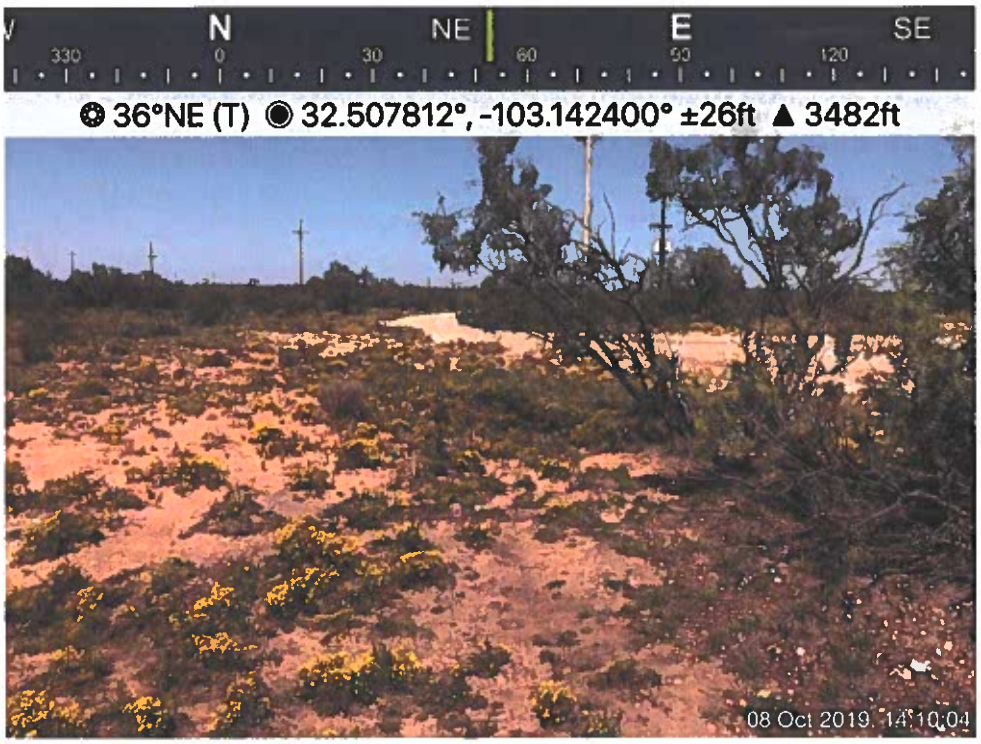
Printed Name: Bradford Billings Title: Envi.Spec.A

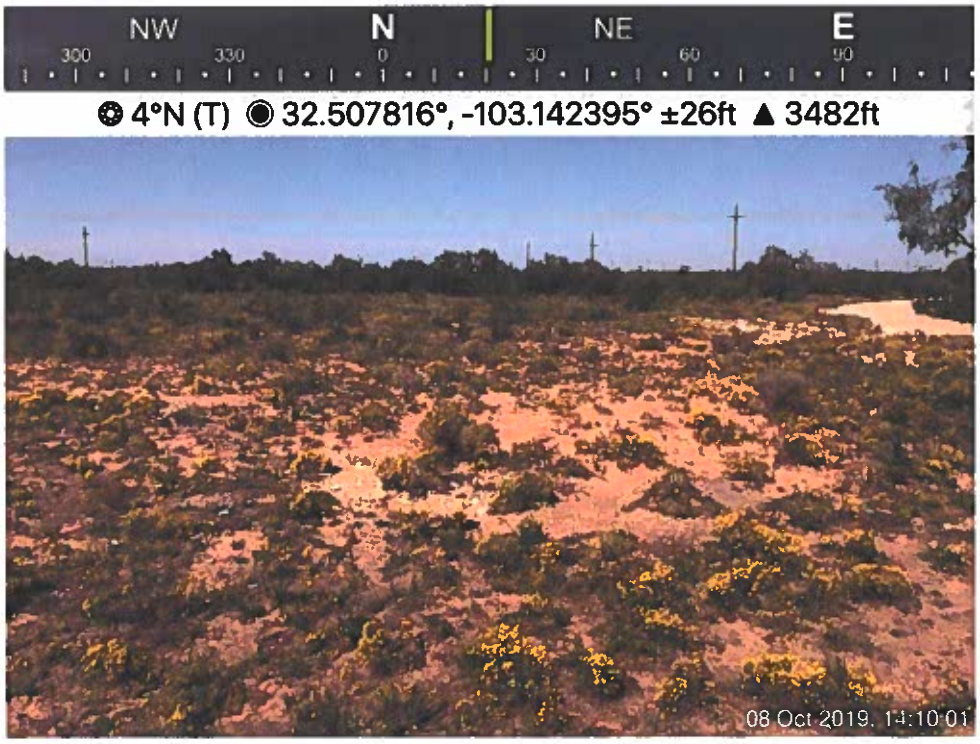
Appendix B

Photographs

Apache Corporation – NEDU Well #225

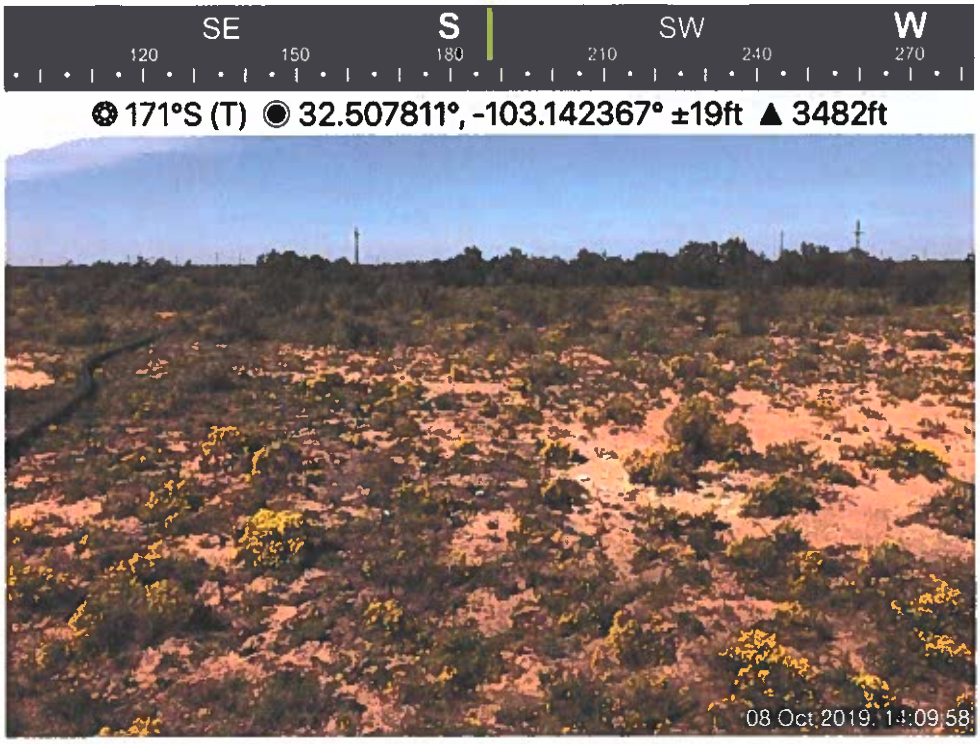
Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E

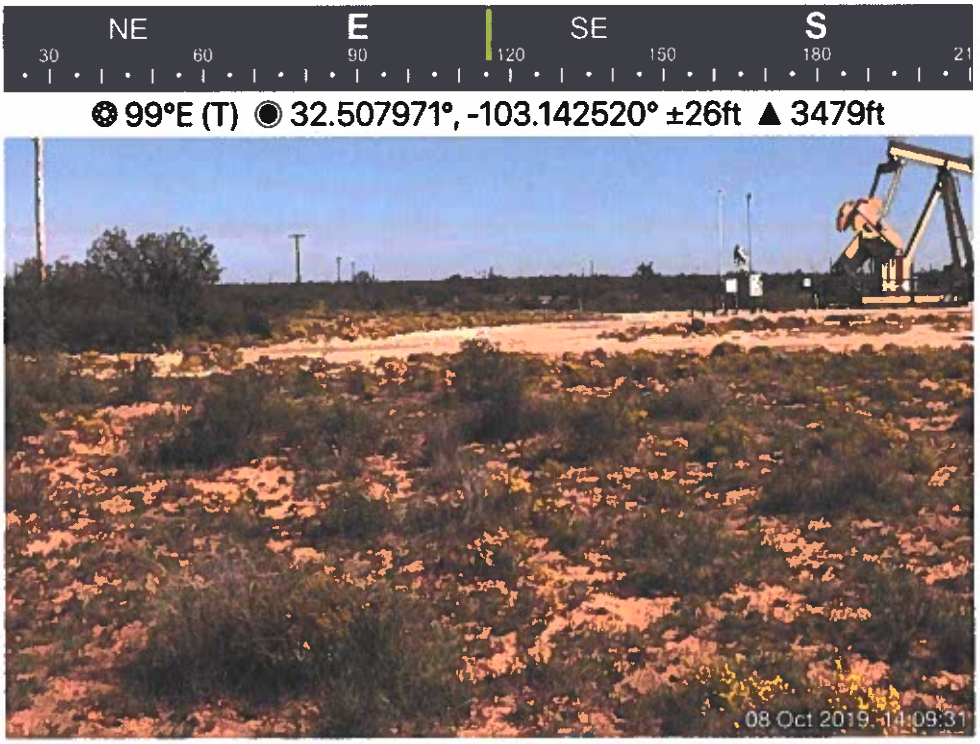




Apache Corporation – NEDU Well #225

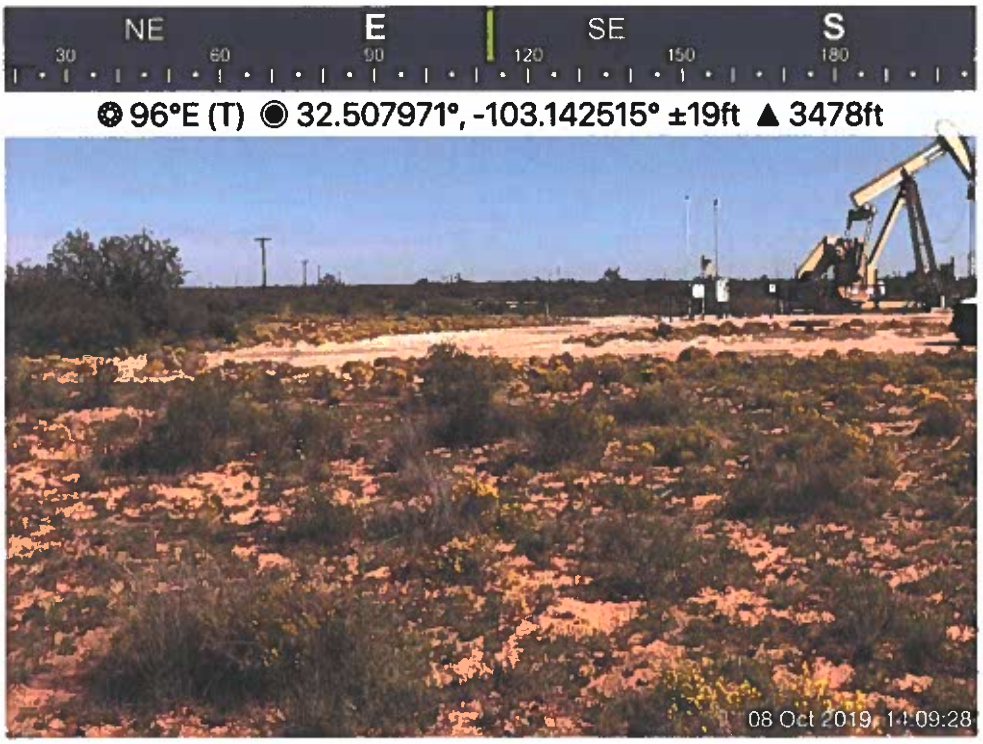
Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E

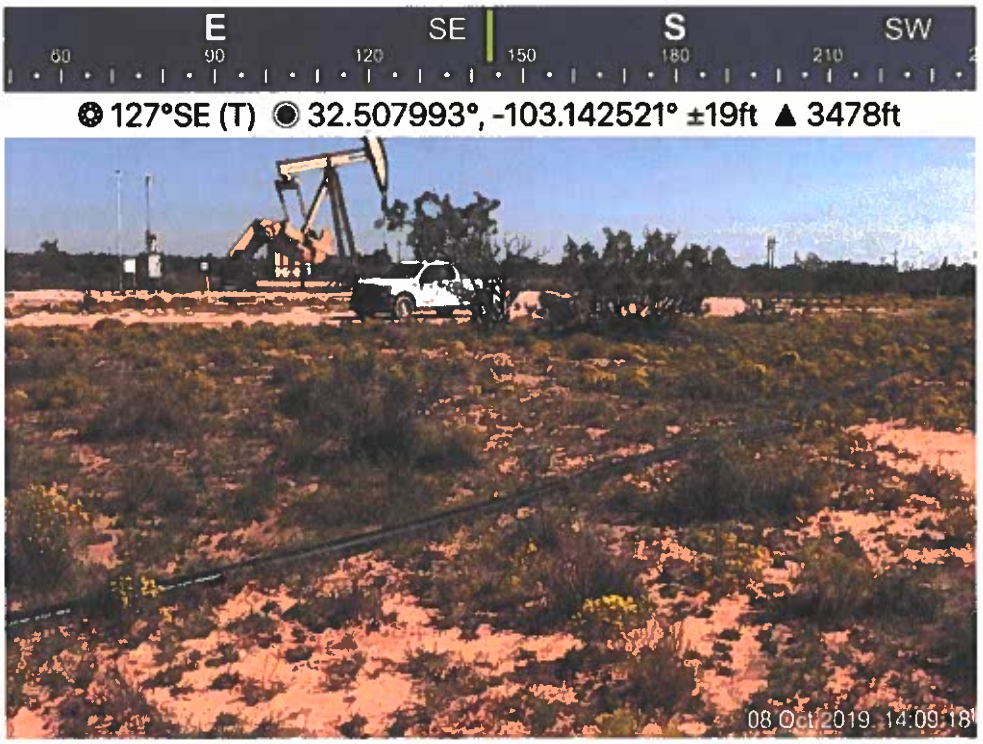




Apache Corporation – NEDU Well #225

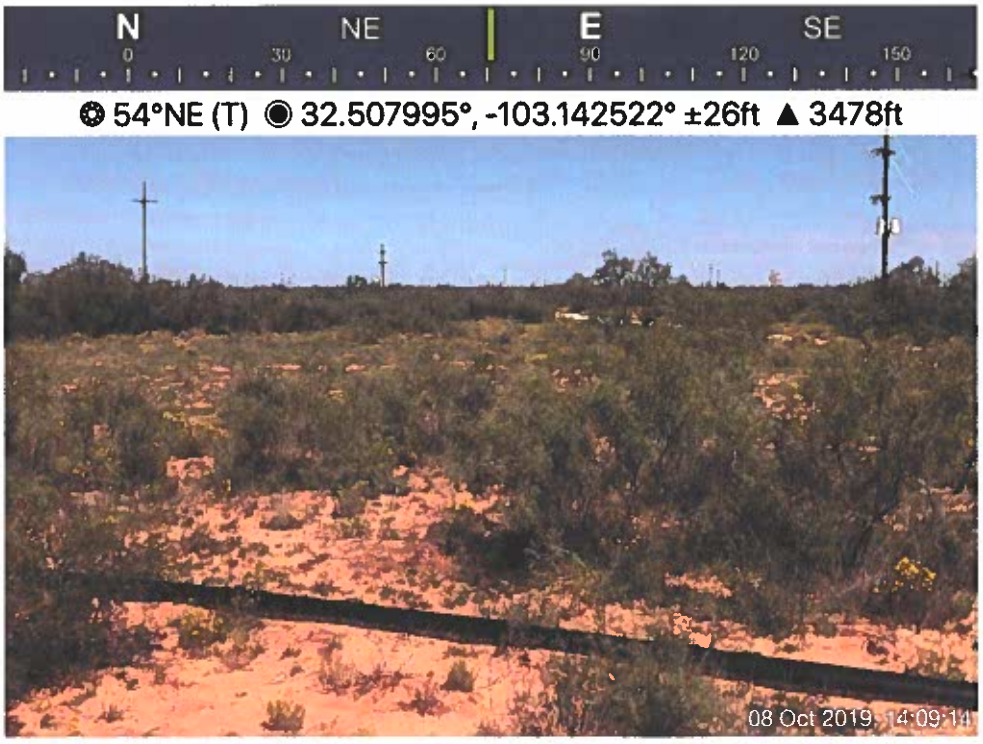
Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E

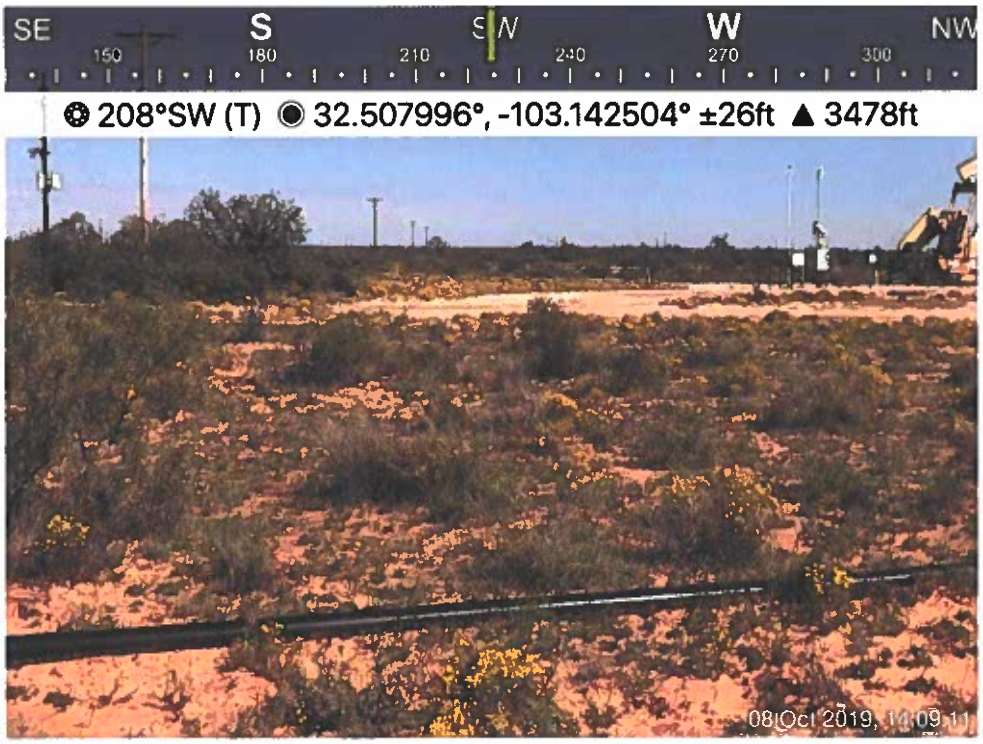




Apache Corporation – NEDU Well #225

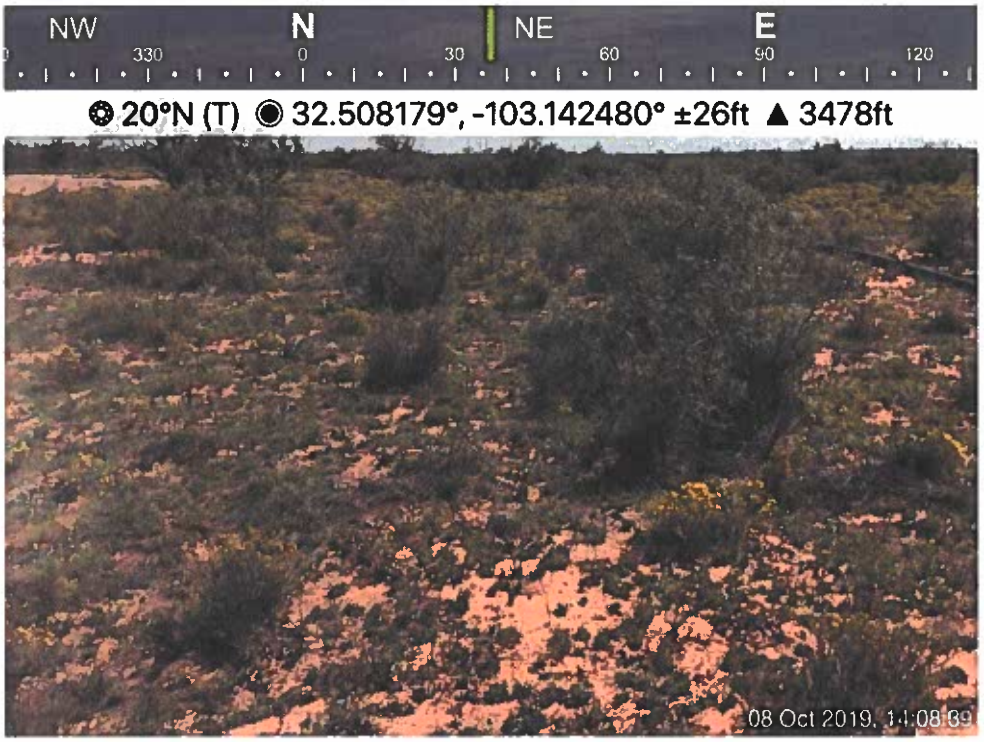
Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E

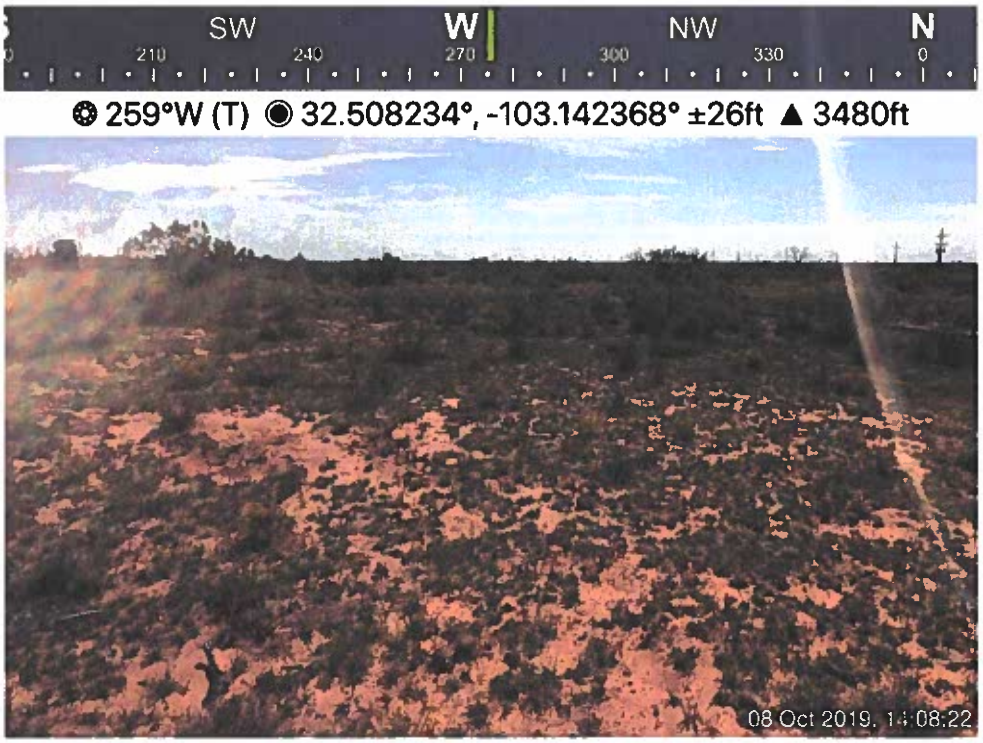




Apache Corporation – NEDU Well #225

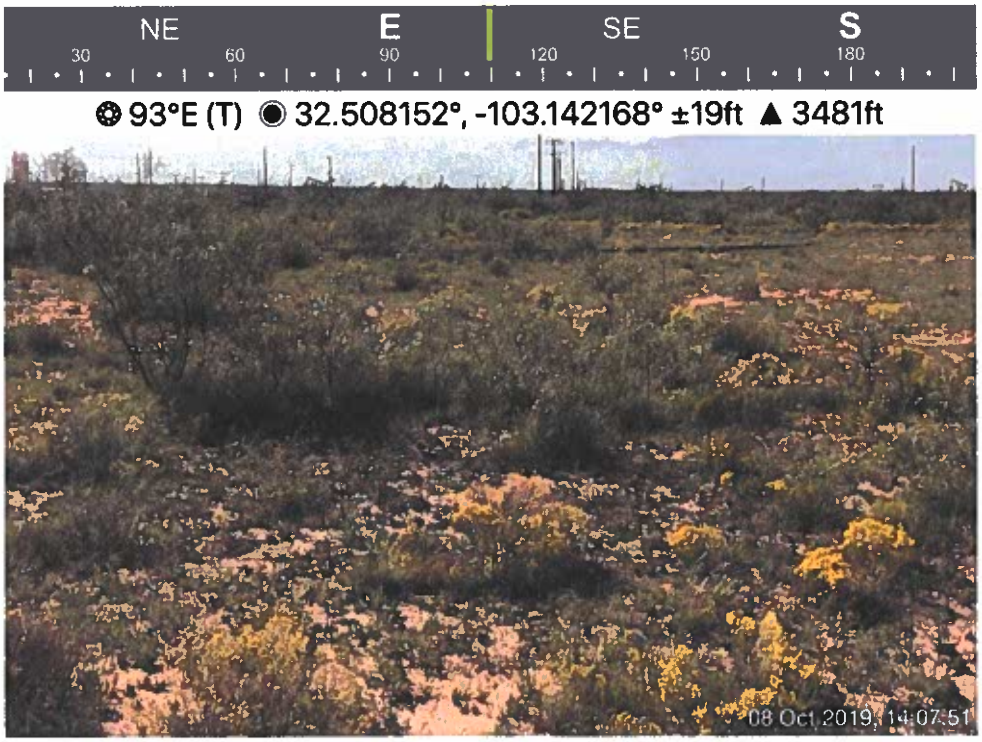
Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E

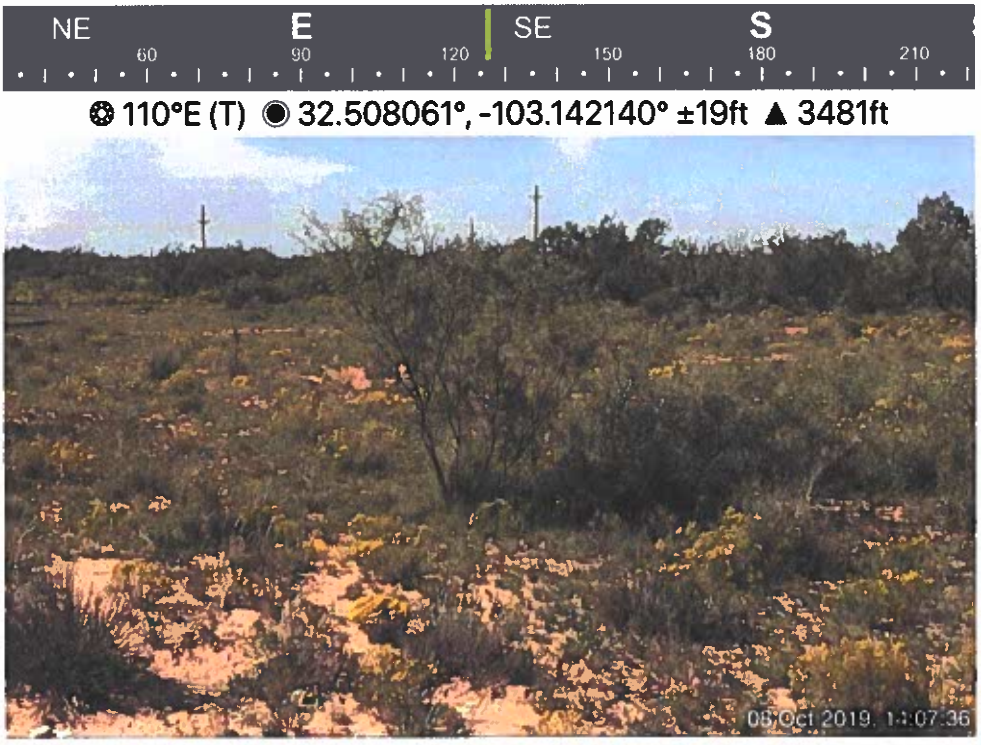




Apache Corporation – NEDU Well #225

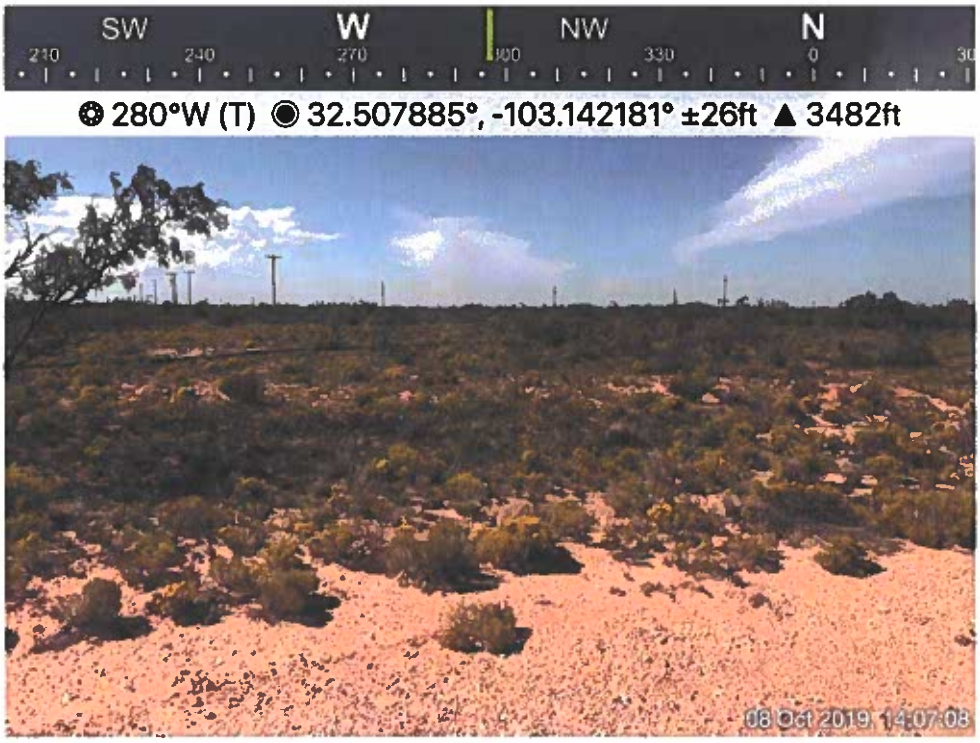
Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E

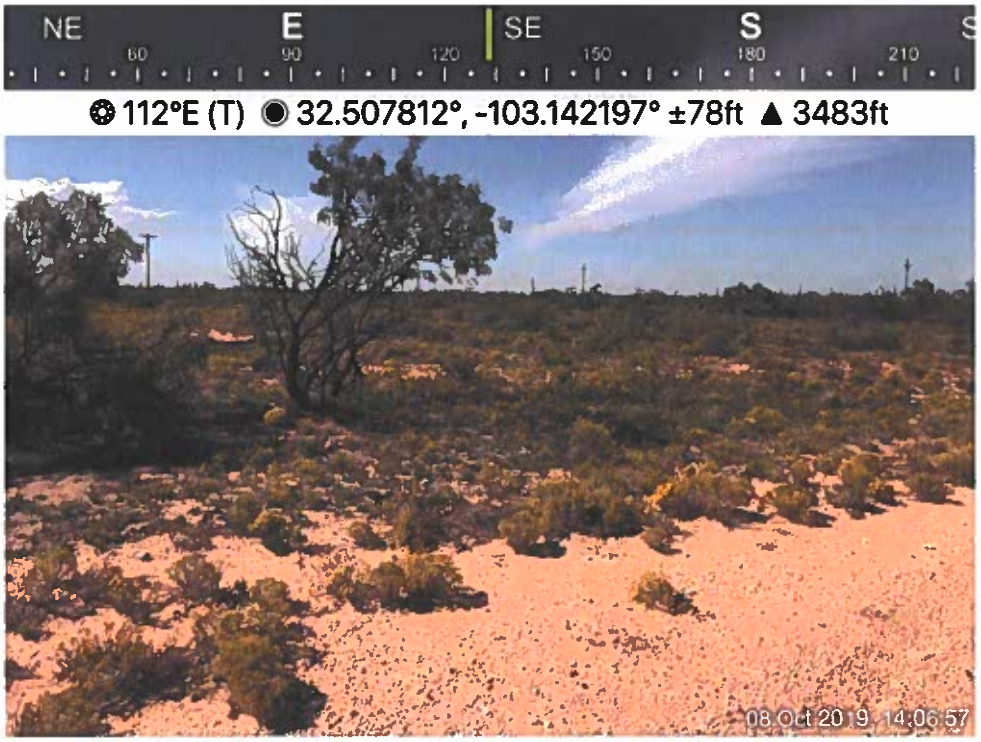




Apache Corporation – NEDU Well #225

Unit Letter "L" (NW/SW), Section 2, Township 21S, Range 37E





Appendix C

Closure Criteria Justification

TABLE 3
CLOSURE CRITERIA JUSTIFICATION

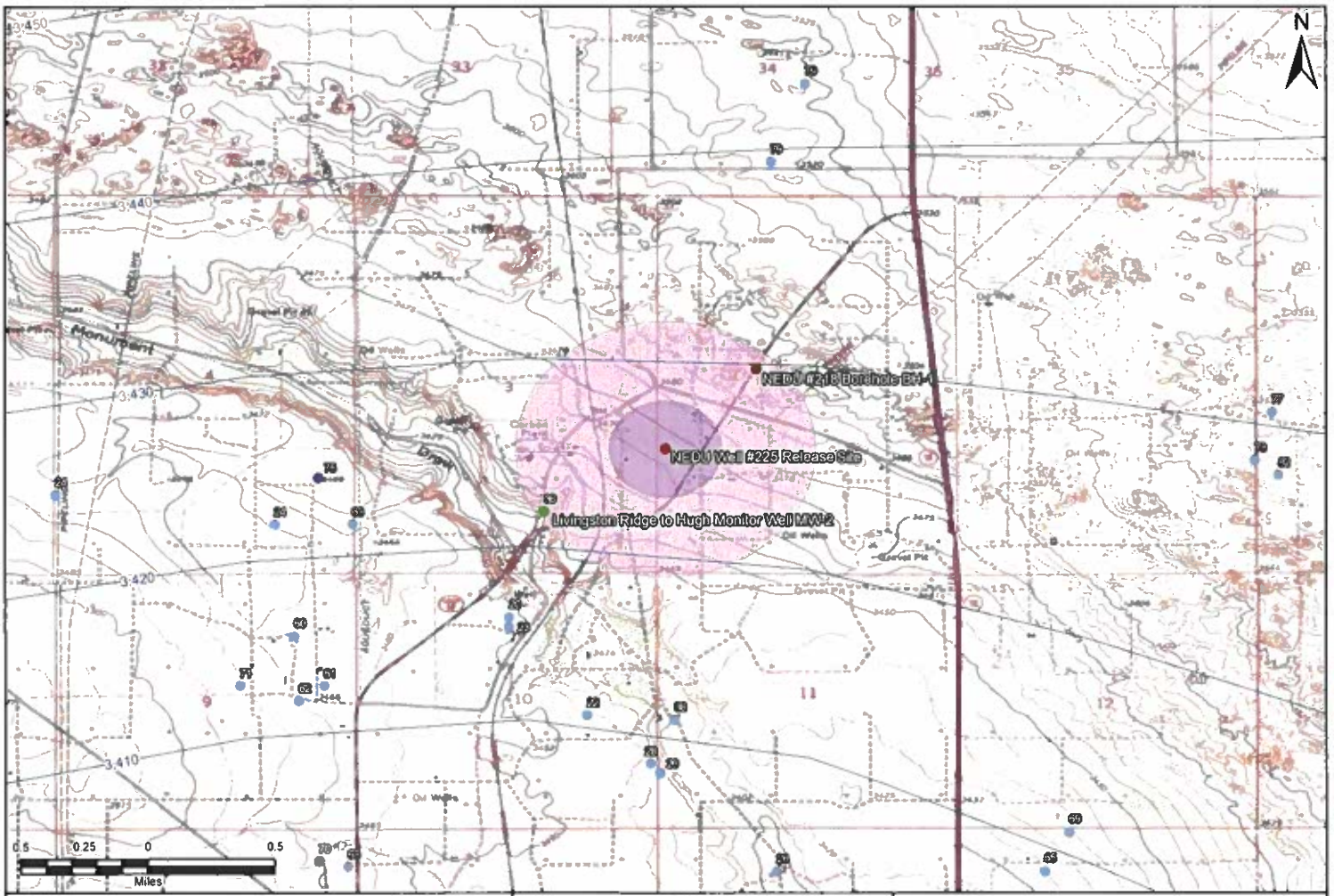
APACHE CORPORATION
NEDU WELL #225
LEA COUNTY, NEW MEXICO
NMOCD REFERENCE #: 1RP-1654

TRINITY
OILFIELD SERVICES

Groundwater, Water Wells & Other Water Sources	
Depth to groundwater (ft)?	75
Horizontal distance (ft) from all water sources within 0.5 miles?	2,376
Within 500' of a spring or a private, domestic fresh water well used by less than 5 households for domestic or stock watering purposes?	No
Within 1000' of any fresh water well or spring?	No
Surface Water	
Horizontal distance (ft) to nearest significant watercourse?	>1,000
Within 300' of any continuously flowing watercourse or any other significant watercourse?	No
Within 200' of any lakebed, sinkhole or playa lake?	No
Human-Occupied, Environmental & Other Areas	
Within incorporated municipal boundaries or within a defined municipal fresh water well field?	No
Within 300' of an occupied permanent residence, school, hospital, institution or church?	No
Within 300' of a wetland?	No
Within the area overlying a subsurface mine?	No
Within an unstable area?	No
Within a 100-year floodplain?	No

Closure Criteria (mg/kg)*				
Benzene	**BTEX**	**GRO + DRO**	**TPH**	**Chloride**
10	50	1,000	2,500	10,000

*Numerical limits or natural background level, whichever is greater



*Derived from New Mexico Water Resources Assessment 2001

Figure 4
Vicinity & Wellhead Protection Area Map
Apache Corporation
NEDU Well #225
Lea County, New Mexico
NMOCD Reference #: 1RP-1654

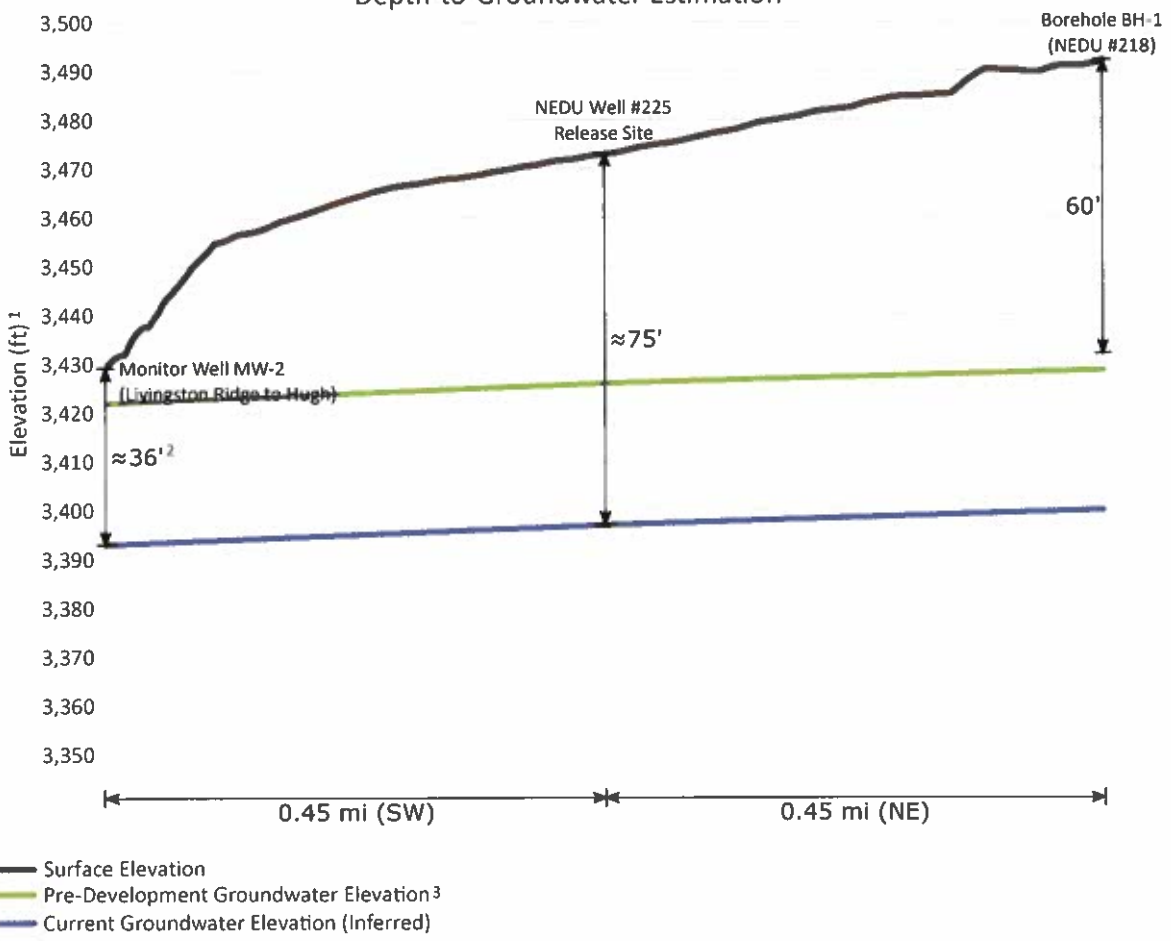
TRINITY OILFIELD SERVICES

Trinity Oilfield Services & Rentals, LLC
P.O. Box 2587
Hobbs, NM 88241

Drawn By: BJA	Checked By: JEH
October 17, 2019	Scale: 1" = 0.5mi

NEDU Well #225

Depth-to-Groundwater Estimation



Sources:

1. United States Geological Survey's National Elevation Database
2. Livingston Ridge to Hugh (1R-0398) - "2017 Annual Groundwater Monitoring Report"
3. New Mexico Water Resources Assessment 2001

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

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

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas by EPA 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
<: denotes concentration less than analytical method reporting limit

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

No records found.

UTMNAD83 Radius Search (in meters):

Easting (X): 674555.7 **Northing (Y):** 3598235.28 **Radius:** 804.67 (0.5 miles)

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	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
CP 01741 POD1	CP	LE	1	3	4	03	21S	37E	673895	3597759	814	45		
CP 00286 POD1	CP	LE	2	1	2	10	21S	37E	674019	3597338*	1045	70		

Average Depth to Water: --
Minimum Depth: --
Maximum Depth: --

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 674555.7 **Northing (Y):** 3598235.28 **Radius:** 1610 (1 mile)

***UTM location was derived from PLSS - see Help**

Appendix D

Laboratory Analytical Reports

CARDINAL Laboratories

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

August 08, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU #225

Enclosed are the results of analyses for samples received by the laboratory on 08/01/19 16:55.

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 accreditated 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,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 @ SURFACE 32.507946 (H902645-01)

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	08/06/2019	ND	1.54	76.8	2.00	0.380	
Toluene*	<0.050	0.050	08/06/2019	ND	1.90	95.0	2.00	1.96	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.90	95.1	2.00	0.0740	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.77	96.1	6.00	0.715	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *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	<16.0	16.0	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *99.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *96.1 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 @ 1' -103.142380 (H902645-02)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL *106 %* *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	**16.0**	16.0	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *93.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.9 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 @ 2' (H902645-03)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *111 %* *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	**64.0**	16.0	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *92.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.7 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 @ SURFACE 32.508057 (H902645-04)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *111 %* *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	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *93.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *92.7 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 @ 1' -103.142288 (H902645-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *114 %* *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	**16.0**	16.0	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *89.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *87.6 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 @ 2' (H902645-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID 106 % 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	**16.0**	16.0	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane 98.8 % 41-142

Surrogate: 1-Chlorooctadecane 101 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 3 @ SURFACE 32.507900 (H902645-07)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL *107 %* *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	**48.0**	16.0	08/06/2019	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	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	**64.4**	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	**18.8**	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *100 %* *41-142*

Surrogate: 1-Chlorooctadecane *106 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 3 @ 1' -103.142349 (H902645-08)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *114 %* *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	**784**	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *89.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *85.7 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 3 @ 2' (H902645-09)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL *105 %* *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	**256**	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *91.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *88.2 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 4 @ SURFACE (H902645-10)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *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	<16.0	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *92.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.9 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 4 @ 1' 32.507805 (H902645-11)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL *116 %* *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	**16.0**	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	**35.6**	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane *92.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *93.5 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 4 @ 2' -103.142586 (H902645-12)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL 115 % 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	<16.0	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/02/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/02/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/02/2019	ND					

Surrogate: 1-Chlorooctane 89.4 % 41-142

Surrogate: 1-Chlorooctadecane 86.9 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 5 @ SURFACE 32.507999 (H902645-13)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL *126 %* *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	<16.0	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/03/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/03/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/03/2019	ND					

Surrogate: 1-Chlorooctane *94.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 5 @ 1' 103.142578 (H902645-14)

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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *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	**16.0**	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/03/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/03/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/03/2019	ND					

Surrogate: 1-Chlorooctane *94.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.2 %* *37.6-147*

Cardinal Laboratories

*=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/01/2019	Sampling Date:	08/01/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	NEDU #225	Sampling Condition:	Cool & Intact
Project Number:	NEDU #225	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 5 @ 2' (H902645-15)

BTEX 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	08/06/2019	ND	1.47	73.4	2.00	3.59	
Toluene*	<0.050	0.050	08/06/2019	ND	1.84	91.9	2.00	10.4	
Ethylbenzene*	<0.050	0.050	08/06/2019	ND	1.89	94.3	2.00	0.650	
Total Xylenes*	<0.150	0.150	08/06/2019	ND	5.80	96.6	6.00	1.34	
Total BTEX	<0.300	0.300	08/06/2019	ND					

Surrogate: 4-Bromofluorobenzene (PIL 130 % 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	<16.0	16.0	08/06/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/03/2019	ND	200	100	200	3.54	
DRO >C10-C28*	<10.0	10.0	08/03/2019	ND	188	93.9	200	6.03	
EXT DRO >C28-C36	<10.0	10.0	08/03/2019	ND					

Surrogate: 1-Chlorooctane 87.5 % 41-142

Surrogate: 1-Chlorooctadecane 85.1 % 37.6-147

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

		BILL TO	
Company Name:	APACHE CORPORATION	P.O. #:	
Project Manager:	BRUCE BAKER	Company:	
Address:		Attn:	
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	NEDU 225	Phone #:	
Project Location:	NEDU 225	Fax #:	
Sampler Name:	DANIEL RASLER		

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER	PRESERV.: ACID/BASE	ICE / COOL	OTHER	SAMPLING: DATE	TIME	CL	BTEX	EXT. TPH
H902644																	
1	SP1 @ Surface 32.507946												8-1-19	8:40	✓	✓	✓
2	SP1 @ 1' -103.142380													8:50	✓	✓	✓
3	SP1 @ 2'													9:03	✓	✓	✓
4	SP2 @ Surface 32.508057													10:03	✓	✓	✓
5	SP2 @ 1' -103.142288													10:15	✓	✓	✓
6	SP2 @ 2'													10:23	✓	✓	✓
7	SP3 @ Surface 32.507900													11:00	✓	✓	✓
8	SP3 @ 1' -103.142349													11:15	✓	✓	✓
9	SP3 @ 2'													11:25	✓	✓	✓
10	SP4 @ Surface												8-1-19	11:40	✓	✓	✓

Relinquished By:	Date: 8-1-19	Received By:	Phone Result: ☐ Yes ☐ No	Add'l Phone #:
	Time: 16:55		Fax Result: ☐ Yes ☐ No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: EMAIL TO BRUCE AND JEFF	
	Time:			

Delivered By: (Circle One) Sampler - UPS - Bus - Other: 2.9 #97 Corrected 3.3°

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials)

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

Company Name: APACHE CORPORATION		**BILL TO**	
Project Manager: BRUCE BAKER		P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name: NEDU 225		State: Zip:	
Project Location: NEDU 225		Phone #:	
Sampler Name: DANIEL RASCER		Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
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	CL	BTEX	Ext. TPH
H902644																	
11	SP4 @ 1' 32.507805												8-1-19	12:05	✓	✓	✓
12	SP4 @ 2' -103.142558													12:15	✓	✓	✓
13	SP5 @ Surface 32.507999													1:00	✓	✓	✓
14	SP5 @ 1' -103.142578													1:10	✓	✓	✓
15	SP5 @ 2'												8-1-19	1:25	✓	✓	✓

Relinquished By:	Date: 8-1-19	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 11:55		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: EMAIL TO BRUCE AND JEFF
	Time:		
Delivered By: (Circle One) 2.9° #97	Sample Condition: Cool ☑ Yes ☐ No, Intact ☑ Yes ☐ No	CHECKED BY: (Initials) TQ	
Sampler - UPS - Bus - Other: Corrected 3.3°			

Appendix E

Multimedia Exposure Assessment Model

(MULTIMED)

MULTIMED V1.01 DATE OF CALCULATIONS: 17-OCT-2019 TIME: 17:23:30

U. S. E N V I R O N M E N T A L P R O T E C T I O N A G E N C Y

E X P O S U R E A S S E S S M E N T

M U L T I M E D I A M O D E L

MULTIMED (Version 1.50, 2005)

1

Run options

NEDU Well #225

1RP-1654
Chemical simulated is Chloride

Option Chosen Saturated and unsaturated zone models
Run was DETERMIN
Infiltration Specified By User: 3.048E-02 m/yr
Run was transient
Well Times: Find Maximium Concentration
Reject runs if Y coordinate outside plume
Reject runs if Z coordinate outside plume
Gaussian source used in saturated zone model
1
1

UNSATURATED ZONE FLOW MODEL PARAMETERS
(input parameter description and value)

NP	- Total number of nodal points	240
NMAT	- Number of different porous materials	1
KPROP	- Van Genuchten or Brooks and Corey	1
IMSHGN	- Spatial discretization option	1
NVFLAYR	- Number of layers in flow model	1

OPTIONS CHOSEN
Van Genuchten functional coefficients
User defined coordinate system
1

Layer information

LAYER NO.	LAYER THICKNESS	MATERIAL PROPERTY
1	73.00	1

DATA FOR MATERIAL 1

VADOSE ZONE MATERIAL VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Saturated hydraulic conductivity	cm/hr	CONSTANT	3.60	-999.	-999.	-999.
Unsaturated zone porosity	--	CONSTANT	0.250	-999.	-999.	-999.
Air entry pressure head	m	CONSTANT	0.700	-999.	-999.	-999.
Depth of the unsaturated zone	m	CONSTANT	73.0	0.000	0.000	0.000

DATA FOR MATERIAL 1

VADOSE ZONE FUNCTION VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Residual water content	--	CONSTANT	0.116	-999.	-999.	-999.
Brook and Corey exponent,EN	--	CONSTANT	-999.	-999.	-999.	-999.
ALFA coefficient	1/cm	CONSTANT	0.500E-02	-999.	-999.	-999.
Van Genuchten exponent, ENN	--	CONSTANT	1.09	-999.	-999.	-999.

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UNSATURATED ZONE TRANSPORT MODEL PARAMETERS

NLAY	- Number of different layers used		1
NTSTPS	- Number of time values concentration calc		40
DUMMY	- Not presently used		1
ISOL	- Type of scheme used in unsaturated zone		2
N	- Stehfest terms or number of increments		18
NTEL	- Points in Lagrangian interpolation		3
NGPTS	- Number of Gauss points		104
NIT	- Convolution integral segments		2
IBOUND	- Type of boundary condition		3
ITSGEN	- Time values generated or input		1
TMAX	- Max simulation time	--	0.0
WTFUN	- Weighting factor	--	1.2

OPTIONS CHOSEN

Convolution integral approach
Exponentially decaying continuous source
Computer generated times for computing concentrations

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DATA FOR LAYER 1

VADOSE TRANSPORT VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Thickness of layer	m	CONSTANT	73.0	-999.	-999.	-999.
Longitudinal dispersivity of layer	m	DERIVED	-999.	-999.	-999.	-999.
Percent organic matter	--	CONSTANT	0.000	-999.	-999.	-999.
Bulk density of soil for layer	g/cc	CONSTANT	1.99	-999.	-999.	-999.
Biological decay coefficient	1/yr	CONSTANT	0.000	-999.	-999.	-999.

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CHEMICAL SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Solid phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Dissolved phase decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Overall chemical decay coefficient	1/yr	DERIVED	-999.	-999.	-999.	-999.
Acid catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Neutral hydrolysis rate constant	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Base catalyzed hydrolysis rate	1/M-yr	CONSTANT	0.000	-999.	-999.	-999.
Reference temperature	C	CONSTANT	25.0	-999.	-999.	-999.
Normalized distribution coefficient	ml/g	CONSTANT	0.000	-999.	-999.	-999.
Distribution coefficient	--	DERIVED	-999.	-999.	-999.	-999.
Biodegradation coefficient (sat. zone)	1/yr	CONSTANT	0.000	-999.	-999.	-999.
Air diffusion coefficient	cm2/s	CONSTANT	-999.	-999.	-999.	-999.
Reference temperature for air diffusion	C	CONSTANT	-999.	-999.	-999.	-999.
Molecular weight	g/M	CONSTANT	-999.	-999.	-999.	-999.
Mole fraction of solute	--	CONSTANT	-999.	-999.	-999.	-999.
Vapor pressure of solute	mm Hg	CONSTANT	-999.	-999.	-999.	-999.
Henry`s law constant	atm-m^3/M	CONSTANT	-999.	-999.	-999.	-999.
Overall 1st order decay sat. zone	1/yr	DERIVED	0.000	0.000	0.000	1.00
Not currently used		CONSTANT	0.000	0.000	0.000	0.000
Not currently used		CONSTANT	0.000	0.000	0.000	0.000

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SOURCE SPECIFIC VARIABLES

VARIABLE NAME	UNITS	DISTRIBUTION	PARAMETERS MEAN	PARAMETERS STD DEV	LIMITS MIN	LIMITS MAX
Infiltration rate	m/yr	CONSTANT	0.305E-01	-999.	-999.	-999.
Area of waste disposal unit	m^2	CONSTANT	381.	-999.	-999.	-999.
Duration of pulse	yr	DERIVED	0.100E-08	-999.	-999.	-999.
Spread of contaminant source	m	DERIVED	-999.	-999.	-999.	-999.
Recharge rate	m/yr	CONSTANT	0.000	-999.	-999.	-999.
Source decay constant	1/yr	CONSTANT	0.250E-01	0.000	0.000	0.000
Initial concentration at landfill	mg/l	CONSTANT	363.	-999.	-999.	-999.
Length scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Width scale of facility	m	DERIVED	-999.	-999.	-999.	-999.
Near field dilution		DERIVED	1.00	0.000	0.000	1.00

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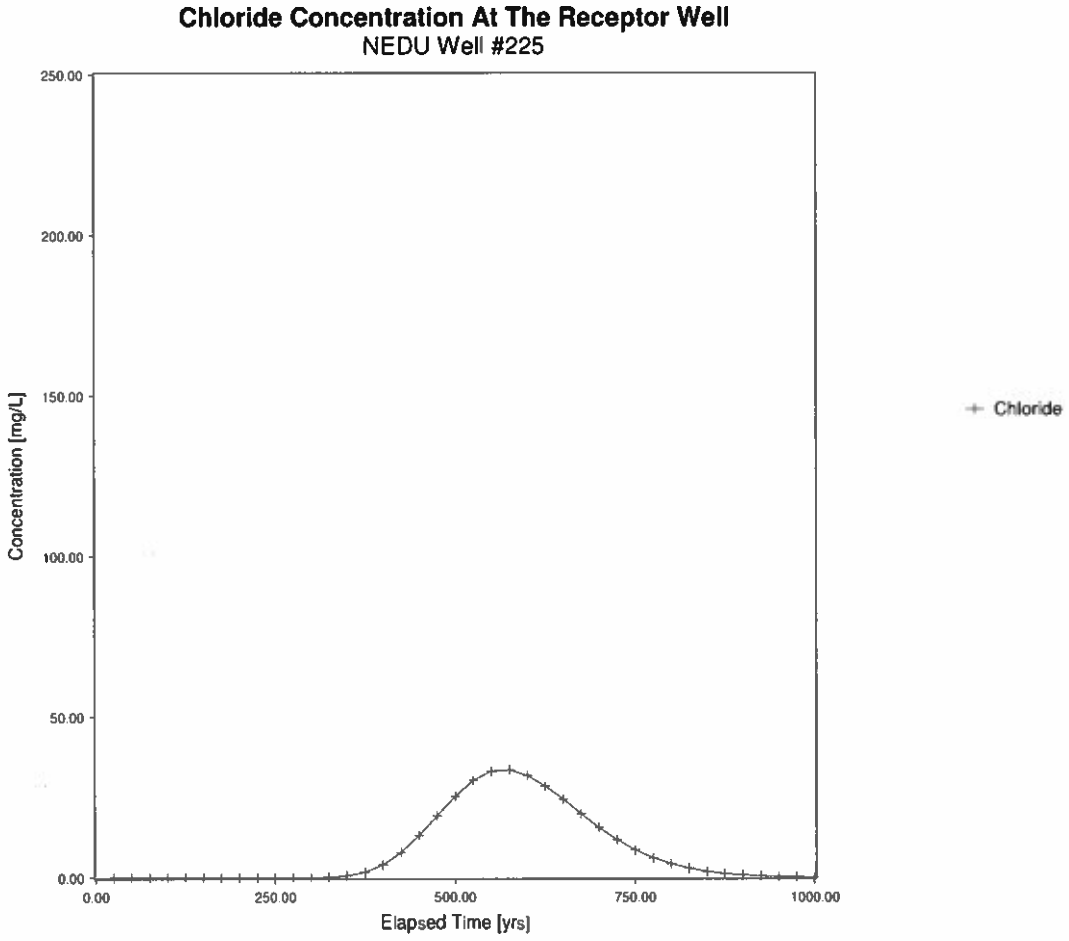
AQUIFER SPECIFIC VARIABLES



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Oil Conservation Division
1220 S. St Francis Dr.
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CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 2010
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bbillings	None	7/7/2021