



303 Veterans Airpark Lane Midland, TX 79705

Remediation Plan

September 1, 2020

Re: NEDU 2A
Case # 1RP-5591

Background:

On 6/26/2019 a release occurred due to an automation failure did not allow the shut off valve to work correctly causing the tank to run over. The release is located north of Eunice, New Mexico (GPS 32.51457, -103.15427) in unit letter E, section 3, township 21S, and range 37E. A groundwater survey conducted utilizing USGS and NMOSE wells of record in this area indicates a depth of groundwater below the release at 75 feet. On 10/2/2019 utilizing a hand auger the site was delineated in one foot intervals. SP 1 and SP 2 were advanced to a depth of 1 foot. SP 3, 4, and 5 could not be advance any deeper than the surface due to hardness of rock beneath the sample points. All samples collected were submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX.

A remediation plan was submitted to OCD and denied on 2/13/2020 due to the horizontal and vertical delineation was not complete. On 2/25/2020 horizontal 5 point surface composite samples were collected and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. An attempt was made to further delineate with depth at SP 1 and SP 3 with shovels and due to the hard rock could not advance with depth. (See Attached Variance Request).

Remediation Plan:

Apache Corporation purposes that the area around SP 2 be hand excavated to a depth of 1 foot to remove the chloride contamination to below 600 mg/kg. Once excavation is complete 5 point bottom and wall composite samples be collected and submitted to a commercial laboratory for analysis of chloride. Once SP 2 meets the chloride threshold in the pasture of less than 600 mg/kg the entire pasture area will be tilled to loosen the soil and micro-blaze will be applied to the area to address the hydrocarbon contamination. Once treatment is complete final bottom samples will be collected not to exceed 500 square feet and submitted to a commercial laboratory for analysis of chloride, TPH, and BTEX. If the pasture area is above the threshold for the pasture reclamation standards in rule 19.15.29 then those areas will be treated until the standards are met. Since the plan calls for no excavating then the horizontal samples already obtained will be used for final wall samples in the closure report. The battery area will be hand excavated to a depth 6 inches to 1 foot. Once excavation is complete than 5 point bottom and wall samples will be collected not to exceed 500 square feet and submitted to a commercial laboratory for analysis of chloride, TPH, BTEX.

All excavated material (80 yards) will be hauled to an OCD approved disposal facility. Once laboratory analysis confirm that table one standards for releases 51-100 feet are met than

the excavation in the battery will be backfilled with clean imported caliche. The pasture excavation will be backfilled with clean imported top soil and contoured to the surrounding area. The entire pasture area will be reseeded to surface landowner guidelines.

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

Submitted by;

Bruce Baker

Environmental Technician SR.

larry.baker@apachecorp.com

Cell# 432-631-6982

Off# 432-818-1000

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

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

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

Incident ID	NDHR1917957292
District RP	IRP-5591
Facility ID	
Application ID	pDHR1917957067

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 # (assigned by OCD)
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.51457 Longitude: N -103.15427

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Northeast Drinkard Unit 2A	Site Type: Well
Date Release Discovered: June 26, 2019	API # 3002534651 (Closest Location)

Unit Letter	Section	Township	Range	County
E	3	21S	37E	LEA

Surface Owner: State Federal Tribal Private (Name: McCasland)

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (10 bbls)	Volume Recovered (5 bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (148 bbls)	Volume Recovered (70 bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input checked="" 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

Automation failure due to weather did not allow the shut off valve to work correctly allowing the holding tank to run over.

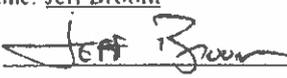
State of New Mexico
Oil Conservation Division

Incident ID	NDHR1917957292
District RP	1RP-5591
Facility ID	
Application ID	pDHR1917957067

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? <i>Release is greater than 25 barrels.</i>
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Via email given to NM OCD by Jeff Broom, Environmental Technician, Apache Corporation	

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>Jeff Broom</u> Title: <u>Environmental Technician</u> Signature: <u></u> Date: <u>06/26/2019</u> Email: <u>Jeffrey.Broom@apachecorp.com</u> Telephone: <u>(432) 664-4677</u>
<u>OCD Only</u> Received by: <u>Dylan Rose-Coss</u> Date: <u>06/28/2019</u>

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>75</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

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

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

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-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

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: 10-30-19
 email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

Rose-Coss, Dylan H, EMNRD

From: Rose-Coss, Dylan H, EMNRD
Sent: Friday, June 28, 2019 4:04 PM
To: 'Broom, Jeffrey'
Cc: Baker, Larry; Feather, David
Subject: RE: Immediate Notification and C-141 Notification

All,

The NMOCD tracking number for this release is 1RP-5591.

Thanks,

Dylan Rose-Coss

Environmental Scientist
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

(505) 476-3488

From: Broom, Jeffrey <Jeffrey.Broom@apachecorp.com>
Sent: Thursday, June 27, 2019 8:15 AM
To: Rose-Coss, Dylan H, EMNRD <DylanH.Rose-Coss@state.nm.us>; James.Grisworld@state.nm.us
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Feather, David <David.Feather@apachecorp.com>
Subject: [EXT] Immediate Notification and C-141 Notification

Gentlemen,

This email is to notify you that Apache Corporation did have release at the NEDU 2A on 06/26/2019 at 0900 hours. This release was found to be in excess of 25 barrels. We did retrieve all recoverable fluid and the area did have berm placed around the release to eliminate any further movement of the release. You will also find attached to this email the C-141 Notification for this release. If you have any questions please feel free to contact us.

Thanks,

JEFF BROOM, ENVIRONMENTAL TECHNICIAN

APACHE CORPORATION
2350 W. Marland Blvd.,
Hobbs, NM 88240
Cell: 432.664.4677

ApacheCorp.com | [LinkedIn](#) | [Facebook](#) | [Twitter](#) | [StockTwits](#) | [YouTube](#)

Volume Calculation

1,332 cubic feet of soil contamination X 7.48 gallons per cubic foot = 9,964 gallons/42 gallons to a barrel=237 barrels X .33 soil porosity= 78 barrels fluid in soil + 75 barrels recovered = 153 barrels total loss.

Incident ID	NDHR1917957292
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Larry Baker Title: Environmental Tech SR.
 Signature: Larry Baker Date: 9/1/2020
 email: larry.baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: Cristina Eads Date: 09/01/2020

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: Cristina Eads Date: 10/29/2020



New Mexico Office of the State Engineer
Wells with Well Log Information

No wells found

UTM NAD83 Radius Search (in meters):

Easting (X): 673371.14

Northing (Y): 3598975.54

Radius: 1000

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.

10/15/19 3:55 PM

WELLS WITH WELL LOG INFORMATION



New Mexico Office of the State Engineer Wells with Well Log Information

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

(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	Subbasin	County	Source	64	16	4	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
CP00552		CP	LE	Shallow	2	4	04	21S	37E		672700	35980225	1166	07/31/1976	07/31/1976	01/11/1979	90	75	VAN NOY, W L	208
CP00553		CP	LE	Shallow	2	4	04	21S	37E		672700	35980225	1166	09/30/1976	09/30/1976	01/10/1979	90	75	VAN NOY, W L	208
CP01741.POD1		CP	LE	Shallow	1	3	03	21S	37E		673895	3597759	1324	10/01/2018	10/01/2018	11/05/2018	45		MARTIN STRAUB	1710
L13540.POD1		L	LE	Shallow	4	4	34	20S	38E		675011	3600037	1953	06/17/2014	06/17/2014	10/02/2014	88		JOHN W WHITE	1456
CP01480.POD1		CP	LE	Shallow	4	2	05	21S	37E		670333	3599085	3040	02/02/2016	02/02/2016	02/05/2016	140	52	ALAN G EADES	1044
CP00554		CP	LE	Shallow	2	2	16	21S	37E		672744	3595610*	3423	06/01/1976	06/05/1976	04/05/1977	80	70	VAN NOY, W L	208
CP01724.POD2		CP	LE		3	3	14	21S	37E		674594	3595204	3964	07/08/2019	07/08/2019	08/28/2019	198		JOHN NORRIS	1755
CP01724.POD6		CP	LE		3	3	14	21S	37E		674624	3595194	3983	08/08/2019	08/08/2019	08/28/2019	104		JOHN NORRIS	1755
CP01724.POD5		CP	LE	Shallow	3	3	14	21S	37E		674606	3595176	3994	08/08/2019	08/08/2019	08/28/2019	30	22	JOHN NORRIS	1755
CP01724.POD3		CP	LE	Shallow	3	3	14	21S	37E		674623	3595163	4012	07/08/2019	07/08/2019	08/28/2019	34		JOHN NORRIS	1755
CP01724.POD1		CP	LE	Shallow	3	3	14	21S	37E		674646	3595143	4038	07/09/2019	07/09/2019	08/28/2019	34	18	JOHN NORRIS	1755
CP01724.POD4		CP	LE	Shallow	3	3	14	21S	37E		674662	3595126	4059	07/12/2019	07/12/2019	08/28/2019	28	19	JOHN NORRIS	1755
L07280		L	LE	Shallow	4	3	26	20S	38E		676412	3601687*	4074	06/01/1978	06/05/1978	09/19/1978	130	65		208
CP00720.POD1		CP	LE	Shallow	4	1	15	21S	37E		673259	3594711*	4266	04/28/1989	05/11/1989	07/17/1989	8015		J H SMITHERMAN	
CP01185.POD1		CP	LE	Shallow	1	3	14	21S	37E		674598	3594689	4458	08/28/2013	08/28/2013	09/16/2013	70		BRYAN, EDWARD	1711
CP01185.POD2		CP	LE	Shallow	1	3	14	21S	37E		674623	3594674	4479	08/28/2013	08/28/2013	09/16/2013	70		EDWARD BRYAN	1711
CP01110.POD1		CP	LE	Shallow	1	3	14	21S	37E		674586	3594648	4494	10/10/2012	10/10/2012	10/17/2012	70			1478
CP01110.POD2		CP	LE	Shallow	1	3	14	21S	37E		674586	3594648	4494	10/10/2012	10/10/2012	10/17/2012	70			1478
CP01110.POD3		CP	LE	Shallow	1	3	14	21S	37E		674586	3594648	4494	10/10/2012	10/10/2012	10/17/2012	70			1478
CP01110.POD4		CP	LE		1	3	14	21S	37E		674586	3594648	4494	10/10/2012	10/10/2012	10/17/2012	20			1478
CP01110.POD5		CP	LE		1	3	14	21S	37E		674586	3594648	4494	10/10/2012	10/10/2012	10/17/2012	20			1478
CP01185.POD3		CP	LE	Shallow	1	3	14	21S	37E		674592	3594620	4523	08/28/2013	08/28/2013	09/16/2013	70		EDWARD BRYAN	1711
CP00827		CP	LE	Shallow			06	21S	37E		668920	3598153*	4526	02/26/1998	02/26/1998	03/06/1998	150	73	EADES, ALAN	1044
CP00820.POD1		CP	LE	Shallow	4	3	06	21S	37E		669110	3597437	4529	09/19/2008	09/19/2008	10/08/2008	154		EADES, ALAN	1044
CP01574.POD1		CP	LE	Shallow	2	4	15	21S	37E		674559	3594598	4535	12/14/2015	12/15/2015	12/30/2015	68	57	JOHN W WHITE	1456
CP01185.POD4		CP	LE	Shallow	1	3	14	21S	37E		674633	3594610	4543	08/29/2013	08/29/2013	09/16/2013	70		EDWARD BRYAN	1711
CP01574.POD2		CP	LE	Shallow	1	3	14	21S	37E		674666	3594578	4583	12/14/2015	12/15/2015	12/30/2015	68	57	JOHN W WHITE	1456
CP01141.POD3		CP	LE	Shallow			15	21S	37E		673520	3594272	4705	05/01/2013	05/01/2013	05/31/2013	40		STRAUB, RAYMOND	1478

file:///sen.er/userdocs5/Natalieg/Desktop/Clients/Apache/NEDU%20Sat%202A%20(NEDU%20%23128%206-26-19/Water%20Column%205000.htm[10/16/2019 6:10:09 AM]

CP:0114.POD2	CP	LE	Shallow	15	21S	37E	673543	3594250	4728	05/01/2013	05/01/2013	05/31/2013	40	STRAUB, RAYMOND	1478				
CP:0114.POD1	CP	LE	Shallow	15	21S	37E	673556	3594239	4739	05/01/2013	05/01/2013	05/31/2013	45	STRAUB, RAYMOND	1478				
CP:01575.POD1	CP	LE	Shallow	1	2	1	22	21S	37E	673544	3594204	4773	12/15/2015	12/16/2015	12/30/2015	40	35	WHITE, JOHN W	1456
CP:01575.POD2	CP	LE	Shallow	2	2	1	22	21S	37E	673615	3594181	4800	12/15/2015	12/16/2015	12/30/2015	35	35	WHITE, JOHN W	1456
CP:00731.POD1	CP	LE	Shallow	2	1	22	21S	37E	673577	3594015*	4964	05/10/1988	05/18/1988	11/03/1988	8130	A J	FORE		

Record Count: 33

UTM NAD83 Radius Search (in meters):

Easting (X): 673371.14

Northing (Y): 3598975.54

Radius: 5000

*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.

10/15/19 3:55 PM

WELLS WITH WELL LOG INFORMATION



New Mexico Office of the State Engineer Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64 Q16 Q4 Sec Tws Rng	X	Y
	CP 00552	2 4 04 21S 37E	672700	3598022*

Driller License: 208	Driller Company: VAN NOY, W.L.	
Driller Name: VAN NOY, W.L.		
Drill Start Date: 07/31/1976	Drill Finish Date: 07/31/1976	Plug Date:
Log File Date: 01/11/1979	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield:
Casing Size: 6.63	Depth Well: 90 feet	Depth Water: 75 feet

Water Bearing Stratifications:	Top	Bottom	Description
	75	88	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	75	89

*UTM location was derived from PLSS - see Help

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New Mexico Office of the State Engineer Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	CP 01741 POD1	1	3	4	03	21S	37E	673895	3597759

Driller License: 1710 **Driller Company:** STRAUB CORPORATION
Driller Name: MARTIN STRAUB
Drill Start Date: 10/01/2018 **Drill Finish Date:** 10/01/2018 **Plug Date:**
Log File Date: 11/05/2018 **PCW Rcv Date:** **Source:** Shallow
Pump Type: **Pipe Discharge Size:** **Estimated Yield:**
Casing Size: 4.00 **Depth Well:** 45 feet **Depth Water:**

Water Bearing Stratifications:	Top	Bottom	Description
	39	45	Other/Unknown

Casing Perforations:	Top	Bottom
	25	45



New Mexico Office of the State Engineer Point of Diversion Summary

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag	POD Number	Q64 Q16 Q4	Sec Tws Rng	X	Y
	CP 00553	2 4 04	21S 37E	672700	3598022*

Driller License: 208	Driller Company: VAN NOY, W.L.	
Driller Name: VAN NOY, W.L.		
Drill Start Date: 09/30/1976	Drill Finish Date: 09/30/1976	Plug Date:
Log File Date: 01/10/1979	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield:
Casing Size: 6.63	Depth Well: 90 feet	Depth Water: 75 feet

Water Bearing Stratifications:	Top	Bottom	Description
	75	85	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	75	89

*UTM location was derived from PLSS - see Help

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New Mexico Office of the State Engineer Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
 (quarters are smallest to largest) (NAD83 UTM in meters)

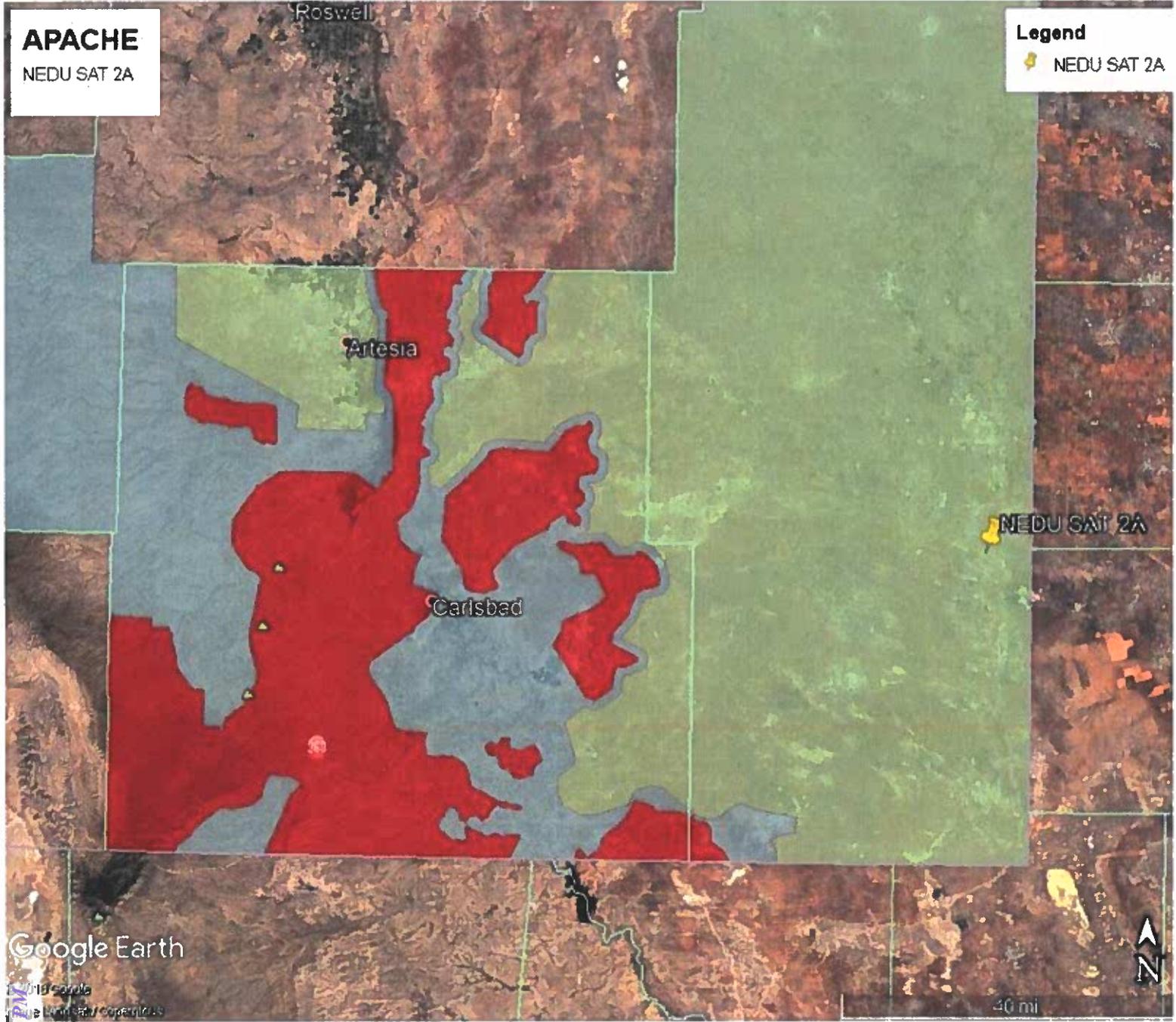
Well Tag	POD Number	Q64 Q16 Q4	Sec	Tws	Rng	X	Y
	CP 01486 POD1	4 2 1	05	21S	37E	670333	3599085

Driller License: 1044	Driller Company: EADES WELL DRILLING & PUMP SERVICE	
Driller Name: ALAN G EADES		
Drill Start Date: 02/02/2016	Drill Finish Date: 02/02/2016	Plug Date:
Log File Date: 02/05/2016	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield:
Casing Size: 5.14	Depth Well: 140 feet	Depth Water: 52 feet

Water Bearing Stratifications:	Top	Bottom	Description
	52	105	Sandstone/Gravel/Conglomerate
	105	135	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	100	140

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.



Radius

Buffer Size (miles) : 0.5

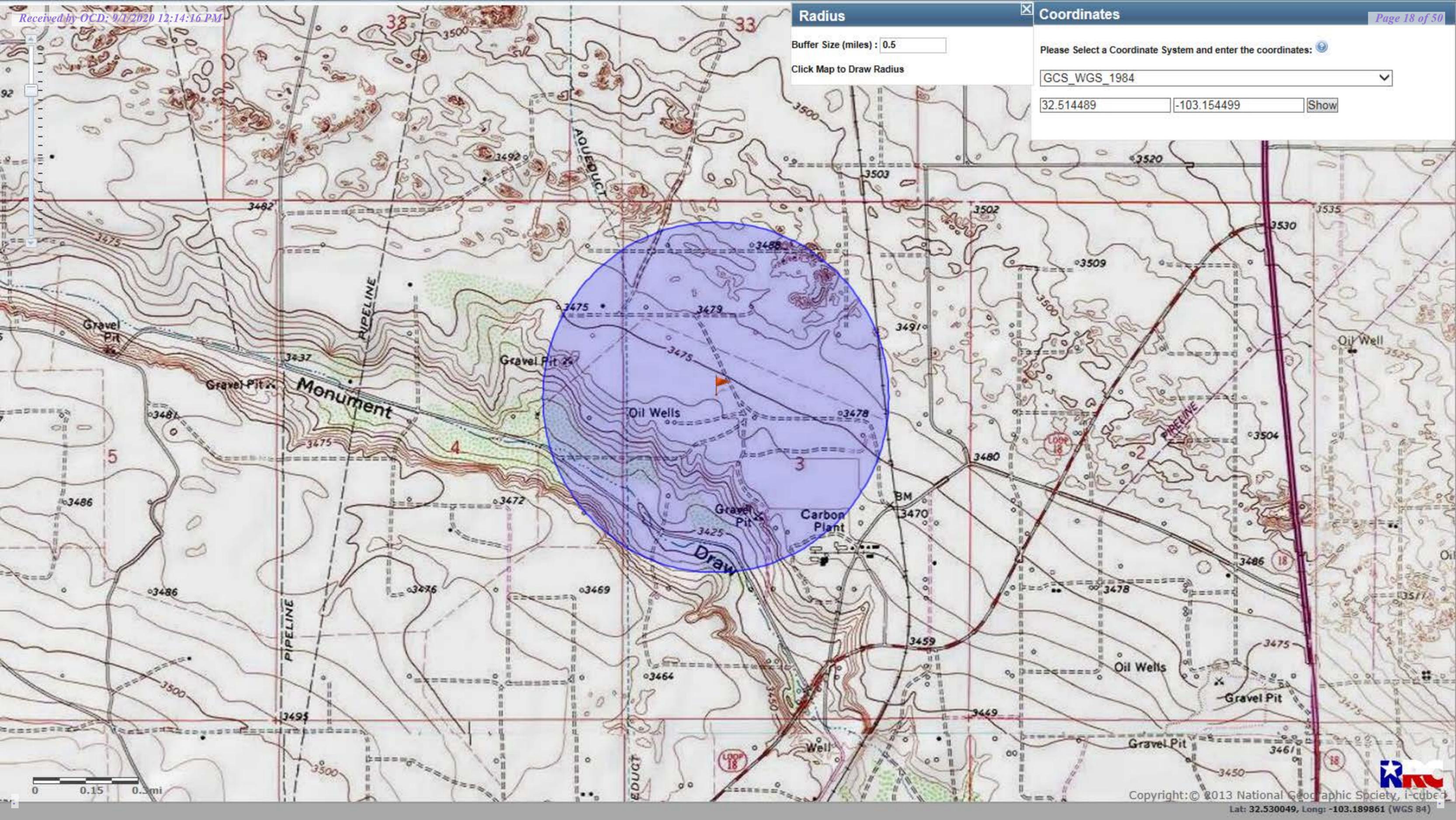
Click Map to Draw Radius

Coordinates

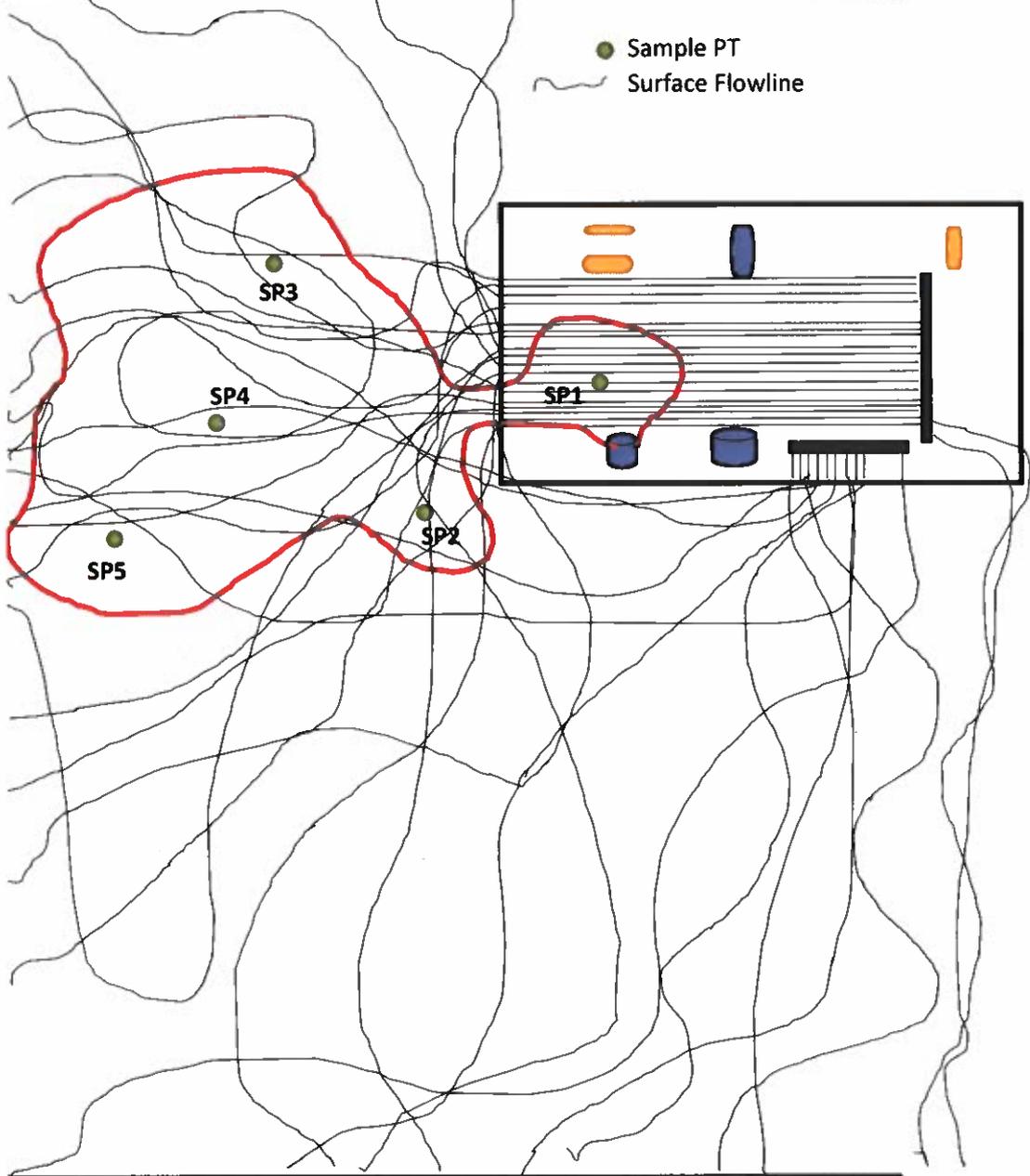
Please Select a Coordinate System and enter the coordinates:

GCS_WGS_1984

32.514489 -103.154499 Show



Apache Corporation: NEDU Sat 2A Release Date: June 26, 2019	RP No. 1RP-5591 API No. 30-025-34651
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Sample ID	Depth	BTEX	Chloride	TPH	Ext DRO	Description
SP1	Surface	<0.300	2960	18900	4690	
SP1	1'	<0.300	1340	237	44.9	
SP2	Surface	<0.300	736	426	161	
SP2	1'	<0.300	576	33.3	<10	
SP3	Surface	<0.300	496	7680	3090	Impervious
SP4	Surface	<0.300	32	<10	<10	Impervious
SP5	Surface	<0.300	<16	<10	<10	Impervious



NE Drinkard Unit Sat 2A

W7

W6

W1

W2

W5

W4

W3

100 ft

Sample Date	Sample ID	Depth	Chloride	Benzene	Toulene	Ethybenzene	Total Xylenes	Total BTEX	GRO	DRO	EXT DRO	GPS Coordinates
10/1/2019	SP 1	S	2960	<0.050	<0.050	<0.050	<0.150	<0.300	<100	18900	4690	32.514489,- 103.154499
10/1/2019		1'	1340	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	237	44.9	
10/1/2019	SP 2	S	736	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	426	161	32.514256, - 103.154478
10/1/2019		1'	576	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	33.3	<10.0	
10/1/2019	SP 3	S	496	<0.050	<0.050	<0.050	<0.150	<0.300	<50.0	7630	3090	32.514377,- 103.154653
10/1/2019	SP 4	S	32	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514228,- 103.154744
10/1/2019	SP 5	S	<16.0	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514113,- 103.154960
2/25/2020	HC1	S	32	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514409, - 103.154730
2/25/2020	HC2	S	<16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514294, - 103.154793
2/25/2020	HC3	S	16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514050, - 103.155083
2/25/2020	HC4	S	<16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.513138,- 103.154684
2/25/2020	HC5	S	<16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514174, - 103.154406
2/25/2020	HC6	S	<16	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514833, - 103.154365
2/25/2020	HC7	S	48	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	<10.0	32.514537, - 103.154294



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

October 04, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU SATELLITE 2A

Enclosed are the results of analyses for samples received by the laboratory on 10/02/19 14:45.

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".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 - SURFACE (H903366-01)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87		
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15		
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75		
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29		
Total BTEX	<0.300	0.300	10/03/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.9 % 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	2960	16.0	10/03/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10*	<100	100	10/02/2019	ND	163	81.4	200	5.24			
DRO >C10-C28*	18900	100	10/02/2019	ND	154	77.2	200	5.01			
EXT DRO >C28-C36	4690	100	10/02/2019	ND							

Surrogate: 1-Chlorooctane 126 % 41-142

Surrogate: 1-Chlorooctadecane 721 % 37.6-147

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 1 - 1' (H903366-02)

BTEX 8021B		mg/kg		Analyzed By: BF				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87	
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15	
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75	
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29	
Total BTEX	<0.300	0.300	10/03/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 73.0 % 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	1340	16.0	10/03/2019	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	10/02/2019	ND	163	81.4	200	5.24	
DRO >C10-C28*	237	10.0	10/02/2019	ND	154	77.2	200	5.01	
EXT DRO >C28-C36	44.9	10.0	10/02/2019	ND					

Surrogate: 1-Chlorooctane 77.7 % 41-142

Surrogate: 1-Chlorooctadecane 88.3 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 - SURFACE (H903366-03)

BTEX 8021B		mg/kg		Analyzed By: BF				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87	
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15	
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75	
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29	
Total BTEX	<0.300	0.300	10/03/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 72.6 % 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	736	16.0	10/03/2019	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	10/02/2019	ND	163	81.4	200	5.24	
DRO >C10-C28*	426	10.0	10/02/2019	ND	154	77.2	200	5.01	
EXT DRO >C28-C36	161	10.0	10/02/2019	ND					

Surrogate: 1-Chlorooctane 73.0 % 41-142

Surrogate: 1-Chlorooctadecane 97.6 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 2 - 1' (H903366-04)

BTEX 8021B		mg/kg		Analyzed By: BF					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87	
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15	
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75	
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29	
Total BTEX	<0.300	0.300	10/03/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 73.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	10/03/2019	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	10/02/2019	ND	163	81.4	200	5.24	
DRO >C10-C28*	33.3	10.0	10/02/2019	ND	154	77.2	200	5.01	
EXT DRO >C28-C36	<10.0	10.0	10/02/2019	ND					

Surrogate: 1-Chlorooctane 70.5 % 41-142

Surrogate: 1-Chlorooctadecane 74.2 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 3 - SURFACE (H903366-05)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87		
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15		
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75		
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29		
Total BTEX	<0.300	0.300	10/03/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 75.2 % 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	496	16.0	10/03/2019	ND	416	104	400	3.77		

TPH 8015M		mg/kg		Analyzed By: MS							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10*	<50.0	50.0	10/02/2019	ND	163	81.4	200	5.24			
DRO >C10-C28*	7630	50.0	10/02/2019	ND	154	77.2	200	5.01			
EXT DRO >C28-C36	3090	50.0	10/02/2019	ND							

Surrogate: 1-Chlorooctane 78.9 % 41-142

Surrogate: 1-Chlorooctadecane 428 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 4 - SURFACE (H903366-06)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87		
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15		
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75		
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29		
Total BTEX	<0.300	0.300	10/03/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 77.0 % 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	32.0	16.0	10/03/2019	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	10/02/2019	ND	163	81.4	200	5.24		
DRO >C10-C28*	<10.0	10.0	10/02/2019	ND	154	77.2	200	5.01		
EXT DRO >C28-C36	<10.0	10.0	10/02/2019	ND						

Surrogate: 1-Chlorooctane 74.7 % 41-142

Surrogate: 1-Chlorooctadecane 76.3 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	10/02/2019	Sampling Date:	10/01/2019
Reported:	10/04/2019	Sampling Type:	Soil
Project Name:	NEDU SATELLITE 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SP 5 - SURFACE (H903366-07)

BTEX 8021B		mg/kg		Analyzed By: BF						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	10/03/2019	ND	1.97	98.5	2.00	3.87		
Toluene*	<0.050	0.050	10/03/2019	ND	1.90	94.8	2.00	3.15		
Ethylbenzene*	<0.050	0.050	10/03/2019	ND	1.89	94.7	2.00	3.75		
Total Xylenes*	<0.150	0.150	10/03/2019	ND	5.82	97.0	6.00	4.29		
Total BTEX	<0.300	0.300	10/03/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 76.7 % 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	<16.0	16.0	10/03/2019	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	10/03/2019	ND	169	84.3	200	5.12		
DRO >C10-C28*	<10.0	10.0	10/03/2019	ND	158	78.9	200	5.34		
EXT DRO >C28-C36	<10.0	10.0	10/03/2019	ND						

Surrogate: 1-Chlorooctane 83.9 % 41-142

Surrogate: 1-Chlorooctadecane 85.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
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

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager



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

March 02, 2020

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: NEDU 2A

Enclosed are the results of analyses for samples received by the laboratory on 02/26/20 14:53.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

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

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

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

Received: 02/26/2020
 Reported: 03/02/2020
 Project Name: NEDU 2A
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 02/25/2020
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: H 1 @ SURFACE (H000623-01)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	8.08	
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	9.56	
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.80	90.1	2.00	9.40	
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.21	86.9	6.00	9.52	
Total BTEX	<0.300	0.300	02/28/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.1 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	02/28/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/29/2020	ND	214	107	200	2.44	
DRO >C10-C28*	<10.0	10.0	02/29/2020	ND	230	115	200	3.60	
EXT DRO >C28-C36	<10.0	10.0	02/29/2020	ND					

Surrogate: 1-Chlorooctane 88.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 85.9 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	NEDU 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: H 2 @ SURFACE (H000623-02)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	8.08		
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	9.56		
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.80	90.1	2.00	9.40		
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.21	86.9	6.00	9.52		
Total BTEX	<0.300	0.300	02/28/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	02/28/2020	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/29/2020	ND	214	107	200	2.44		
DRO >C10-C28*	<10.0	10.0	02/29/2020	ND	230	115	200	3.60		
EXT DRO >C28-C36	<10.0	10.0	02/29/2020	ND						

Surrogate: 1-Chlorooctane 86.9 % 44.3-144

Surrogate: 1-Chlorooctadecane 83.1 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	NEDU 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: H 3 @ SURFACE (H000623-03)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	8.08		
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	9.56		
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.80	90.1	2.00	9.40		
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.21	86.9	6.00	9.52		
Total BTEX	<0.300	0.300	02/28/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	02/28/2020	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/29/2020	ND	214	107	200	2.44		
DRO >C10-C28*	<10.0	10.0	02/29/2020	ND	230	115	200	3.60		
EXT DRO >C28-C36	<10.0	10.0	02/29/2020	ND						

Surrogate: 1-Chlorooctane 89.4 % 44.3-144

Surrogate: 1-Chlorooctadecane 86.3 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	NEDU 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: H 4 @ SURFACE (H000623-04)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	8.08		
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	9.56		
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.80	90.1	2.00	9.40		
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.21	86.9	6.00	9.52		
Total BTEX	<0.300	0.300	02/28/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	02/28/2020	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/29/2020	ND	214	107	200	2.44		
DRO >C10-C28*	<10.0	10.0	02/29/2020	ND	230	115	200	3.60		
EXT DRO >C28-C36	<10.0	10.0	02/29/2020	ND						

Surrogate: 1-Chlorooctane 87.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 84.0 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	NEDU 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: H 5 @ SURFACE (H000623-05)

BTEX 8021B		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	8.08		
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.8	2.00	9.56		
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.80	90.1	2.00	9.40		
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.21	86.9	6.00	9.52		
Total BTEX	<0.300	0.300	02/28/2020	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	02/28/2020	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: CK						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	02/29/2020	ND	214	107	200	2.44		
DRO >C10-C28*	<10.0	10.0	02/29/2020	ND	230	115	200	3.60		
EXT DRO >C28-C36	<10.0	10.0	02/29/2020	ND						

Surrogate: 1-Chlorooctane 87.6 % 44.3-144

Surrogate: 1-Chlorooctadecane 83.0 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	NEDU 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: H 6 @ SURFACE (H000623-06)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/28/2020	ND	1.79	89.6	2.00	9.17	
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.9	2.00	9.14	
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.81	90.3	2.00	8.59	
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.29	88.2	6.00	8.69	
Total BTEX	<0.300	0.300	02/28/2020	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	02/28/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/29/2020	ND	214	107	200	2.44	
DRO >C10-C28*	<10.0	10.0	02/29/2020	ND	230	115	200	3.60	
EXT DRO >C28-C36	<10.0	10.0	02/29/2020	ND					

Surrogate: 1-Chlorooctane 84.5 % 44.3-144

Surrogate: 1-Chlorooctadecane 83.2 % 42.2-156

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

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

Received:	02/26/2020	Sampling Date:	02/25/2020
Reported:	03/02/2020	Sampling Type:	Soil
Project Name:	NEDU 2A	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: H 7 @ SURFACE (H000623-07)

BTEX 8021B		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/28/2020	ND	1.79	89.6	2.00	9.17	
Toluene*	<0.050	0.050	02/28/2020	ND	1.80	89.9	2.00	9.14	
Ethylbenzene*	<0.050	0.050	02/28/2020	ND	1.81	90.3	2.00	8.59	
Total Xylenes*	<0.150	0.150	02/28/2020	ND	5.29	88.2	6.00	8.69	
Total BTEX	<0.300	0.300	02/28/2020	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	02/28/2020	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: CK					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/28/2020	ND	210	105	200	0.0833	
DRO >C10-C28*	<10.0	10.0	02/28/2020	ND	202	101	200	1.64	
EXT DRO >C28-C36	<10.0	10.0	02/28/2020	ND					

Surrogate: 1-Chlorooctane 90.1 % 44.3-144

Surrogate: 1-Chlorooctadecane 91.9 % 42.2-156

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* = Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Notes and Definitions

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

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CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: <i>Apate Cold</i>	P.O. #:	BILL TO	ANALYSIS REQUEST
Project Manager: <i>Bruce Baker</i>	Company:		
Address:	Attn:		
City:	Address:		
State:	City:		
Zip:	State:		
Phone #:	Zip:		
Fax #:	Phone #:		
Project #:	Fax #:		
Project Name: <i>NEW 2A</i>			
Project Location: <i>NEW 2A</i>			
Sampler Name: <i>J. Brown</i>			

Lab I.D.	Sample I.D.	FOR LAB USE ONLY	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX						PRESERV.	SAMPLING	DATE	TIME	CL -	BTEX	EXT. TPH
					GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :							
<i>H000623</i>													<i>2/25/20</i>	<i>1445</i>	<i>1</i>	<i>1</i>	<i>1</i>
	<i>H1 @ Surface</i>																
	<i>H2 @ Surface</i>																
	<i>H3 @ Surface</i>																
	<i>H4 @ Surface</i>																
	<i>H5 @ Surface</i>																

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Relinquished By: *Jeff Brown*

Received By: *Jamora Alabazyr*

Date: *2/26/20*

Time: *1453*

Observed Temp. °C: *5.4*

Corrected Temp. °C: _____

Sample Condition: Intact Cool Yes No

Checked By: *JA*

Turnaround Time: Standard Rush

Bacteria (only) Yes No

Sample Condition: Intact Cool Yes No

Observed Temp. °C: _____

Corrected Temp. °C: _____

Relinquished By: _____

Date: _____

Time: _____

Observed Temp. °C: _____

Corrected Temp. °C: _____

Sample Condition: Intact Cool Yes No

Checked By: _____

Turnaround Time: Standard Rush

Bacteria (only) Yes No

Sample Condition: Intact Cool Yes No

Observed Temp. °C: _____

Corrected Temp. °C: _____

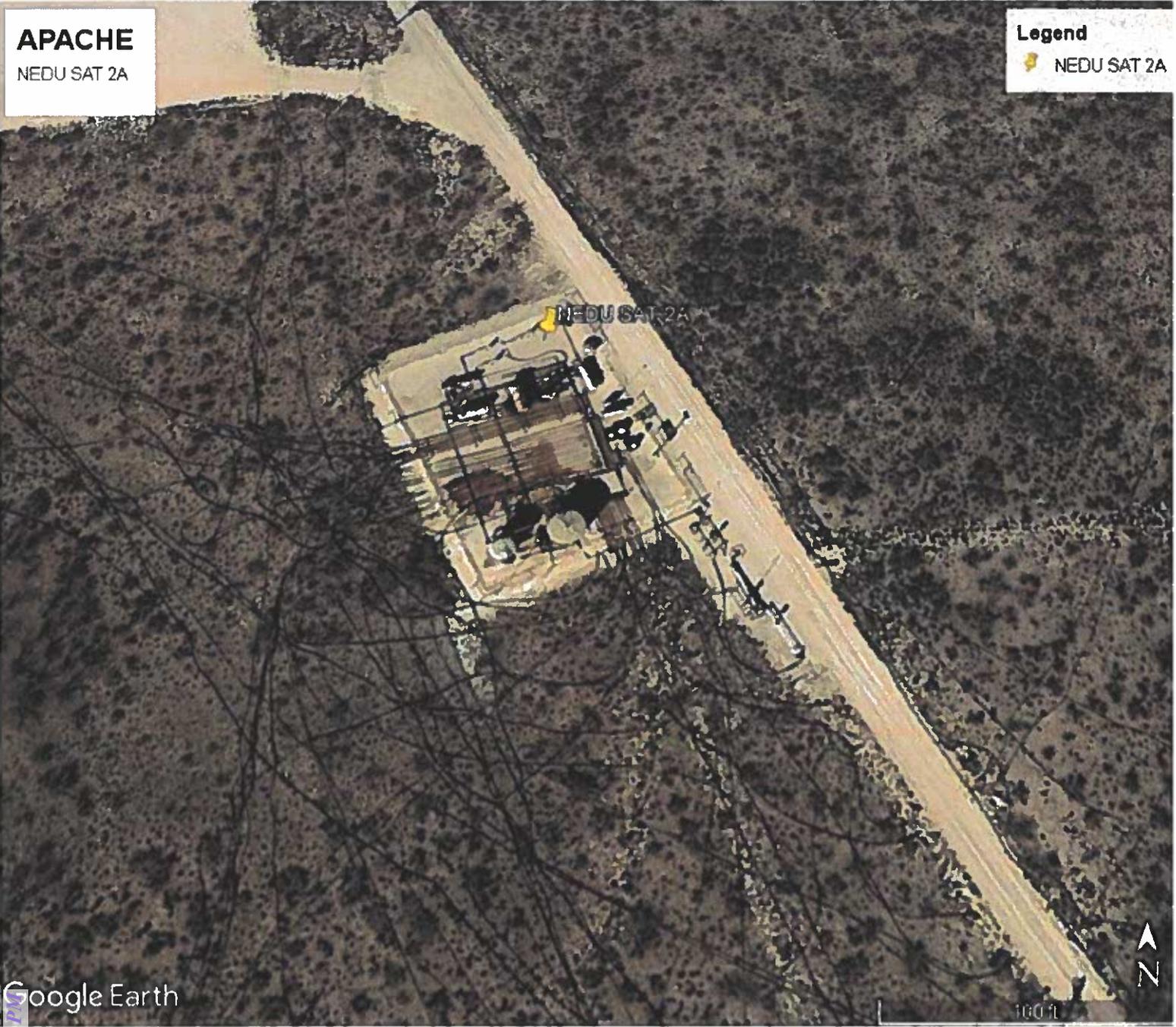
† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsonm.com



303 Veterans Airpark Lane Midland, TX 79705

Variance Request

Apache Corporation request a variance to further delineation vertically at SP 3. The release area is situated on top of a hill and hard rock is encounter at 1 foot. The area is not accessible to drive equipment such as backhoes, hydro-vac, or a soil bore rig. The pasture has multiple poly flow lines and the battery has limited space to enter the area through the battery. There is representation of vertical delineation at SP 2 at 1 foot.



Google Earth

HUNGRY HORSE, LLC

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Lovington, NM 88240
Office (575) 393-3386

Apache - NEDU Satellite 2A Photo Page



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