Volume calculator

There was no volume calculator prepared when the spill occurred.

Incident Number: nSEB0819748645

Amended Release Assessment and Closure

Apache 13 Fed #001

Unit H, Section 13, Township 22 South, Range 30 East

API: 30-015-27434

County: Eddy

Vertex File Number: 21E-02816-28

Prepared for:

Devon Energy Production Company, LP

Prepared by:

Vertex Resource Services Inc.

Date:

June, 2023

Release Assessment and Closure
Apache 13 Fed #001
Unit H, Section 13, Township 22 South, Range 30 East
API: 30-015-27434
County: Eddy

Prepared for:
Devon Energy Production Company, LP
6488 Seven Rivers Highway
Artesia, New Mexico 88210

New Mexico Oil Conservation Division – District 2 – Artesia
811 S. 1st Street
Artesia, New Mexico 88210

Prepared by:
Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, New Mexico 88220

Lakin Pullman

Lakin Pullman, B.Sc.
ENVIRONMENTAL SPECIALIST, REPORTING

June 17 2023
Date

Kent Stallings P.G.

Kent Stallings, P.G.
PROJECT MANAGER, REPORT REVIEW

June 19, 2023
Date

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1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a produced water release that occurred on June 20, 2008, at Apache 13 Fed #001 API 30-015-27434 (hereafter referred to as "site"). Devon submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 2 on June 26, 2008. Incident ID and administrative work order numbers nSEB0819748645 and 2RP-197 were assigned to this incident, respectively.

On February 9, 2021, Pima Environmental Services, LLC (Pima Environmental), submitted a closure report for incident nSEB0819748645, 2RP-197 at Apache 13. The closure report was denied by the NMOCD on January 12, 2023. This report is intended to be an amendment to the original Pima Environmental closure report, which is included in Appendix F.

This report provides a description of the release assessment and remediation activities associated with the site. The information presented demonstrates that closure criteria established in Table I of 19.15.29.12 of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD has been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release, with the understanding that restoration of the release site will be deferred until such time as all oil and gas activities are terminated and the site is reclaimed as per NMAC 19.15.29.13.

2.0 Incident Description

The release occurred on June 20, 2008, due to a leak in the seam of a tank. The incident was reported on June 26, 2008, and involved the release of approximately 40 barrels (bbl) of produced water into containment. Approximately 30 bbl of free fluid was removed during initial clean-up. Additional details relevant to the release are presented in the C-141 Report. Daily Field Reports (DFRs) and site photographs are included in Appendix C.

3.0 Site Characteristics

The site is located approximately 16.8 miles east-northeast of Loving, New Mexico. The legal location for the site is Unit H, Section 13, Township 22 South and Range 30 East in Eddy County, New Mexico. The release area is located on Bureau of Land Management property. An aerial photograph and site schematic are presented on Figure 1.

The location is typical of oil and gas exploration and production sites in the Permian Basin, and is currently used for oil and gas production and storage. The following sections specifically describe the release area at Apache 13 on or in proximity to the constructed pad (Figure 1).

The surrounding landscape is associated with fan piedmonts with elevations ranging between 2,000 and 5,700 feet. The climate is semiarid with average annual precipitation ranging between 5 and 15 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be black grama and mesquite. Grasses with shrubs and half-shrubs dominate the historic plant community (United States Department of Agriculture, Natural Resources Conservation Service, 2023). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

The surface geology at the site primarily comprises Qep – Eolian and piedmont deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2023) and the soil at the site is characterized as fine sand and sandy clay loam (United States Department of Agriculture, Natural Resources Conservation Service, 2023). The soil is typically well drained with a low runoff class. The karst geology potential for the site is Low (United States Department of the Interior, Bureau of Land Management, 2018).

4.0 Closure Criteria Determination

The nearest active well to the site is a United States Geological Survey (USGS) monitoring well located approximately 1.88 miles southwest of the location (United States Geological Survey, 2023). The USGS borehole had a recorded depth to groundwater of 419 feet below ground surface (bgs) in 1977.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately 0.99 miles southwest of the site (United States Fish and Wildlife Service, 2023). At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC. Information pertaining to the closure criteria determination summarized in Table 1 and references are included in Appendix B.

Table 1. Closure Criteria Worksheet			
Site Name: Apache 13 Fed #001			
Spill Coordinates:		**X: 32.395436**	**Y: -103.827046**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**Unknown, default to <50 feet bgs**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	5,220	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	5,918	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	13,305	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	1,187	feet
	ii) Within 1000 feet of any fresh water well or spring	1,187	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	9,124	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	>500	year
11	Soil Type	Fine sand, sandy clay loam	
12	Ecological Classification	Loamy sand	
13	Geology	Eolian and piedmont deposits	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'

The depth to groundwater reference exceeded 0.5 miles from the release area and the depth measurement was made more than 25 years ago; therefore, the closure criteria for remediation and reclamation of the site was determined to be associated with the strictest constituent concentration limits as presented in Table 2.

Table 2. Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – total dissolved solids
TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics
BTEX – benzene, toluene, ethylbenzene and xylenes

5.0 Remedial Actions Taken

5.1 Initial Activities and Closure Request Denial

Initial characterization of the release was completed by Pima Environmental on July 6, 2020. The characterization included partial horizontal delineation around the tank and secondary containment. The laboratory result for chloride (2,900 ppm) at BG-4, the easternmost sample point, exceeded strictest NMOCD criteria.

On January 15, 2021, Pima Environmental excavated the soil at and around sample point BG-4 to 1 foot bgs. The excavation base was 1,050 square feet. Pima Environmental personnel collected four composite excavation wall samples and four excavation base samples, which were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, for laboratory analysis of BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chloride (EPA Method 300.0). The original Pima Environmental closure report, including sample locations and laboratory results, is included in Appendix F. The excavation was backfilled with clean material and contoured to match the surrounding pad. Laboratory analysis results for confirmatory samples collected on January 15, 2021 were below closure criteria for the site.

On February 9, 2021, Devon requested closure for the release at Apache 13, at Pima Environmental's recommendation. On January 12, 2023, the NMOCD denied closure for this incident based on the following:

- The depth to groundwater has not been adequately determined. When nearby wells are used to determine depth to groundwater, the wells should be no further than ½ mile away from the site, and data should be no more than 25 years old, and well construction information should be provided in the submission. The responsible party may choose to remediate to the most stringent levels listed in Table 1 of 19.15.29 NMAC in lieu of drilling to determine the depth to groundwater
- Horizontal and vertical delineation submitted was incomplete and did not meet the requirements of 19.15.29.11 NMAC. The values for determination of horizontal impact are derived by either approved

"background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less. This is especially important for "on-pad" releases to ensure the release did not extend to the "off-pad"/pasture area. A visual footprint on the surface is not sufficient to assess the horizontal extent of the release. Laboratory data must be provided as evidence of delineation efforts. Any sample exceeding approved "background" values or Table I Closure Criteria for releases where groundwater is at a depth of 50 feet or less requires additional samples for horizontal delineation

5.2 Additional Activities

Additional characterization was conducted on March 9 and May 19, 2023, by Vertex. Horizontal and vertical delineation was completed around the containment and the previously excavated area east of the containment. The DFRs associated with the site visits are included in Appendix C. Characterization sample locations and the historical excavation are presented on Figure 1. Characterization field screening and laboratory results are summarized in Table 3. Laboratory results for all additional characterization samples were below the NMOCD strictest criteria.

It was determined that that an insufficient number of confirmation samples were collected from the excavation during the first confirmatory sampling event given the total square footage of the excavation base. Notification that additional confirmatory samples were being collected for incident nSEB0819748645 was provided to the NMOCD on May 16, 2023, and is included in Appendix D.

On May 19, 2023, additional 5-point composite confirmation base samples were collected from the previously backfilled excavation by advancing five boreholes to the excavation depth, collecting discrete samples from the excavation surface, and creating a composite from each set of five samples. Composite borehole samples and corresponding sets of five discrete samples were collected over intervals of 200 square feet within the area of historical excavation. Confirmation base sample field screening and laboratory results are summarized in Table 4.

A total of three additional excavation base samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico, under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chloride (EPA Method 300.0). Excavation boundaries and confirmation sample locations are presented on Figure 2. Laboratory results are presented in Table 4, and the laboratory data reports are included in Appendix E. Laboratory results for all borehole-derived confirmation samples collected and analyzed were below closure criteria for the site.

6.0 Closure Request

Vertex recommends no additional remediation action to address the release at the site. Laboratory analyses of the confirmatory samples showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is less than 50 feet bgs as shown in Table 2. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

This amended report confirms the reasons for the original closure rejection have been addressed. The most stringent closure criteria were applied to the laboratory results for confirmation samples in lieu of drilling to determine depth to groundwater. Horizontal and vertical delineation of the release area was completed.

Vertex requests that this incident (nSEB0819748645, 2RP-197) be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Devon certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the June 20, 2008, release at Apache 13 Fed #001.

Pima completed remediation of the release area and backfilled with local soils by February 2, 2021. The release and excavation areas were fully delineated by Vertex by May 19, 2023. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted by a Release locations less than 50 feet to groundwater. Based on these findings, Devon requests that this release be closed.

Should you have any questions or concerns, please do not hesitate to contact Kent Stallings at 346.814.1413 or kstallings@vertex.ca.

7.0 References

New Mexico Bureau of Geology and Mineral Resources. (2023). *Interactive Geologic Map*. Retrieved from https://maps.nmt.edu/

New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service. (2023). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karst*. Retrieved from https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html

United States Geological Survey. (2023). *National Water Information System: Web Interface*. Retrieved from https://waterdata.usgs.gov/nwis

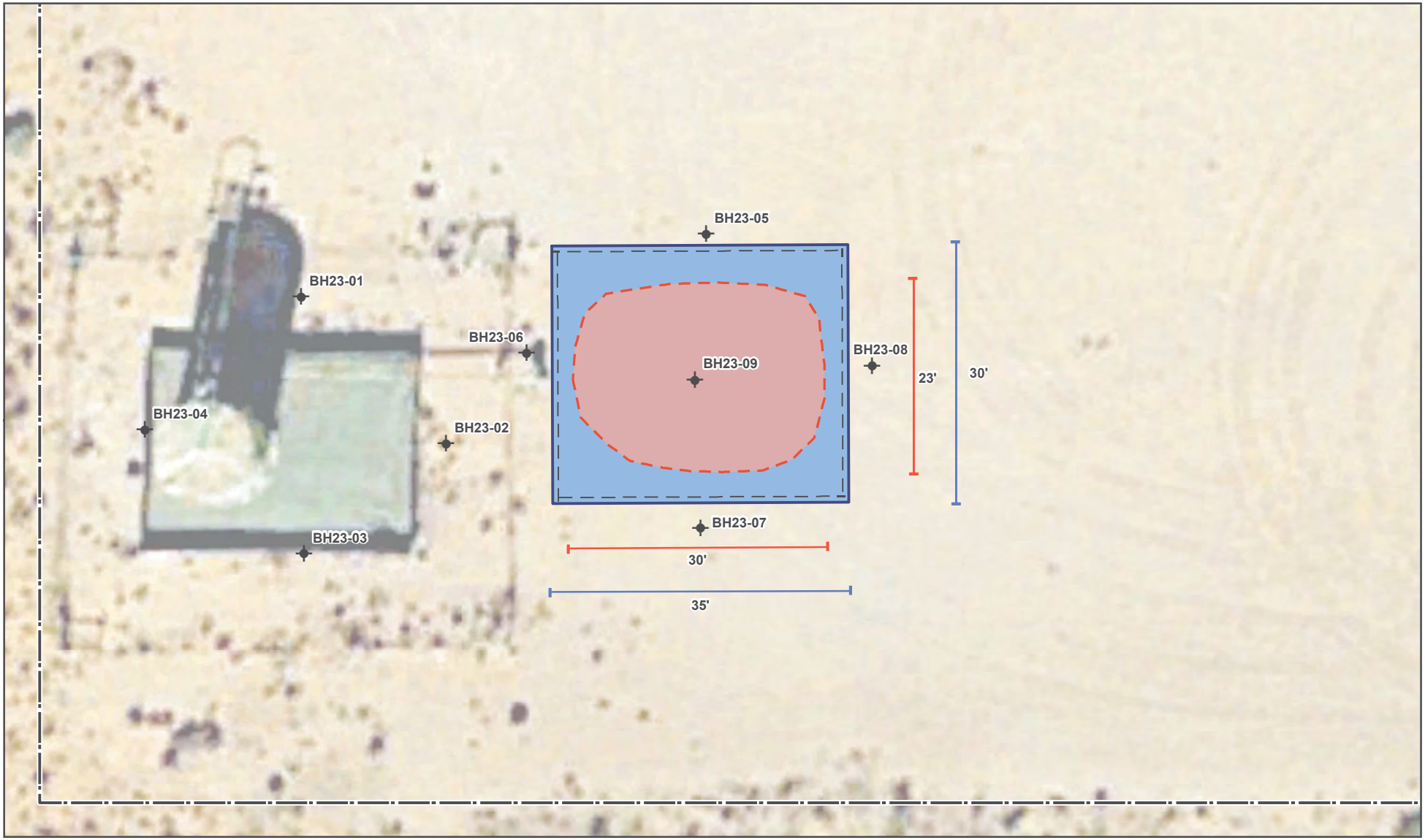
United States Fish and Wildlife Service. (2023). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

8.0 Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company, LP. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division and the Bureau of Land Management, without the express written consent of Vertex Resource Services Inc. (Vertex) and Devon Energy Production Company, LP. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

FIGURES



Borehole | Approximate Lease Boundary | Historical Area of Impact (~583 sq. ft.) | 2020 Excavation to 1' (~1,050 sq. ft.)

VERTEX

0 10 20 Feet

Map Center:
Lat/Long: 32.395436, -103.826885

NAD 1983 UTM Zone 13N
Date: Jun 09/23

N

Additional Characterization Sample Locations
Apache 13 Fed #001

FIGURE: 1

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Image from Google Earth, 2017; georeferenced by Vertex Professional Services Ltd. (Vertex). Site features from GPS by Vertex, 2023.

VERSATILITY. EXPERTISE.

● Base Sample 2020 Excavation to 1' (~1,050 sq. ft.) Approximate Lease Boundary

VERTEX

0 10 20 Feet

Map Center:
Lat/Long: 32.395437, -103.826880

NAD 1983 UTM Zone 13N
Date: May 31/23

N

Additional Confirmation Sample Locations
Apache 13 Fed #001

FIGURE: 2

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Image from Google Earth, 2017; georeferenced by Vertex Professional Services Ltd. (Vertex). Site features from GPS by Vertex, 2023.

VERSATILITY. EXPERTISE.

Document Path: \\vtx-fs01.corp.internal\shared\vps\04 - Geomatics\1-Projects_US PROJECTS\Devon Energy Corporation\2021\21E-02816\028 - Apache 13 Federal #001\Figure 2 Additional Confirmation Sample Locations Apache 13 Fed #001.mxd

TABLES

Client Name: Devon Energy Production Company, LP
Site Name: Apache 13 Fed #001
NM OCD Tracking #: nSEB0819748645, 2RP-197
Project #: 21E-02816-28
Lab Reports: 2303843 and 2305B54

Table 3. Additional Characterization Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH23-01	0	March 9, 2023	-	47	20	ND	ND	ND	ND	ND	ND	ND	ND
	2	March 9, 2023	-	59	86	ND	ND	ND	ND	ND	ND	ND	ND
BH23-02	0	March 9, 2023	-	53	80	ND	ND	ND	ND	ND	ND	ND	ND
	2	March 9, 2023	-	29	46	ND	ND	ND	ND	ND	ND	ND	ND
BH23-03	0	March 9, 2023	-	318	128	ND	ND	ND	ND	ND	ND	ND	ND
	2	March 9, 2023	-	31	186	ND	ND	ND	ND	ND	ND	ND	ND
BH23-04	0	March 9, 2023	-	57	724	ND	ND	ND	ND	ND	ND	ND	440
	2	March 9, 2023	-	41	151	ND	ND	ND	ND	ND	ND	ND	75
	4	March 9, 2023	-	23	ND	ND	ND	ND	ND	ND	ND	ND	ND
BH23-05	0	May 19, 2023	0	9	46	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 19, 2023	0	10	343	ND	ND	ND	ND	ND	ND	ND	190
BH23-06	0	May 19, 2023	0	16	31	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 19, 2023	0	13	8	ND	ND	ND	ND	ND	ND	ND	ND
BH23-07	0	May 19, 2023	0	11	330	ND	ND	ND	ND	ND	ND	ND	200
	2	May 19, 2023	0	17	359	ND	ND	ND	ND	ND	ND	ND	250
BH23-08	0	May 19, 2023	0	15	427	ND	ND	ND	ND	ND	ND	ND	330
	2	May 19, 2023	0	12	531	ND	ND	ND	ND	ND	ND	ND	ND
BH23-09	0	May 19, 2023	0	12	206	ND	ND	ND	ND	ND	ND	ND	160
	2	May 19, 2023	0	14	355	ND	ND	ND	ND	ND	ND	ND	250
	4	May 19, 2023	0	8	441	ND	ND	ND	ND	ND	ND	ND	350

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria

Client Name: Devon Energy Production Company, LP
Site Name: Apache 13 Fed #001
NM OCD Tracking #: nSEB0819748645, 2RP-197
Project #: 21E-02816-28
Lab Report: 2305B54

Table 4. Additional Confirmation Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BS23-01	1	May 19,2023	0	10	56	ND	ND	ND	ND	ND	ND	ND	ND
BS23-02	1	May 19,2023	0	12	46	ND	ND	ND	ND	ND	ND	ND	ND
BS23-03	1	May 19,2023	0	10	27	ND	ND	ND	ND	ND	ND	ND	ND

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria

APPENDIX A - NMOCD C-141 Report

District I
1625 N. French Dr , Hobbs, NM 88240
District II
1301 W Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St Francis Dr , Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

JUL -7 2008
OCD-ARTESIA

Form C-141
Revised March 17, 1999

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

Release Notification and Corrective Action

i SEB0819748796
nSEB0819748645

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company Devon Energy 6137	Contact Tracy Kidd
Address P. O. Box 250 Artesia, NM 88211	Telephone No. (505) 513-0628
Facility Name Apache 13 Fed #1 30-015-27434	Facility Type Gas Well

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	13	T22S	30E	1330	North	330	East	Eddy

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 40 bbls.	Volume Recovered 30 bbls.
Source of Release Leak in seam of water tank	Date and Hour of Occurrence June 20, 2008	Date and Hour of Discovery 9:58 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jim Amos, BLM; Mike Bratcher OCD	
By Whom? Tracy Kidd – Production Foreman	Date and Hour June 20, 2008 4:30 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*
While a swab rig was swabbing a 210 bbl. Tank, the lease operator noticed a leak had developed in the seam of the tank and water was discharging onto the ground area within the firewall. Afterwards, all fluids were transferred from the storage tank into an empty oil tank. It was estimated 40 bbls. of produced water was released and 30 bbls were recovered.

Describe Area Affected and Cleanup Action Taken.*
41'x87' area contained inside firewall. Picked up fluid with vacuum truck and emptied tank. Cleaned up area inside firewall.

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

Signature: Jerry Chaney Printed Name: Jerry Chaney for Tracy Kidd	OIL CONSERVATION DIVISION Approved by District Supervisor: Accepted for record NMOCD
Title: Assistant Production Foreman	Approval Date: Expiration Date:
Date: 6-26-08 Phone: (505) 513-0628	SEE ATTACHED STIPULATIONS Attached ☑ 2RP - 197

* Attach Additional Sheets If Necessary
SEB0819748832

State of New Mexico
Oil Conservation Division

Incident ID	nSEB0819748645
District RP	2RP-197
Facility ID	30-015-27434
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?	<50 (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.

State of New Mexico
Oil Conservation Division

Incident ID	nSEB0819748645
District RP	2RP-197
Facility ID	30-015-27434
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: Jeff Harvard Title: President and Manager

Signature: Date:

email: jharvard@hpcnm.com Telephone: 575-208-7135

OCD Only

Received by: Date:

Incident ID	nSEB0819748645
District RP	2RP-197
Facility ID	30-015-27434
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: Jeff Harvard Title: President and Manager

Signature: _____ Date: _____

email: jharvard@hpcnm.com Telephone: 575-208-7135

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: _____ Date: _____

Printed Name: _____ Title: _____

APPENDIX B – Closure Criteria Research Documentation

Closure Criteria Worksheet				
Site Name: Apache 13 Federal #001				
Spill Coordinates:		X: 32.395436	Y: -103.827046	
Site Specific Conditions		**Value**	**Unit**	**Reference**
1	Depth to Groundwater	**Unknown, default to <50 feet bgs**	feet	1
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	5,220	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	5,918	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	13,305	feet	4
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	1,187	feet	5
	ii) Within 1000 feet of any fresh water well or spring	1,187	feet	5
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)	6
7	Within 300 feet of a wetland	9,124	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low	9
10	Within a 100-year Floodplain	>500	year	10
11	Soil Type	Fine sand, sandy clay loam		11
12	Ecological Classification	Loamy sand		12
13	Geology	Eolian and piedmont deposits		13
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'	

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 322215103502701

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 322215103502701 22S.30E.24.3334 P-14

Eddy County, New Mexico
Latitude 32°22'15", Longitude 103°50'27" NAD27
Land-surface elevation 3,360 feet above NGVD29
This well is completed in the Other aquifers (N9999OTHER) national aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period

Date	Time	? Water-level date-time accuracy	? Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Status	? Method of measurement	? Measuring agency	? Source of measurement	? Wat leve appr stat
1977-02-24		D	62610		2941.00	NGVD29	1	O	USGS	S	
1977-02-24		D	62611		2942.63	NAVD88	1	O	USGS	S	
1977-02-24		D	72019	419.00			1	O	USGS	S	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	O	Observed.
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2023-05-15 18:29:55 EDT
0.28 0.24 nadww01

OSE POD 0.5 mile

5/15/2023, 4:05:13 PM

GIS WATERS PODs
- Active
- Plugged

OSE District Boundary

NHD Flowlines
- Artificial Path
- Connector
- Stream River

SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar

Web Generated Map
Map is generated by web users.

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

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

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

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

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02749		CUB	ED	1	1	1	18	22S	31E	610556	3585146*	362	640		
C 02750		CUB	ED	1	1	1	18	22S	31E	610556	3585146*	362	741		
C 02751		CUB	ED	1	1	1	18	22S	31E	610556	3585146*	362	637		
C 04528 POD1		CUB	ED	1	3	3	12	22S	30E	608886	3585625	1616			
C 02748		CUB	ED	1	2	3	17	22S	31E	612576	3584364*	2315	3856		
C 02683		CUB	ED	3	1	1	20	22S	31E	612184	3583356*	2405	840		
C 02413		CUB	ED	1	2	1	20	22S	31E	612586	3583560*	2621	737		
C 02950 EXPL		CUB	ED	4	2	4	23	22S	30E	608740	3582576*	2786	845		
C 02637		CUB	ED	1	3	3	24	22S	30E	608950	3582377*	2845	759		
C 03002		CUB	ED	4	2	4	06	22S	31E	611933	3587375*	2978	668		
C 03221 EXPLORE		CUB	ED	1	2	1	30	22S	31E	610995	3581935*	3015	651		
C 02682		CUB	ED	4	4	4	08	22S	31E	613566	3585379*	3288	4400		
C 02639		CUB	ED	4	4	4	17	22S	31E	613585	3583770*	3449	3928		
C 02414		CUB	ED	3	1	3	16	22S	31E	613782	3584176*	3534	846		
C 02684		CUB	ED	4	2	2	20	22S	31E	613590	3583368*	3602	1060		
C 03976 POD1		CUB	ED	1	3	4	20	22S	31E	612967	3582387	3633	180		
C 03976 POD2		CUB	ED	1	3	4	20	22S	31E	612967	3582387	3633	70		
C 03976 POD3		CUB	ED	1	3	4	20	22S	31E	612967	3582387	3633	182		
C 03976 POD4		CUB	ED	1	3	4	20	22S	31E	612968	3582386	3634	71		
C 02759		CUB	ED	1	2	1	29	22S	31E	612604	3581952*	3709	795		
C 02755		CUB	ED	4	4	2	20	22S	31E	613595	3582966*	3792	1040		
C 03112 EXPLORE		CUB	ED	3	1	1	09	22S	31E	613753	3586590*	3841	3567		
C 02758		CUB	ED	3	2	1	29	22S	31E	612604	3581752*	3869	661		
C 02762		CUB	ED	3	2	1	29	22S	31E	612604	3581752*	3869	672		
C 02763		CUB	ED	3	2	1	29	22S	31E	612604	3581752*	3869	660		
C 02753		CUB	ED	1	4	4	20	22S	31E	613404	3582362*	3979	851		
C 02986		CUB	ED	1	4	4	20	22S	31E	613404	3582362*	3979	71		
C 02990		CUB	ED	1	4	4	20	22S	31E	613404	3582362*	3979	71		
C 02754		CUB	ED	4	2	4	20	22S	31E	613599	3582564*	4012	1045		

C 02723	CUB	ED	2	2	3	15	22S	30E	606282	3584363*	4067	651		
C 03003	CUB	ED	3	1	3	31	21S	31E	610511	3588970*	4101	650		
C 02989	CUB	ED	3	4	4	20	22S	31E	613404	3582162*	4108	54		
C 02980	CUB	ED	2	4	4	20	22S	31E	613604	3582362*	4136	62		
C 02982	CUB	ED	2	4	4	20	22S	31E	613604	3582362*	4136	65		
C 02984	CUB	ED	2	4	4	20	22S	31E	613604	3582362*	4136	65		
C 02985	CUB	ED	2	4	4	20	22S	31E	613604	3582362*	4136	62		
C 02988	CUB	ED	2	4	4	20	22S	31E	613604	3582362*	4136	75		
C 04402 POD1	CUB	ED	1	3	2	29	22S	31E	612911	3581565	4203	42		
C 04402 POD2	CUB	ED	1	3	2	29	22S	31E	612911	3581565	4203	240		
C 02662	CUB	ED	1	2	2	29	22S	31E	613409	3581960*	4248	856		
C 02765	CUB	ED	1	2	2	29	22S	31E	613409	3581960*	4248	856		
C 02505	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	69	48	21
C 02506	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	69	48	21
C 02507	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	73	45	28
C 02752	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	2875		
C 02801	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	65		
C 02802	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	65		
C 02803	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	65		
C 02981	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	62		
C 02983	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	60		
C 02987	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	68		
C 02991	CUB	ED	4	4	4	20	22S	31E	613604	3582162*	4260	64		
C 02415	CUB	ED	3	3	4	16	22S	31E	614592	3583785*	4411	880	448	432
C 02418	CUB	ED	3	2	3	29	22S	31E	612613	3580948*	4547	617	413	204
C 02419	CUB	ED	3	2	3	29	22S	31E	612613	3580948*	4547	225		
C 04399 POD1	CUB	ED	2	1	1	28	22S	31E	613937	3581991	4626	68		
C 02737	C	ED	2	4	2	29	22S	31E	613604	3581567	4661	710		
C 02811	CUB	ED	2	4	2	29	22S	31E	613613	3581558*	4674	80		
C 02766	CUB	ED	3	3	3	29	22S	31E	612216	3580541*	4729	589		
C 03015	CUB	ED	1	4	3	22	22S	30E	606099	3582353*	4913	1316	262	1054
C 02760	CUB	ED	2	2	4	29	22S	31E	613618	3581156*	4971	725		
C 02761	CUB	ED	2	2	4	29	22S	31E	613618	3581156*	4971	730		
C 02764	CUB	ED	2	2	4	29	22S	31E	613618	3581156*	4971	902		

Average Depth to Water: **210 feet**

Minimum Depth: **45 feet**

Maximum Depth: **448 feet**

Record Count: 63

UTMNAD83 Radius Search (in meters):

Easting (X): 610317 **Northing (Y):** 3584873 **Radius:** 5000

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

5/15/23 3:54 PM

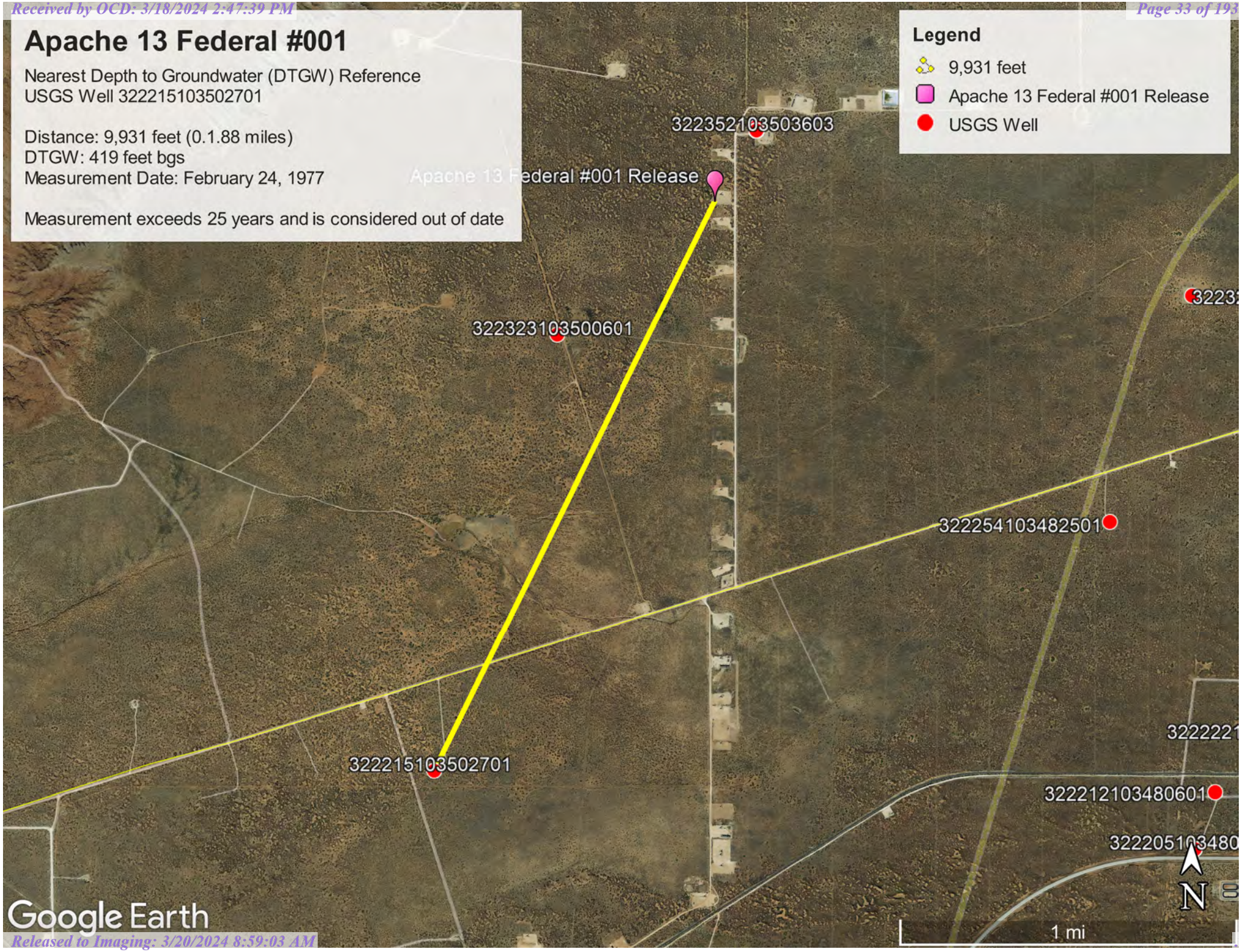
WATER COLUMN/ AVERAGE DEPTH TO WATER

Apache 13 Federal #001

Nearest Depth to Groundwater (DTGW) Reference
USGS Well 322215103502701

Distance: 9,931 feet (0.1.88 miles)
DTGW: 419 feet bgs
Measurement Date: February 24, 1977

Measurement exceeds 25 years and is considered out of date



New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum) (R=POD has been replaced and no longer serves this file, C=the file is closed) (quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) (NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 64	q 16	q 4	Sec	Twn	Rng	X	Y	Distance
C 02678	CUB	MON	0	SANDIA NATIONAL LABORATORIES	ED	C 02678					1	1	1	18	22S	31E	610556	3585146*	362
C 02749	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02749					1	1	1	18	22S	31E	610556	3585146*	362
C 02750	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02750					1	1	1	18	22S	31E	610556	3585146*	362
C 02751	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02751					1	1	1	18	22S	31E	610556	3585146*	362
C 04528	CUB	MON	0	XTO ENERGY INC	ED	C 04528 POD1	NA				1	3	3	12	22S	30E	608886	3585625	1616
C 02948	CUB	EXP	0	US DEPT OF ENERGY CARLSBAD FIELD OFFICE, WIPP	ED	C 02948 EXPL					2	1	1	12	22S	30E	609106	3586801*	2276
C 02748	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02748					1	2	3	17	22S	31E	612576	3584364*	2315
C 02683	CUB	MON	0	SANDIA NATIONAL LABORATORIES	ED	C 02683					3	1	1	20	22S	31E	612184	3583356*	2405
C 02413	CUB	MON	0	U.S.DEPT. OF ENERGY	ED	C 02413				Artesian	1	2	1	20	22S	31E	612586	3583560*	2621
C 02039	C	PRO	0	J.C. MILLS	ED	C 02039					4	4	4	06	22S	31E	611938	3586972*	2652
C 02950	CUB	EXP	0	US DEPT OF ENERGY CARLSBAD FIELD OFFICE, WIPP	ED	C 02950 EXPL				Shallow	4	2	4	23	22S	30E	608740	3582576*	2786
C 02637	CUB	MON	0	U.S. DEPARTMENT OF ENERGY	ED	C 02637					1	3	3	24	22S	30E	608950	3582377*	2845
C 03002	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 03002				Artesian	4	2	4	06	22S	31E	611933	3587375*	2978
C 03221	CUB	MON	0	U.S. DEPART OF ENERGY	ED	C 03221 EXPLORE				Artesian	1	2	1	30	22S	31E	610995	3581935*	3015
C 02682	CUB	MON	0	SANDIA NATIONAL LABORATORIES	ED	C 02682					4	4	4	08	22S	31E	613566	3585379*	3288
C 04403	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 04403 POD1	NA				3	4	3	20	22S	31E	612502	3582213	3442
C 02639	CUB	MON	0	U.S. DEPARTMENT OF ENERGY	ED	C 02639					4	4	4	17	22S	31E	613585	3583770*	3449
C 02414	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02414				Artesian	3	1	3	16	22S	31E	613782	3584176*	3534
C 02684	CUB	MON	0	SANDIA NATIONAL LABORATORIES	ED	C 02684					4	2	2	20	22S	31E	613590	3583368*	3602
C 03976	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 03976 POD1					1	3	4	20	22S	31E	612967	3582387	3633
					ED	C 03976 POD2					1	3	4	20	22S	31E	612967	3582387	3633
					ED	C 03976 POD3					1	3	4	20	22S	31E	612967	3582387	3633
					ED	C 03976 POD4					1	3	4	20	22S	31E	612967	3582386	3634
C 03977	CUB	EXP	0	US DEPARTMENT OF ENERGY	ED	C 03977 POD1					1	3	4	20	22S	31E	612967	3582386	3634
C 02677	CUB	MON	0	SANDIA NATIONAL LABORATORIES	ED	C 02677					1	2	1	29	22S	31E	612604	3581952*	3709
C 02759	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02759					1	2	1	29	22S	31E	612604	3581952*	3709
C 02755	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02755					4	4	2	20	22S	31E	613595	3582966*	3792
C 03112	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 03112 EXPLORE				Artesian	3	1	1	09	22S	31E	613753	3586590*	3841
C 04731	CUB	MON	0	ENSOLUM	ED	C 04731 POD1	NA				1	2	3	25	22S	30E	609329	3581147	3853
C 03112	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 03112 POD2	NA				3	1	1	09	22S	31E	613734	3586676	3864
C 02758	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02758					3	2	1	29	22S	31E	612604	3581752*	3869
C 02762	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02762					3	2	1	29	22S	31E	612604	3581752*	3869
C 02763	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02763					3	2	1	29	22S	31E	612604	3581752*	3869
C 02753	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02753					1	4	4	20	22S	31E	613404	3582362*	3979
C 02986	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02986					1	4	4	20	22S	31E	613404	3582362*	3979
C 02990	CUB	MON	0	U.S. DEPT OF ENERGY	ED	C 02990					1	4	4	20	22S	31E	613404	3582362*	3979
C 02754	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02754					4	2	4	20	22S	31E	613599	3582564*	4012
C 02723	CUB	MON	0	U.S. DEPT. OF ENERGY, WIPP	ED	C 02723				Shallow	2	2	3	15	22S	30E	606282	3584363*	4067
C 03003	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 03003					3	1	3	31	21S	31E	610511	3588970*	4101
C 02989	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02989					3	4	4	20	22S	31E	613404	3582162*	4108
C 02980	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02980					2	4	4	20	22S	31E	613604	3582362*	4136
C 02982	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02982					2	4	4	20	22S	31E	613604	3582362*	4136
C 02984	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02984					2	4	4	20	22S	31E	613604	3582362*	4136
C 02985	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02985					2	4	4	20	22S	31E	613604	3582362*	4136
C 02988	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02988					2	4	4	20	22S	31E	613604	3582362*	4136
C 04402	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 04402 POD1	NA				1	3	2	29	22S	31E	612911	3581565	4203
					ED	C 04402 POD2					1	3	2	29	22S	31E	612911	3581565	4203

C 02662	CUB	MON	0	U.S. DEPARTMENT OF ENERGY	ED	C 02662				1	2	2	29	22S	31E	613409	3581960*	4248
C 02765	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02765				1	2	2	29	22S	31E	613409	3581960*	4248
C 02505	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02505		Shallow	4	4	4	20	22S	31E	613604	3582162*	4260
C 02506	CUB	MON	0	(WIPP) U.S.DEPT.OF ENERGY	ED	C 02506		Shallow	4	4	4	20	22S	31E	613604	3582162*	4260
C 02507	CUB	MON	0	(WIPP) U.S.DEPT.OF ENERGY	ED	C 02507		Shallow	4	4	4	20	22S	31E	613604	3582162*	4260
C 02527	CUB	EXP	0	U.S. D.O.E. (WIPP)	ED	C 02527			4	4	4	20	22S	31E	613604	3582162*	4260
C 02528	CUB	EXP	0	U. S. D. O. E. (WIPP)	ED	C 02528			4	4	4	20	22S	31E	613604	3582162*	4260
C 02752	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02752			4	4	4	20	22S	31E	613604	3582162*	4260
C 02801	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02801			4	4	4	20	22S	31E	613604	3582162*	4260
C 02802	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02802			4	4	4	20	22S	31E	613604	3582162*	4260
C 02803	CUB	MON	0	U.S. DEPT. OF ENEGY - WIPP	ED	C 02803			4	4	4	20	22S	31E	613604	3582162*	4260
C 02981	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02981			4	4	4	20	22S	31E	613604	3582162*	4260
C 02983	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02983			4	4	4	20	22S	31E	613604	3582162*	4260
C 02987	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02987			4	4	4	20	22S	31E	613604	3582162*	4260
C 02991	CUB	MON	0	U.S. DEPT. OF ENERGY	ED	C 02991			4	4	4	20	22S	31E	613604	3582162*	4260
C 02415	CUB	MON	0	U.S. DEPT OF ENERGY	ED	C 02415		Artesian	3	3	4	16	22S	31E	614592	3583785*	4411
C 02418	CUB	MON	0	U.S.DEPT. OF ENERGY	ED	C 02418		Artesian	3	2	3	29	22S	31E	612613	3580948*	4547
C 02419	CUB	MON	0	U.S.DEPT OF ENERGY	ED	C 02419		Artesian	3	2	3	29	22S	31E	612613	3580948*	4547
C 04399	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 04399 POD1	NA		2	1	1	28	22S	31E	613937	3581991	4626
C 02737	C	PRO	0	US DEPARTMENT OF ENERGY WASTE ISOLATION PILOT PLANT	ED	C 02737		Shallow	2	4	2	29	22S	31E	613604	3581567	4661
C 02811	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02811			2	4	2	29	22S	31E	613613	3581558*	4674
C 02766	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02766			3	3	3	29	22S	31E	612216	3580541*	4729
C 03015	CUB	MON	0	U.S. DEPT OF ENERGY - WIPP	ED	C 03015		Artesian	1	4	3	22	22S	30E	606099	3582353*	4913
C 02760	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02760			2	2	4	29	22S	31E	613618	3581156*	4971
C 02761	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02761			2	2	4	29	22S	31E	613618	3581156*	4971
C 02764	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02764			2	2	4	29	22S	31E	613618	3581156*	4971

Record Count: 73

UTMNAD83 Radius Search (in meters):

Easting (X): 610317 **Northing (Y):** 3584873 **Radius:** 5000

Sorted by: Distance

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Intermittent, 5,220 feet

May 16, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Pond 5,918 feet

May 16, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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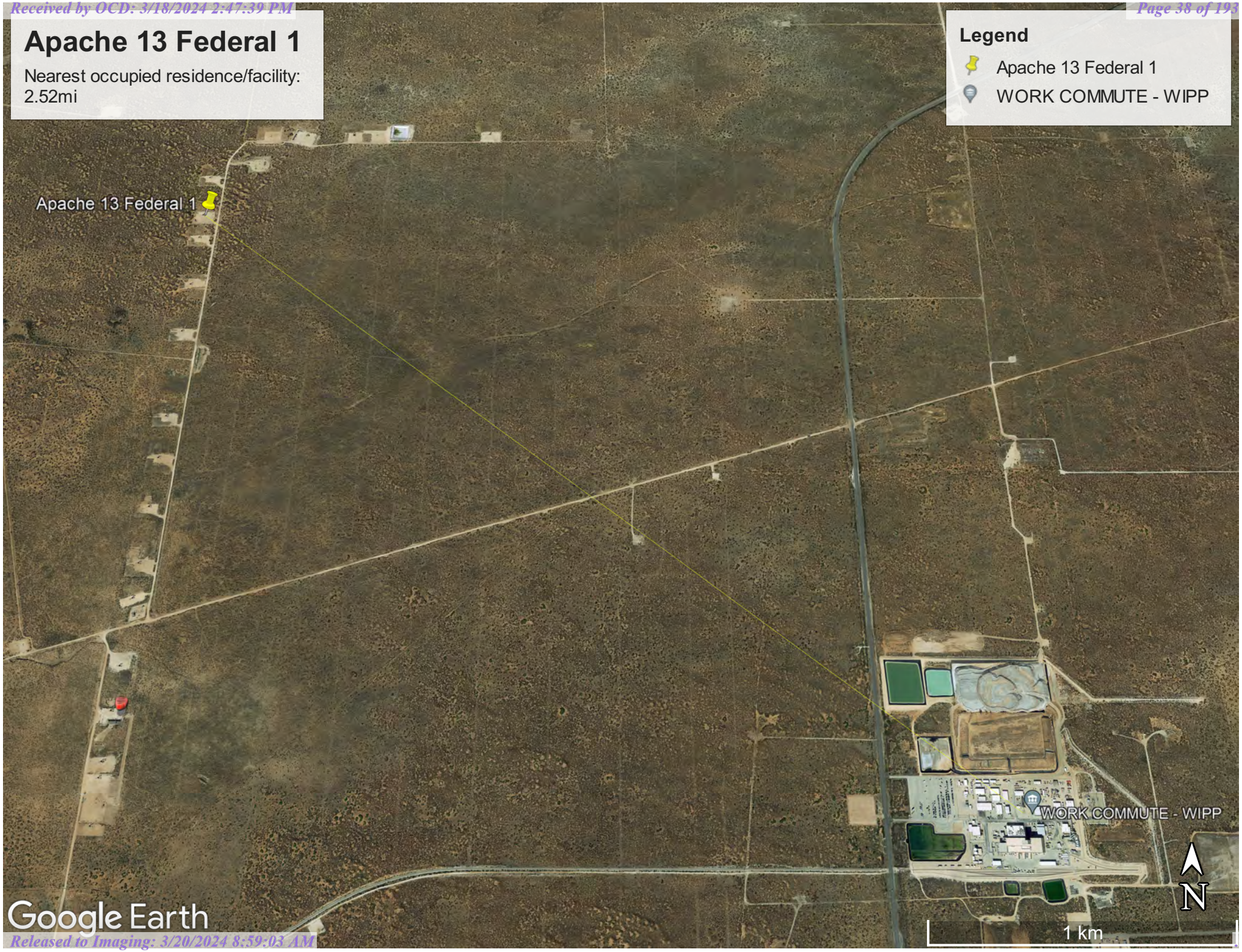
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Apache 13 Federal 1

Nearest occupied residence/facility:
2.52mi



New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twws	Rng	(NAD83 UTM in meters) X	Y
	C 02678	1	1	1	18	22S	31E	610556	3585146*

Driller License: **Driller Company:**

Driller Name:

Drill Start Date: **Drill Finish Date:** **Plug Date:**

Log File Date: **PCW Rcv Date:** **Source:**

Pump Type: **Pipe Discharge Size:** **Estimated Yield:**

Casing Size: **Depth Well:** **Depth Water:**

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

New Mexico Office of the State Engineer
Water Right Summary

WR File Number: C 02678 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: PMT PERMIT

Total Acres: 0 **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: SANDIA NATIONAL LABORATORIES

Contact: RICHARD JEPSEN

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
171989	REPAR	2000-01-11	PMT	APR	C 02678	T	0	0	
171984	DCL	2000-01-10	DCL	PRC	C 02678	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02678			1	1	1	18	22S	31E	610556	3585146*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

Source

Acres	Diversion	CU	Use	Priority	Source	Description
0	0		MON		GW	

New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twp	Rng	(NAD83 UTM in meters) X	Y
	C 02749	1	1	1	18	22S	31E	610556	3585146*

Driller License:		**Driller Company:**			
Driller Name:	SANDIA NATIONAL LABS/USGS				
Drill Start Date:		**Drill Finish Date:**	12/31/1978	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	5.50	**Depth Well:**	640 feet	**Depth Water:**	

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

New Mexico Office of the State Engineer
Water Right Summary

WR File Number: C 02749 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: DCL DECLARATION

Total Acres: 0 **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: U.S. DEPT. OF ENERGY - WIPP

Contact: D.C. LYNN

x

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
195615	DCL	2000-11-06	DCL	PRC	C 02749	T	0	0	

x

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02749			1	1	1	18	22S	31E	610556	3585146*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

x

Source

Acres	Diversion	CU	Use	Priority	Source	Description
0	0		MON		GW	

New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Twp	Rng	(NAD83 UTM in meters) X	Y
	C 02750	1	1	1	18	22S	31E	610556	3585146*

Driller License:		**Driller Company:**			
Driller Name:	SANDIA NATIONAL LABS/USGS				
Drill Start Date:		**Drill Finish Date:**	12/31/1978	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	5.50	**Depth Well:**	741 feet	**Depth Water:**	

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

New Mexico Office of the State Engineer
Water Right Summary

WR File Number: C 02750 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: DCL DECLARATION

Total Acres: 0 **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: U.S. DEPT. OF ENERGY - WIPP

Contact: D.C. LYNN

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
195618	DCL	2000-11-06	DCL	PRC	C 02750	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02750			1	1	1	18	22S	31E	610556	3585146*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

Source

Acres	Diversion	CU	Use	Priority	Source	Description
0	0		MON		GW	

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**
	C 02751	1	1	1	18	22S	31E	610556	3585146*

Driller License: **Driller Company:**

Driller Name: SANDIA NATIONAL LABS/USGS

Drill Start Date:		**Drill Finish Date:**	12/31/1978	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	5.50	**Depth Well:**	637 feet	**Depth Water:**	

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

New Mexico Office of the State Engineer

Water Right Summary

WR File Number: C 02751 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: DCL DECLARATION

Total Acres: 0 **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: U.S. DEPT. OF ENERGY - WIPP

Contact: D.C. LYNN

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
195619	DCL	2000-11-06	DCL	PRC	C 02751	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02751			1	1	1	18	22S	31E	610556	3585146*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

Source

Acres	Diversion	CU	Use	Priority	Source	Description
0	0		MON		GW	

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetland 9,124 feet

May 16, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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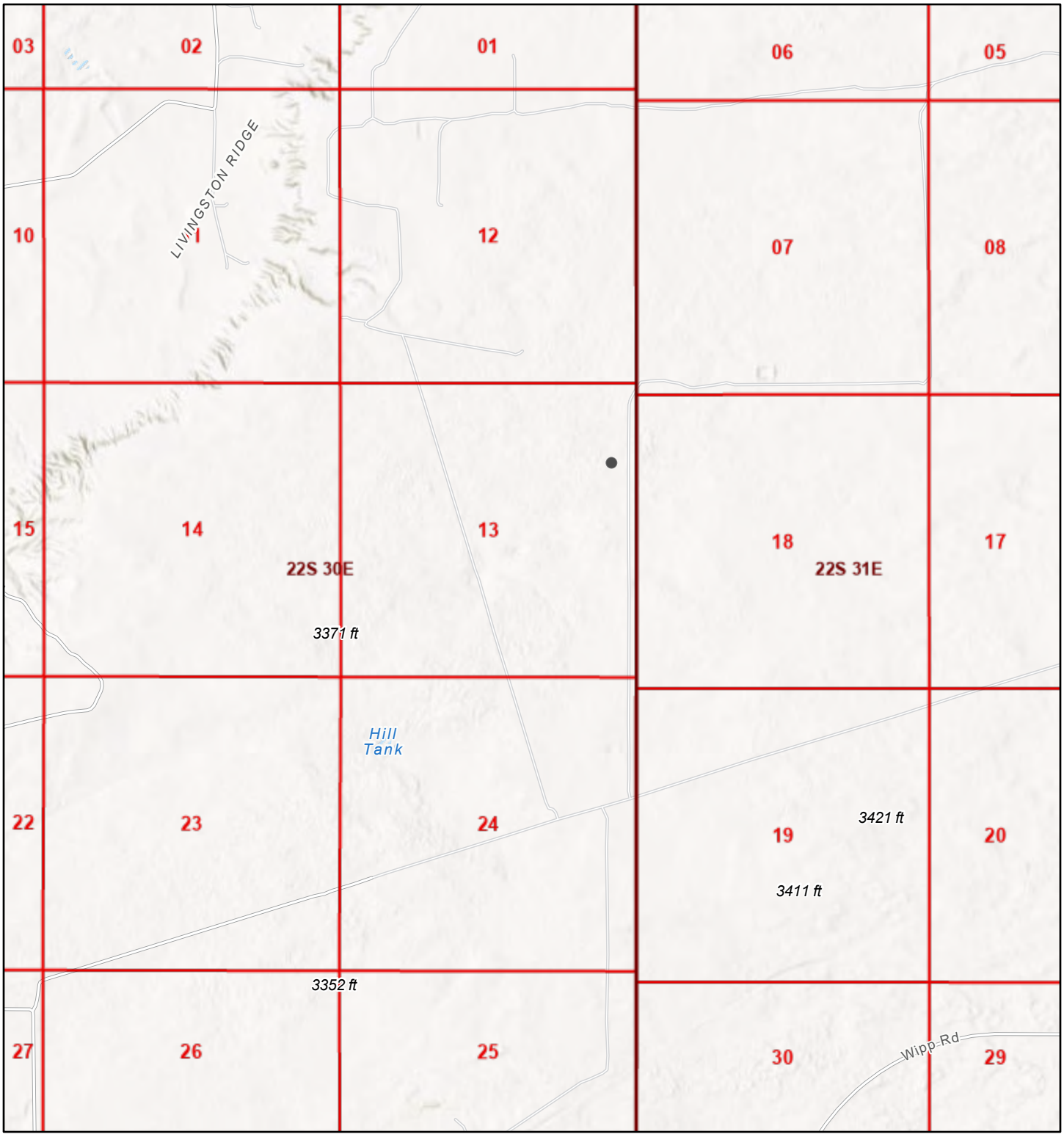
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Active Mines in New Mexico



5/15/2023, 6:32:05 PM

PLSS First Division

PLSS Townships

1:36,112

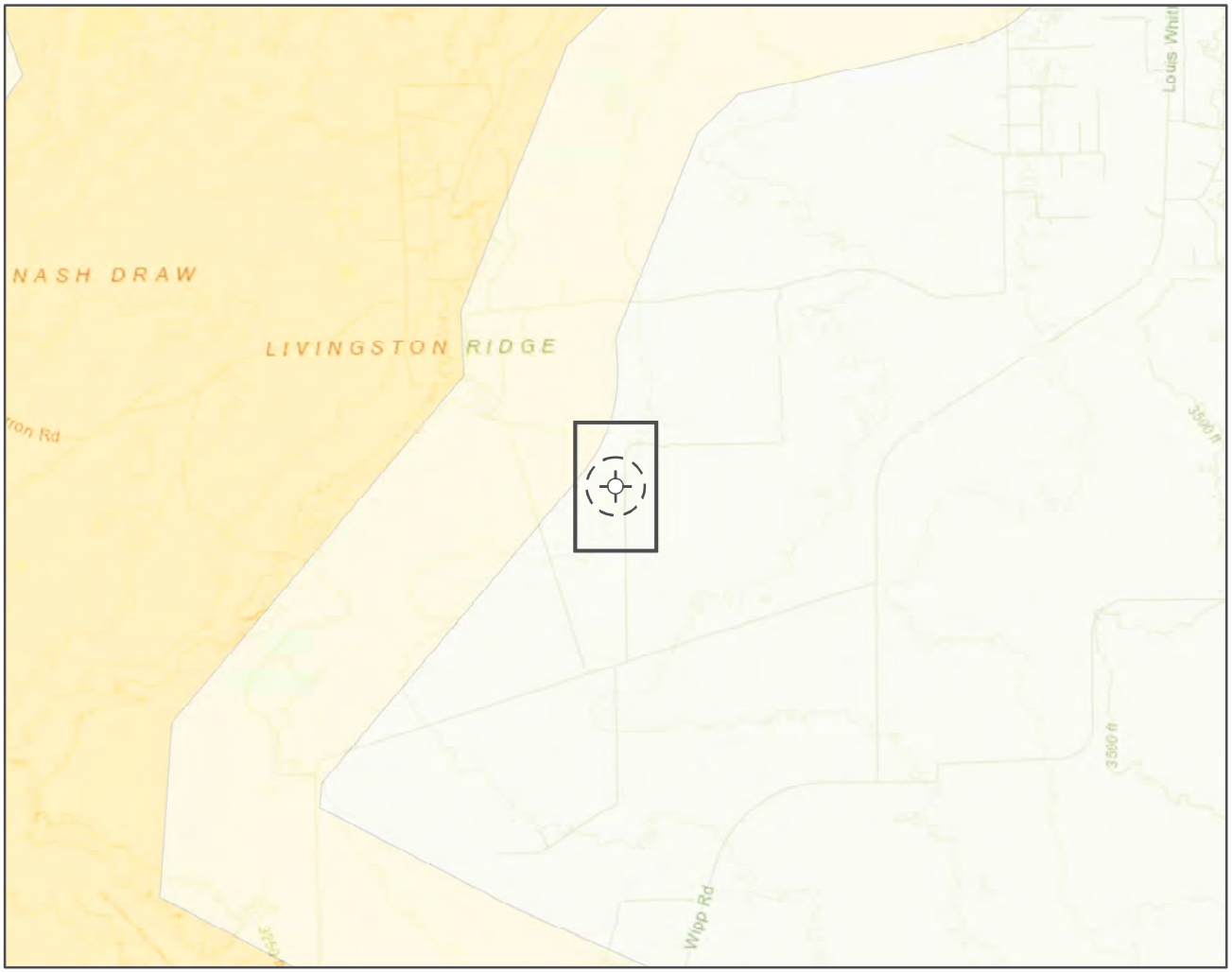
0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Esri, NASA, NGA, USGS, FEMA, BLM, New Mexico State University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

EMNRD MMD GIS Coordinator

New Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)



Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.395436, -103.827046

NAD 1983 UTM Zone 13N
Date: May 24/23

N

Karst Potential Map
Apache 13 Federal #001

FIGURE:
X

devon

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, Georeferenced image from ESRI, 2022; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

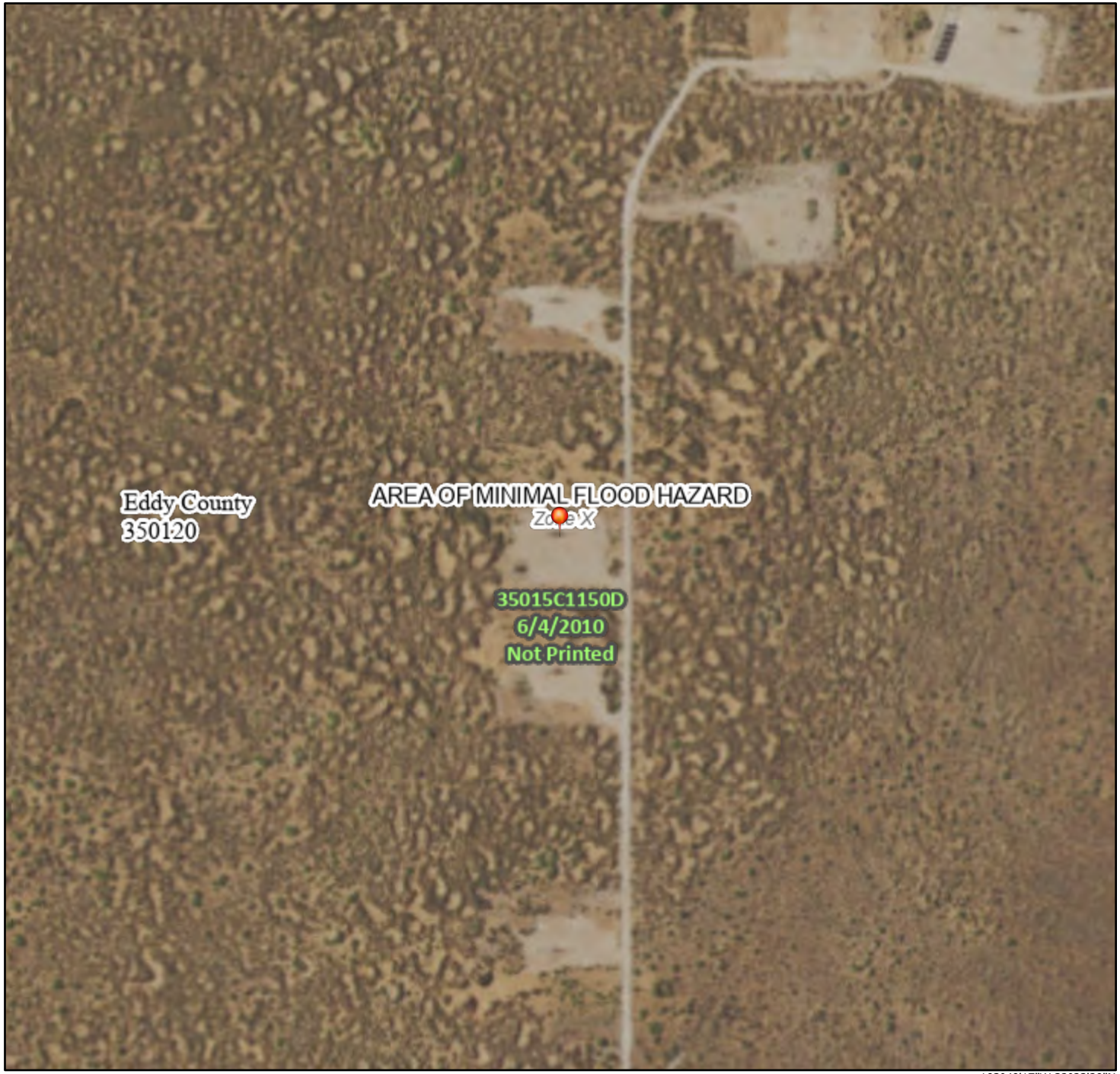
VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2021\21E-02816\028 - Apache 13 Federal #001\Figure X Karst Potential Apache 13 Federal #001(21E-02816) .mxd

National Flood Hazard Layer FIRMette

FEMA

103°49'55"W 32°24'N



103°49'17"W 32°23'29"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/14/2023 at 7:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Eddy Area, New Mexico

February 14, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

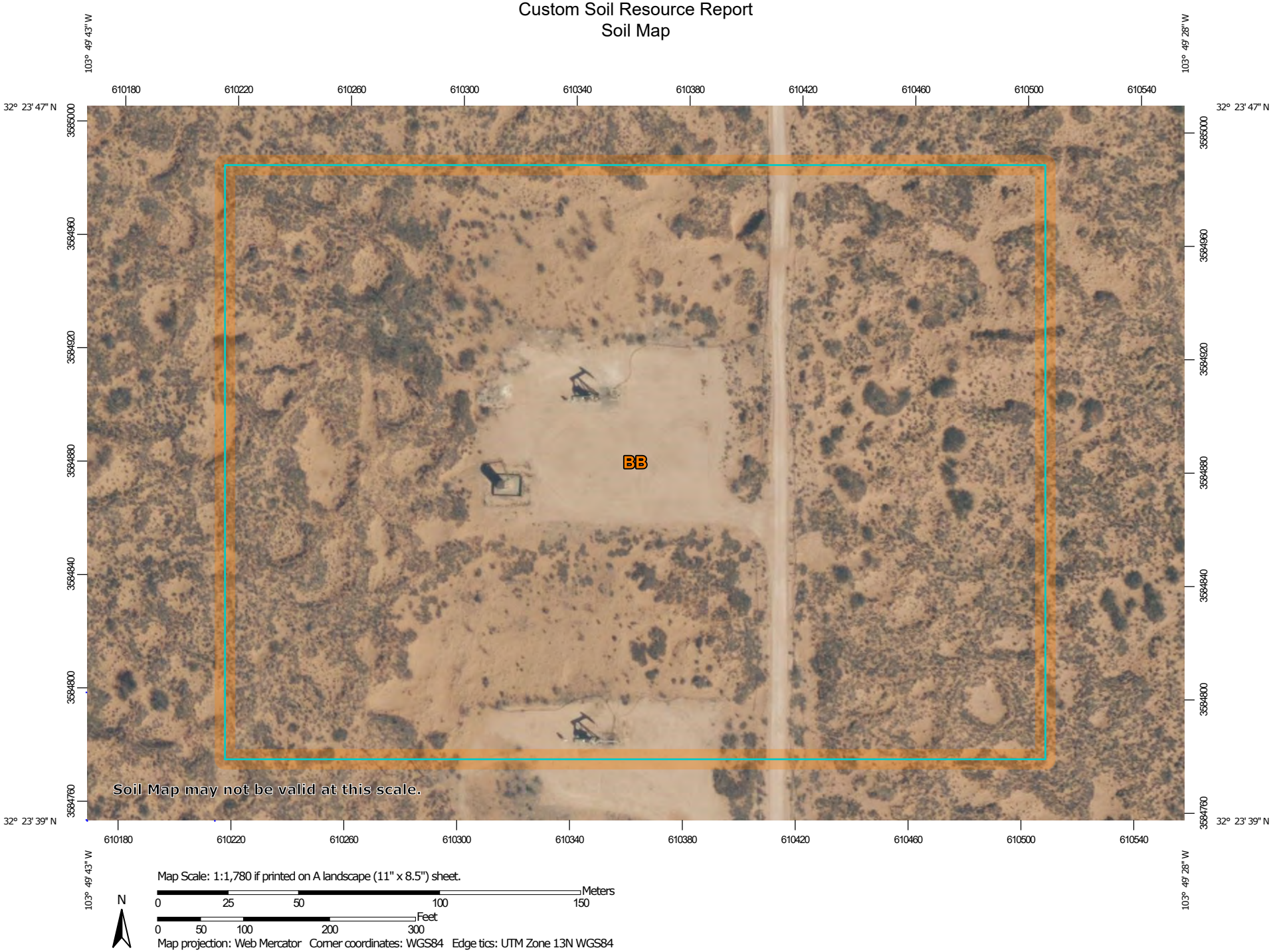
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 18, Sep 8, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	15.1	100.0%
Totals for Area of Interest		**15.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Eddy Area, New Mexico

BB—Berino complex, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w43
Elevation: 2,000 to 5,700 feet
Mean annual precipitation: 5 to 15 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Berino and similar soils: 60 percent
Pajarito and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berino

Setting

Landform: Plains, fan piedmonts
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 17 inches: fine sand
H2 - 17 to 58 inches: sandy clay loam
H3 - 58 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Description of Pajarito

Setting

Landform: Dunes, plains, interdunes
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 72 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Pajarito

Percent of map unit: 4 percent
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Wink

Percent of map unit: 4 percent
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Cacique

Percent of map unit: 4 percent
Ecological site: R070BD004NM - Sandy
Hydric soil rating: No

Kermit

Percent of map unit: 3 percent
Ecological site: R070BD005NM - Deep Sand
Hydric soil rating: No

Custom Soil Resource Report

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USDA Natural Resources Conservation Service

Ecological site R070BD003NM
Loamy Sand

Accessed: 05/15/2023

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Associated sites

R070BD004NM	**Sandy** Sandy
R070BD005NM	**Deep Sand** Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site is on uplands, plains, dunes, fan piedmonts and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock. Slope range on this site range from 0 to 9 percent with the average of 5 percent.

Low stabilized dunes may occur occasionally on this site. Elevations range from 2,800 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Alluvial fan (3) Dune
Elevation	2,800–5,000 ft
Slope	0–9%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes.

The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

Climate data was obtained from http://www.wrcc.sage.dri.edu/summary/climsmnm.html web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

Table 3. Representative climatic features

Frost-free period (average)	221 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

This site is not influenced from water from wetlands or streams.

Soil features

Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam.

Subsurface is a loamy fine sand, coarse sandy loam, fine sandy loam or loam that averages less than 18 percent clay and less than 15 percent carbonates.

Substratum is a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

These soils, if unprotected by plant cover and organic residue, become wind blown and low hummocks are formed.

Minimum and maximum values listed below represent the characteristic soils for this site.

Characteristic soils are:
Maljamar
Berino
Parjarito
Palomas
Wink
Pyote

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Fine sandy loam (3) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid

Soil depth	40–72 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–7 in
Calcium carbonate equivalent (0-40in)	3–40%
Electrical conductivity (0-40in)	2–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	4–12%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

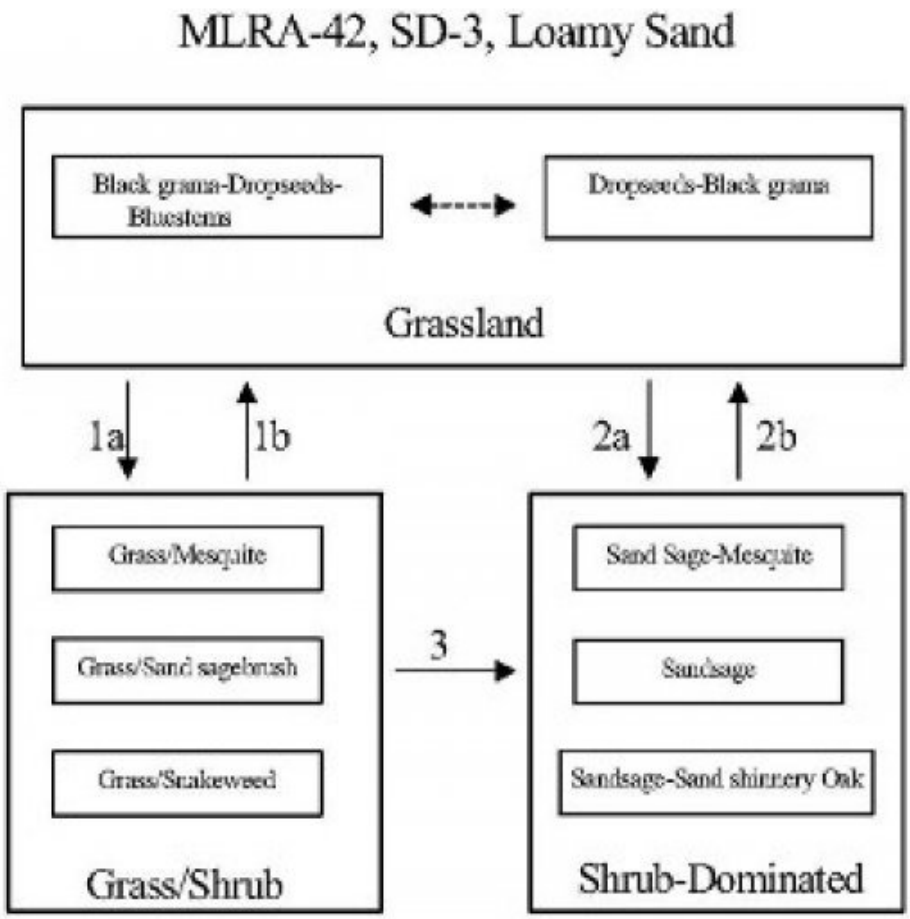
Overview

The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (sandy loam and fine sandy loam) surfaces. Although Loamy Sand and Deep Sand sites have similar surface textures, the depth to a textural change is different—Loamy Sand sub-surface textures typically increase in clay at approximately 20 to 30 inches, and Deep Sand sites not until around 40 inches.

The historic plant community of Loamy Sand sites is dominated by black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*). Perennial and annual forb abundance and distribution are dependent on precipitation. Litter and to a lesser extent, bare ground, are a significant proportion of ground cover while grasses compose the remainder. Decreases in black grama indicate a transition to either a grass/shrub or shrub-dominated state. The grass/shrub state is composed of grasses/honey mesquite (*Prosopis glandulosa*), grasses/broom snakeweed (*Gutierrezia sarothrae*), or grasses/sand sage. The shrub-dominated state occurs after a severe loss of grass cover and a prevalence of sand sage with secondary shinnery oak and mesquite. Heavy grazing intensity and/or drought are influential drivers in decreasing black grama and bluestems and subsequently increasing shrub cover, erosion, and bare patches. Historical fire suppression also encourages shrub pervasiveness and a competitive advantage over grass species (McPherson 1995). Brush and grazing management, however, may reverse grass/shrub and shrub-dominated states toward the grassland-dominated historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram):



1a. Drought, over grazing, fire suppression.
1b. Brush control, prescribed grazing

2.a Severe loss of grass cover, fire suppression, erosion.
2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: The historic plant community is a uniformly distributed grassland dominated by black grama, dropseeds, and bluestems. Sand sage and shinnery oak are evenly dispersed throughout the grassland due to the coarse soil

surface texture. Perennial and annual forbs are common but their abundance and distribution are reflective of precipitation. Bluestems initially, followed by black grama, decrease with drought and heavy grazing intensity. Historical fire frequency is unknown but likely occurred enough to remove small shrubs to the competitive advantage of grass species. Fire suppression, drought conditions, and excessive grazing drive most grass species out of competition with shrub species. Diagnosis: Grassland dominated by black grama, dropseeds, and bluestems. Shrubs, such as sand sage, shinnery oak, and mesquite are dispersed throughout the grassland. Forbs are present and populations fluctuate with precipitation variability.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	442	833	1224
Forb	110	208	306
Shrub/Vine	98	184	270
Total	**650**	**1225**	**1800**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	28%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	22%

Figure 5. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

Grass/Shrub State: The grass/shrub state is dominated by communities of grasses/mesquite, grasses/snakeweed, or grasses/sand sage. Decreases in black grama and bluestem species lead to an increase in bare patches and mesquite which further competes with grass species. An increase of dropseeds and threeawns occurs. Grass distribution becomes more patchy with an absence or severe decrease in black grama and bluestems. Mesquite provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Mesquite mortality when exposed to fire is low due to aggressive resprouting abilities. Herbicide application combined with subsequent prescribed fire may be more effective in mesquite reduction (Britton and Wright 1971). Diagnosis: This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Dropseeds and threeawns have a patchy distribution. Transition to Grass/Shrub State (1a): The historic plant community begins to shift toward the grass/shrub state as drivers such as drought, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by a decrease in black grama with a subsequent increase of dropseeds, threeawns, mesquite, and snakeweed. Snakeweed has been documented to outcompete black grama especially under conditions of fire suppression and drought (McDaniel et al. 1984). Key indicators of approach to transition: • Loss of black grama cover • Surface soil erosion • Bare patch expansion • Increased dropseed/threeawn and mesquite, snakeweed, or sand sage abundances Transition to Historic Plant Community (1b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community.

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

Shrub-Dominated State: The shrub-dominated state results from a severe loss of grass cover. This state's primary species is sand sage. Shinnery oak and mesquite also occur; however, grass cover is limited to intershrub distribution. Sand sage stabilizes light sandy soils from wind erosion, which enhances protected grass/forb cover (Davis and Bonham 1979). However, shinnery oak also responds to the sandy soils with dense stands due to an

aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state. Key indicators of approach to transition: • Severe loss of grass species cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite abundance Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state. Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite. Key indicators of approach to transition: • Continual loss of dropseeds/threeawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threeawn and mesquite/snakeweed abundance

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Warm Season**			61–123	
	little bluestem	SCSC	*Schizachyrium scoparium*	61–123	–
2	**Warm Season**			37–61	
	sand bluestem	ANHA	*Andropogon hallii*	37–61	–
3	**Warm Season**			37–61	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	37–61	–
	silver bluestem	BOSA	*Bothriochloa saccharoides*	37–61	–
4	**Warm Season**			123–184	
	black grama	BOER4	*Bouteloua eriopoda*	123–184	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	123–184	–
5	**Warm Season**			123–184	
	thin paspalum	PASE5	*Paspalum setaceum*	123–184	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	123–184	–
	fringed signalgrass	URCI	*Urochloa ciliatissima*	123–184	–
6	**Warm Season**			123–184	
	spike dropseed	SPCO4	*Sporobolus contractus*	123–184	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	123–184	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	123–184	–
7	**Warm Season**			61–123	
	hooded windmill grass	CHCU2	*Chloris cucullata*	61–123	–
	Arizona cottontop	DICA8	*Digitaria californica*	61–123	–
9	**Other Perennial Grasses**			37–61	
	Grass, perennial	2GP	*Grass, perennial*	37–61	–
Shrub/Vine					
8	**Warm Season**			37–61	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	37–61	–
	giant dropseed	SPGI	*Sporobolus giganteus*	37–61	–
10	**Shrub**			61–123	

	sand sagebrush	ARFI2	*Artemisia filifolia*	61–123	–
	Havard oak	QUHA3	*Quercus havardii*	61–123	–
11	**Shrub**			34–61	
	fourwing saltbush	ATCA2	*Atriplex canescens*	37–61	–
	featherplume	DAFO	*Dalea formosa*	37–61	–
12	**Shrub**			37–61	
	jointfir	EPHED	*Ephedra*	37–61	–
	littleleaf ratany	KRER	*Krameria erecta*	37–61	–
13	**Other Shrubs**			37–61	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	37–61	–
Forb					
14	**Forb**			61–123	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	61–123	–
	Indian blanket	GAPU	*Gaillardia pulchella*	61–123	–
	globemallow	SPHAE	*Sphaeralcea*	61–123	–
15	**Forb**			12–37	
	woolly groundsel	PACA15	*Packera cana*	12–37	–
16	**Forb**			61–123	
	touristplant	DIWI2	*Dimorphocarpa wislizeni*	61–123	–
	woolly plantain	PLPA2	*Plantago patagonica*	61–123	–
17	**Other Forbs**			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	37–61	–

Animal community

This Ecological Site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, desert cottontail, spotted ground squirrel, black-tailed prairie dog, yellow faced pocket gopher, Ord’s kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, roadrunner, meadowlark, burrowing owl, white necked raven, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake, dusty hognose snake and ornate box turtle.
Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson’s hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.
Hydrologic Interpretations
Soil Series Hydrologic Group
Berino B
Kinco A
Maljamar B
Pajarito B
Palomas B
Wink B
Pyote A

Recreational uses

This site offers recreation potential for hiking, borseback riding, nature observation, photography and hunting. During years of abundant spring moisture, this site displays a colorful array of wildflowers during May and June.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all kinds and classes of livestock at any time of year. In cases where this site has been invaded by brush species it is especially suited for goats. Mismanagement of this site will cause a decrease in species such as the bluestems, blsck grama, bush muhly, plains bristlegrass, New Mexico feathergrass, Arizona cottontop and fourwing saltbush. A corresponding increase in the dropseeds, windmill grass, fall witchgrass, silver bluestem, sand sagebrush, shinery oak and ephedra will occur. This will also cause an increase in bare ground which will increase soil erodibility. This site will respond well to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.3 – 3.5
75 – 51 3.0 – 4.5
50 – 26 4.6 – 9.0
25 – 0 9.1 +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.

Other references

Literature Cited:

Ansley, R. J.; Jacoby, P. W. 1998. Manipulation of fire intensity to achieve mesquite management goals in north Texas. In: Pruden, Teresa L.; Brennan, Leonard A., eds. Fire in ecosystem management: shifting the paradigm from suppression to prescription: Proceedings, Tall Timbers fire ecology conference; 1996 May 7-10; Boise, ID. No. 20. Tallahassee, FL: Tall Timbers Research Station: 195-204.

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Britton, Carlton M.; Wright, Henry A. 1971. Correlation of weather and fuel variables to mesquite damage by fire. Journal of Range Management 24:136-141.

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Herbel, C. H, Steger, R, Gould, W. L. 1974. Managing semidesert ranges of the Southwest Circular 456. Las Cruces, NM: New Mexico State University, Cooperative Extension Service. 48 p.

McDaniel, Kirk C.; Pieper, Rex D.; Loomis, Lyn E.; Osman, Abdelgader A. 1984. Taxonomy and ecology of perennial snakeweeds in New Mexico. Bulletin 711. Las Cruces, NM: New Mexico State University, Agricultural Experiment Station. 34 p.

McPherson, Guy R. 1995. The role of fire in the desert grasslands. In: McClaran, Mitchel P.; Van Devender, Thomas R., eds. The desert grassland. Tucson, AZ: The University of Arizona Press: 130-151.

Pettit, Russell D. 1986. Sand shinnery oak: control and management. Management Note 8. Lubbock, TX: Texas Tech University, College of Agricultural Sciences, Department of Range and Wildlife Management. 5 p.

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

---

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

---

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

---

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

---

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

---

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

---

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

---

14. **Average percent litter cover (%) and depth (in):**

---

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

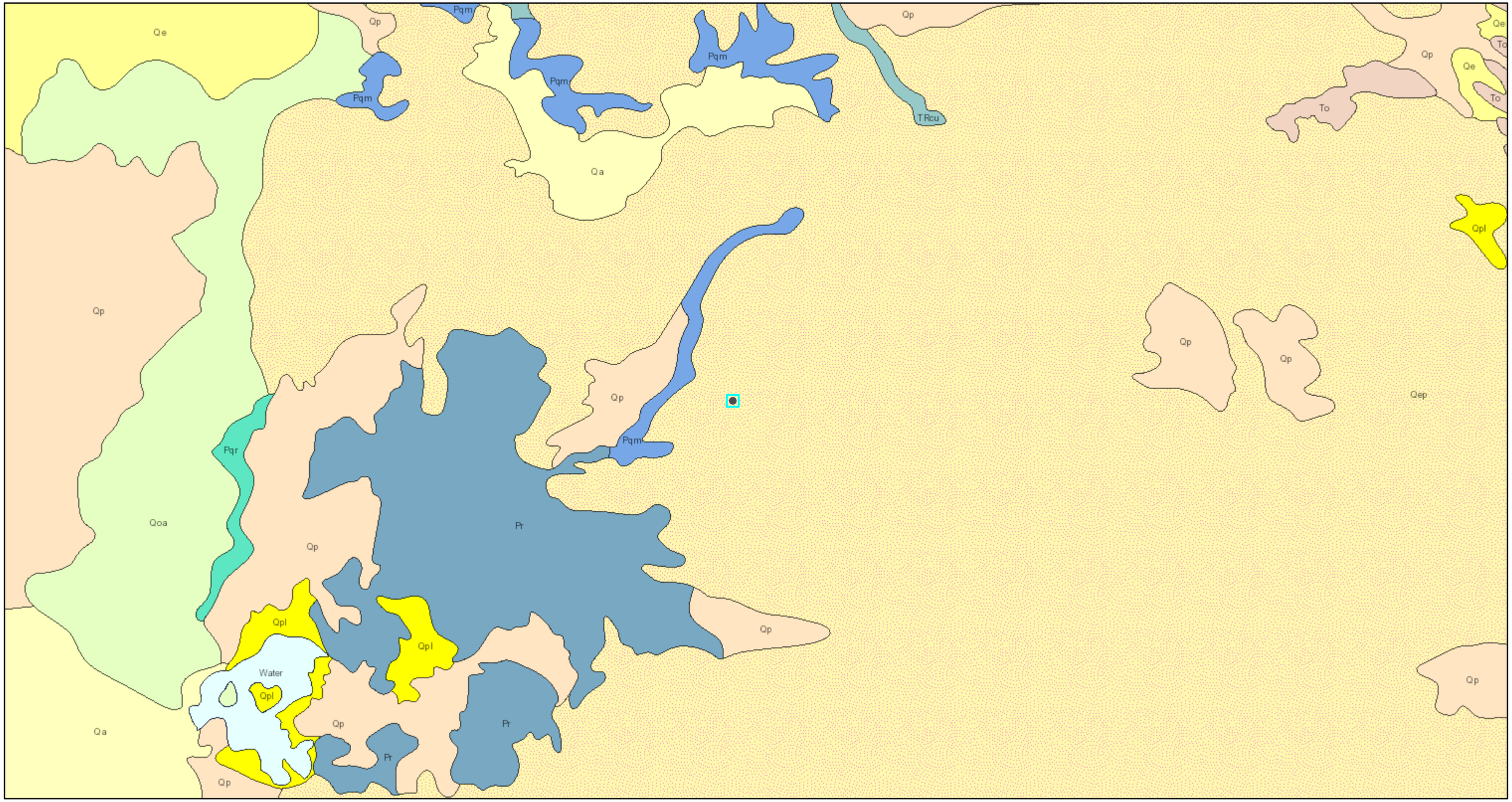
---

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

---

17. **Perennial plant reproductive capability:**

ArcGIS Web Map



5/15/2023, 6:25:21 PM

1:144,448

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perenial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)
- Ql—Landslide deposits and colluvium (Holocene to Pleistocene) — Landslide deposits on western flanks of Socorro Mountains not shown for clarity
- Qpl—Lacustrine and playa deposits (Holocene) — Includes associated alluvial and eolian deposits of major lake basins
- Qp—Piedmont alluvial deposits (Holocene to lower Pleistocene)
- Qe—Eolian deposits (Holocene to middle Pleistocene)
- Qeg—Gypsiferous eolian deposits (Holocene to middle Pleistocene)

0 1.5 3 6 mi

0 2.5 5 10 km

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census

ArcGIS Web AppBuilder

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line

APPENDIX C – Daily Field Reports

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	
Site Location Name:	Apache 13 Federal 1	Report Run Date:	3/9/2023 10:22 PM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	
Departed Site	

Field Notes

9:16 Arrived on site, filled out safety paperwork.

12:09 Gathered samples 1 through 4 at depths of 0 and 2 feet.

14:27 Updated points in Arc Collector.

13:45 Tested samples for chlorides and hydrocarbons.

13:48 Samples came back mostly clean except for sample 4 was high in chlorides at surface and sample 3 was high in hydrocarbons at surface. All samples were clean at 2 feet.

13:49 Grabbed sample 4 at 4 feet, tested it for chlorides and hydrocarbons. It was clean for both.

14:04 Filled out daily soil sample report.

14:27 Gathered site photos.

15:03 Jarred samples to send to lab.

15:03 Finished daily field report.

Next Steps & Recommendations

Daily Site Visit Report

1

Daily Site Visit Report

Site Photos

Viewing Direction: West

Placard

Viewing Direction: South

Sample area

Viewing Direction: North

Sample area

Viewing Direction: North

Sample area

Daily Site Visit Report

Viewing Direction: East

Sample area

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Zachery Englebert

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/19/2023
Site Location Name:	Apache 13 Federal 1	Report Run Date:	5/19/2023 9:25 PM
Client Contact Name:	Wes Matthews	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/19/2023 7:50 AM
Departed Site	5/19/2023 2:12 PM

Field Notes

8:22 Arrived at site and filled out safety paperwork. On site to finish site characterization and collect additional confirmatory samples. Will run a secondary line sweep to confirm underground utilities prior to ground disturbance.

10:07 Collected BH23-05 - BH23-09 @ 0-2ft. BH23-09 had an additional 4ft sample collected for vertical delineation. 5pt composite samples were collected within boreholes points for additional confirmatory samples. Collected a total of three and all were labeled BS23-01, 02, and 03 @ 1ft depth. Will start field screening for chlorides and TPH and determine concentrations.

14:12 Done field screening soil samples. All samples tested under criterion. Will send in all soil samples in for laboratory analysis. Added sample points into Field Maps and DSS.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South	**Viewing Direction**: Northwest
	
BH23-05 @ 0-2ft	Overview of work area
Viewing Direction: Southwest	**Viewing Direction**: Southeast
	
Overview of work area	Overview of work area

Daily Site Visit Report

Viewing Direction: Southwest	**Viewing Direction**: North
	
BH23-09 @ 0-4ft	BH23-07 @ 0-2ft
Viewing Direction: West	**Viewing Direction**: East
	
BH23-08 @ 0-2ft	BH23-06 @ 0-2ft

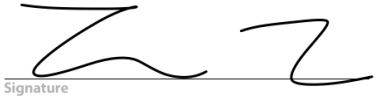
Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: Northeast
	
BS23-01 sample area	BS23-02 sample area
Viewing Direction: West	**Viewing Direction**: Northeast
	
BS23-03 sample area	Overview of work area

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Fernando Rodriguez

Signature: 

APPENDIX D – Notification

Gmail Dhugal Hanton <vertexresourcegroupusa@gmail.com>

nSEB0819748645 - Apache 13 Fed #001 - 48-hour Confirmation Sampling Notification

2 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com> Tue, May 16, 2023 at 2:28 PM
To: "Enviro, OCD, EMNRD" <OCD.Enviro@state.nm.us>, "CFO_Spill, BLM_NM" <blm_nm_cfo_spill@blm.gov>
Cc: KStallings@vertex.ca

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled confirmatory sampling to be conducted at the Apache 13 Fed #001 for the following release.

nSEB0819748645 DOR: June 20, 2008

This work will be completed on behalf of Devon Energy Production Company, LP.

On Friday, May 19, 2023, Fernando Rodriguez will be on-site at approximately 10:00 AM to conduct confirmation sampling. He can be reached at 575-361-4509. If you need directions to the site, please do not hesitate to contact him. If you have any questions regarding this notification, please call me at 701-495-1722.

Thank you,

Lakin Pullman

Environmental Specialist

Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, NM 88220

C 701.495.1722

Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov> Wed, May 17, 2023 at 3:42 PM
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: "Bratcher, Michael, EMNRD" <mike.bratcher@emnrd.nm.gov>, "Maxwell, Ashley, EMNRD" <Ashley.Maxwell@emnrd.nm.gov>

Lakin,

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

JH

Jocelyn Harimon ● Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

1220 South St. Francis Drive | Santa Fe, NM 87505

(505)469-2821 | Jocelyn.Harimon@emnrd.nm.gov

http:// **www.emnrd.nm.gov**

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Tuesday, May 16, 2023 2:29 PM
To: Enviro, OCD, EMNRD <OCD.Enviro@emnrd.nm.gov>; CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>
Cc: KStallings@vertex.ca
Subject: [EXTERNAL] nSEB0819748645 - Apache 13 Fed #001 - 48-hour Confirmation Sampling Notification

[Quoted text hidden]

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

March 24, 2023

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Apache 13 Federal 1 OrderNo.: 2303843

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 9 sample(s) on 3/16/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 0'
Project: Apache 13 Federal 1
Collection Date: 3/9/2023 9:30:00 AM
Lab ID: 2303843-001 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	3/20/2023 3:35:20 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/20/2023 3:35:20 PM
Surr: DNOP	99.7	69-147		%Rec	1	3/20/2023 3:35:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/18/2023 2:19:51 AM
Surr: BFB	99.7	37.7-212		%Rec	1	3/18/2023 2:19:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/18/2023 2:19:51 AM
Toluene	ND	0.049		mg/Kg	1	3/18/2023 2:19:51 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/18/2023 2:19:51 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/18/2023 2:19:51 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	3/18/2023 2:19:51 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 9:23:10 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-01 2'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 9:45:00 AM
Lab ID: 2303843-002 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/20/2023 3:59:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/20/2023 3:59:37 PM
Surr: DNOP	100	69-147		%Rec	1	3/20/2023 3:59:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/18/2023 2:43:19 AM
Surr: BFB	97.6	37.7-212		%Rec	1	3/18/2023 2:43:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/18/2023 2:43:19 AM
Toluene	ND	0.050		mg/Kg	1	3/18/2023 2:43:19 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/18/2023 2:43:19 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/18/2023 2:43:19 AM
Surr: 4-Bromofluorobenzene	93.5	70-130		%Rec	1	3/18/2023 2:43:19 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 9:35:31 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-02 0'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 10:00:00 AM
Lab ID: 2303843-003 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	3/20/2023 4:23:45 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/20/2023 4:23:45 PM
Surr: DNOP	101	69-147		%Rec	1	3/20/2023 4:23:45 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/18/2023 3:06:44 AM
Surr: BFB	96.7	37.7-212		%Rec	1	3/18/2023 3:06:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/18/2023 3:06:44 AM
Toluene	ND	0.049		mg/Kg	1	3/18/2023 3:06:44 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/18/2023 3:06:44 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/18/2023 3:06:44 AM
Surr: 4-Bromofluorobenzene	92.5	70-130		%Rec	1	3/18/2023 3:06:44 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 9:47:52 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-02 2'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 10:15:00 AM
Lab ID: 2303843-004 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	3/20/2023 4:48:10 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/20/2023 4:48:10 PM
Surr: DNOP	98.7	69-147		%Rec	1	3/20/2023 4:48:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/18/2023 3:30:11 AM
Surr: BFB	97.1	37.7-212		%Rec	1	3/18/2023 3:30:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/18/2023 3:30:11 AM
Toluene	ND	0.047		mg/Kg	1	3/18/2023 3:30:11 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/18/2023 3:30:11 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/18/2023 3:30:11 AM
Surr: 4-Bromofluorobenzene	92.5	70-130		%Rec	1	3/18/2023 3:30:11 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 10:00:12 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-03 0'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 10:30:00 AM
Lab ID: 2303843-005 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	3/20/2023 5:12:18 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/20/2023 5:12:18 PM
Surr: DNOP	104	69-147		%Rec	1	3/20/2023 5:12:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/18/2023 3:53:37 AM
Surr: BFB	98.3	37.7-212		%Rec	1	3/18/2023 3:53:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/18/2023 3:53:37 AM
Toluene	ND	0.048		mg/Kg	1	3/18/2023 3:53:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/18/2023 3:53:37 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/18/2023 3:53:37 AM
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	3/18/2023 3:53:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 10:12:32 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-03 2'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 10:45:00 AM
Lab ID: 2303843-006 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	3/20/2023 5:36:34 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	3/20/2023 5:36:34 PM
Surr: DNOP	102	69-147		%Rec	1	3/20/2023 5:36:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/18/2023 4:17:00 AM
Surr: BFB	95.7	37.7-212		%Rec	1	3/18/2023 4:17:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/18/2023 4:17:00 AM
Toluene	ND	0.050		mg/Kg	1	3/18/2023 4:17:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/18/2023 4:17:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	3/18/2023 4:17:00 AM
Surr: 4-Bromofluorobenzene	91.0	70-130		%Rec	1	3/18/2023 4:17:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 10:24:53 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 0'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 11:00:00 AM
Lab ID: 2303843-007 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/20/2023 6:00:41 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/20/2023 6:00:41 PM
Surr: DNOP	100	69-147		%Rec	1	3/20/2023 6:00:41 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/18/2023 4:40:25 AM
Surr: BFB	96.9	37.7-212		%Rec	1	3/18/2023 4:40:25 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/18/2023 4:40:25 AM
Toluene	ND	0.050		mg/Kg	1	3/18/2023 4:40:25 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/18/2023 4:40:25 AM
Xylenes, Total	ND	0.10		mg/Kg	1	3/18/2023 4:40:25 AM
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	3/18/2023 4:40:25 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	440	60		mg/Kg	20	3/18/2023 10:37:13 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 2'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 11:15:00 AM
Lab ID: 2303843-008 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	3/20/2023 6:25:00 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/20/2023 6:25:00 PM
Surr: DNOP	100	69-147		%Rec	1	3/20/2023 6:25:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/18/2023 5:27:15 AM
Surr: BFB	97.1	37.7-212		%Rec	1	3/18/2023 5:27:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	3/18/2023 5:27:15 AM
Toluene	ND	0.050		mg/Kg	1	3/18/2023 5:27:15 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/18/2023 5:27:15 AM
Xylenes, Total	ND	0.10		mg/Kg	1	3/18/2023 5:27:15 AM
Surr: 4-Bromofluorobenzene	93.6	70-130		%Rec	1	3/18/2023 5:27:15 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	75	60		mg/Kg	20	3/18/2023 10:49:34 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2303843**
Date Reported: **3/24/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-04 4'
Project: Apache 13 Federal 1 **Collection Date:** 3/9/2023 11:30:00 AM
Lab ID: 2303843-009 **Matrix:** SOIL **Received Date:** 3/16/2023 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	3/20/2023 6:49:10 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/20/2023 6:49:10 PM
Surr: DNOP	102	69-147		%Rec	1	3/20/2023 6:49:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/18/2023 5:50:37 AM
Surr: BFB	96.2	37.7-212		%Rec	1	3/18/2023 5:50:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	3/18/2023 5:50:37 AM
Toluene	ND	0.047		mg/Kg	1	3/18/2023 5:50:37 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/18/2023 5:50:37 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/18/2023 5:50:37 AM
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	3/18/2023 5:50:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	3/18/2023 11:01:55 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2303843**

24-Mar-23

Client: Vertex Resources Services, Inc.

Project: Apache 13 Federal 1

Sample ID: **MB-73789**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **73789**	RunNo: **95382**
Prep Date: **3/18/2023**	Analysis Date: **3/18/2023**	SeqNo: **3450256** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-73789**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **73789**	RunNo: **95382**
Prep Date: **3/18/2023**	Analysis Date: **3/18/2023**	SeqNo: **3450257** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.2	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2303843**

24-Mar-23

Client: Vertex Resources Services, Inc.

Project: Apache 13 Federal 1

Sample ID: **MB-73780**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **73780**	RunNo: **95386**
Prep Date: **3/17/2023**	Analysis Date: **3/20/2023**	SeqNo: **3450480** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		99.6	69	147			

Sample ID: **LCS-73780**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **73780**	RunNo: **95386**
Prep Date: **3/17/2023**	Analysis Date: **3/20/2023**	SeqNo: **3450495** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.0	61.9	130			
Surr: DNOP	5.1		5.000		102	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2303843**

24-Mar-23

Client: Vertex Resources Services, Inc.

Project: Apache 13 Federal 1

Sample ID: **lcs-73706**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **73706**	RunNo: **95348**
Prep Date: **3/14/2023**	Analysis Date: **3/17/2023**	SeqNo: **3448837** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1800		1000		179	37.7	212			

Sample ID: **mb-73706**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **73706**	RunNo: **95348**
Prep Date: **3/14/2023**	Analysis Date: **3/17/2023**	SeqNo: **3448838** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	990		1000		98.6	37.7	212			

Sample ID: **lcs-73767**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **73767**	RunNo: **95348**
Prep Date: **3/16/2023**	Analysis Date: **3/17/2023**	SeqNo: **3449933** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.6	70	130			
Surr: BFB	1800		1000		179	37.7	212			

Sample ID: **mb-73767**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **73767**	RunNo: **95348**
Prep Date: **3/16/2023**	Analysis Date: **3/17/2023**	SeqNo: **3449934** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.2	37.7	212			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2303843**

24-Mar-23

Client: Vertex Resources Services, Inc.

Project: Apache 13 Federal 1

Sample ID: **LCS-73706** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **73706** RunNo: **95348**

Prep Date: **3/14/2023** Analysis Date: **3/17/2023** SeqNo: **3448840** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		95.0	70	130			

Sample ID: **mb-73706** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **73706** RunNo: **95348**

Prep Date: **3/14/2023** Analysis Date: **3/17/2023** SeqNo: **3448841** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		94.5	70	130			

Sample ID: **LCS-73767** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **73767** RunNo: **95348**

Prep Date: **3/16/2023** Analysis Date: **3/17/2023** SeqNo: **3449967** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.2	80	120			
Toluene	0.97	0.050	1.000	0	97.3	80	120			
Ethylbenzene	0.96	0.050	1.000	0	96.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.0	80	120			
Surr: 4-Bromofluorobenzene	0.94		1.000		94.3	70	130			

Sample ID: **mb-73767** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **73767** RunNo: **95348**

Prep Date: **3/16/2023** Analysis Date: **3/17/2023** SeqNo: **3449968** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.92		1.000		92.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2303843

RcptNo: 1

Received By: Desiree Dominguez 3/16/2023 8:00:00 AM DD

Completed By: Sean Livingston 3/16/2023 9:11:28 AM

Reviewed By: DAD 3/16/23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: 3/16/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Not Present	Morty		

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☒ Rush 5 Day

Project Name: Apache 13 Federal 1

Project #: 21E-02816-28

Project Manager: Kent Stallings

Sampler: Zach Englebert

On Ice: ☐ Yes ☐ No

# of Coolers: 1 Matrix

Cooler Temp(including CF): 1.7-0.1=1.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2303843	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
3-9-23	930	soil	BH23-01 0'	1 jar: 4oz.	ice	001										
	945		BH23-01 2'			002										
	1000		BH23-02 0'			003										
	1015		BH23-02 2'			004										
	1030		BH23-03 0'			005										
	1045		BH23-03 2'			006										
	1100		BH23-04 0'			007										
	1115		BH23-04 2'			008										
	1130		BH23 04 4'			009										
~~X~~			~~BH2~~													

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
3-9-23	1600	Zach Englebert				
3/15/23	1900				3/15/23	915
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
				Courier	3/16/23	8:00

Remarks: Direct Bill to Devon

Deron / Harvard

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

May 26, 2023

Kent Stallings

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX

RE: Apache 13 Fed 1 OrderNo.: 2305B54

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 14 sample(s) on 5/23/2023 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-001 **Matrix:** SOIL

Client Sample ID: BH23-05 0ft
Collection Date: 5/19/2023 9:00:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	5/24/2023 6:31:39 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/24/2023 6:31:39 PM
Surr: DNOP	91.3	69-147		%Rec	1	5/24/2023 6:31:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/24/2023 2:26:22 PM
Surr: BFB	109	15-244		%Rec	1	5/24/2023 2:26:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/24/2023 2:26:22 PM
Toluene	ND	0.048		mg/Kg	1	5/24/2023 2:26:22 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/24/2023 2:26:22 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/24/2023 2:26:22 PM
Surr: 4-Bromofluorobenzene	97.5	39.1-146		%Rec	1	5/24/2023 2:26:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 12:54:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-002 **Matrix:** SOIL

Client Sample ID: BH23-05 2ft
Collection Date: 5/19/2023 9:05:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/24/2023 6:42:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2023 6:42:37 PM
Surr: DNOP	83.4	69-147		%Rec	1	5/24/2023 6:42:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2023 3:37:22 PM
Surr: BFB	116	15-244		%Rec	1	5/24/2023 3:37:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 3:37:22 PM
Toluene	ND	0.050		mg/Kg	1	5/24/2023 3:37:22 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/24/2023 3:37:22 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/24/2023 3:37:22 PM
Surr: 4-Bromofluorobenzene	100	39.1-146		%Rec	1	5/24/2023 3:37:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	190	60		mg/Kg	20	5/24/2023 8:14:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-003 **Matrix:** SOIL

Client Sample ID: BH23-06 0ft
Collection Date: 5/19/2023 9:10:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/24/2023 6:53:33 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/24/2023 6:53:33 PM
Surr: DNOP	102	69-147		%Rec	1	5/24/2023 6:53:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/24/2023 5:12:09 PM
Surr: BFB	95.7	15-244		%Rec	1	5/24/2023 5:12:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/24/2023 5:12:09 PM
Toluene	ND	0.048		mg/Kg	1	5/24/2023 5:12:09 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/24/2023 5:12:09 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/24/2023 5:12:09 PM
Surr: 4-Bromofluorobenzene	96.5	39.1-146		%Rec	1	5/24/2023 5:12:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 4:43:05 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-004 **Matrix:** SOIL

Client Sample ID: BH23-06 2ft
Collection Date: 5/19/2023 9:15:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/24/2023 7:04:33 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/24/2023 7:04:33 PM
Surr: DNOP	109	69-147		%Rec	1	5/24/2023 7:04:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2023 5:35:54 PM
Surr: BFB	112	15-244		%Rec	1	5/24/2023 5:35:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 5:35:54 PM
Toluene	ND	0.049		mg/Kg	1	5/24/2023 5:35:54 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/24/2023 5:35:54 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/24/2023 5:35:54 PM
Surr: 4-Bromofluorobenzene	99.6	39.1-146		%Rec	1	5/24/2023 5:35:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 4:55:29 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-005 **Matrix:** SOIL

Client Sample ID: BH23-07 0ft
Collection Date: 5/19/2023 9:20:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/24/2023 7:15:30 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/24/2023 7:15:30 PM
Surr: DNOP	111	69-147		%Rec	1	5/24/2023 7:15:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2023 5:59:38 PM
Surr: BFB	109	15-244		%Rec	1	5/24/2023 5:59:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 5:59:38 PM
Toluene	ND	0.050		mg/Kg	1	5/24/2023 5:59:38 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/24/2023 5:59:38 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/24/2023 5:59:38 PM
Surr: 4-Bromofluorobenzene	98.5	39.1-146		%Rec	1	5/24/2023 5:59:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	200	60		mg/Kg	20	5/24/2023 5:07:53 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-006 **Matrix:** SOIL

Client Sample ID: BH23-07 2ft
Collection Date: 5/19/2023 9:25:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/24/2023 7:26:38 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2023 7:26:38 PM
Surr: DNOP	77.1	69-147		%Rec	1	5/24/2023 7:26:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2023 6:23:17 PM
Surr: BFB	117	15-244		%Rec	1	5/24/2023 6:23:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 6:23:17 PM
Toluene	ND	0.049		mg/Kg	1	5/24/2023 6:23:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/24/2023 6:23:17 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/24/2023 6:23:17 PM
Surr: 4-Bromofluorobenzene	101	39.1-146		%Rec	1	5/24/2023 6:23:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	250	60		mg/Kg	20	5/24/2023 5:20:17 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-007 **Matrix:** SOIL

Client Sample ID: BH23-08 0ft
Collection Date: 5/19/2023 9:30:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	5/24/2023 7:37:43 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/24/2023 7:37:43 PM
Surr: DNOP	94.9	69-147		%Rec	1	5/24/2023 7:37:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/24/2023 6:46:57 PM
Surr: BFB	102	15-244		%Rec	1	5/24/2023 6:46:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/24/2023 6:46:57 PM
Toluene	ND	0.048		mg/Kg	1	5/24/2023 6:46:57 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/24/2023 6:46:57 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/24/2023 6:46:57 PM
Surr: 4-Bromofluorobenzene	97.8	39.1-146		%Rec	1	5/24/2023 6:46:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	330	60		mg/Kg	20	5/24/2023 5:32:41 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-008 **Matrix:** SOIL

Client Sample ID: BH23-08 2ft
Collection Date: 5/19/2023 9:35:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/24/2023 7:48:51 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/24/2023 7:48:51 PM
Surr: DNOP	79.7	69-147		%Rec	1	5/24/2023 7:48:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/24/2023 7:10:38 PM
Surr: BFB	116	15-244		%Rec	1	5/24/2023 7:10:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 7:10:38 PM
Toluene	ND	0.050		mg/Kg	1	5/24/2023 7:10:38 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/24/2023 7:10:38 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/24/2023 7:10:38 PM
Surr: 4-Bromofluorobenzene	99.6	39.1-146		%Rec	1	5/24/2023 7:10:38 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 5:45:06 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-009 **Matrix:** SOIL

Client Sample ID: BH23-09 0ft
Collection Date: 5/19/2023 9:40:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/24/2023 7:59:51 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/24/2023 7:59:51 PM
Surr: DNOP	125	69-147		%Rec	1	5/24/2023 7:59:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/24/2023 7:34:12 PM
Surr: BFB	106	15-244		%Rec	1	5/24/2023 7:34:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	5/24/2023 7:34:12 PM
Toluene	ND	0.048		mg/Kg	1	5/24/2023 7:34:12 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/24/2023 7:34:12 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/24/2023 7:34:12 PM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	5/24/2023 7:34:12 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	160	60		mg/Kg	20	5/24/2023 5:57:30 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-010 **Matrix:** SOIL

Client Sample ID: BH23-09 2ft
Collection Date: 5/19/2023 9:45:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/24/2023 8:10:55 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/24/2023 8:10:55 PM
Surr: DNOP	93.3	69-147		%Rec	1	5/24/2023 8:10:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2023 7:57:49 PM
Surr: BFB	103	15-244		%Rec	1	5/24/2023 7:57:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 7:57:49 PM
Toluene	ND	0.049		mg/Kg	1	5/24/2023 7:57:49 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/24/2023 7:57:49 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/24/2023 7:57:49 PM
Surr: 4-Bromofluorobenzene	97.7	39.1-146		%Rec	1	5/24/2023 7:57:49 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	250	60		mg/Kg	20	5/24/2023 6:34:43 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-011 **Matrix:** SOIL

Client Sample ID: BH23-09 4ft
Collection Date: 5/19/2023 9:50:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/24/2023 8:32:42 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2023 8:32:42 PM
Surr: DNOP	105	69-147		%Rec	1	5/24/2023 8:32:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/24/2023 8:21:23 PM
Surr: BFB	99.6	15-244		%Rec	1	5/24/2023 8:21:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	5/24/2023 8:21:23 PM
Toluene	ND	0.046		mg/Kg	1	5/24/2023 8:21:23 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/24/2023 8:21:23 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/24/2023 8:21:23 PM
Surr: 4-Bromofluorobenzene	96.4	39.1-146		%Rec	1	5/24/2023 8:21:23 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	350	60		mg/Kg	20	5/24/2023 6:47:08 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-012 **Matrix:** SOIL

Client Sample ID: BS23-01 1ft
Collection Date: 5/19/2023 10:00:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/24/2023 8:43:42 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/24/2023 8:43:42 PM
Surr: DNOP	104	69-147		%Rec	1	5/24/2023 8:43:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2023 8:44:54 PM
Surr: BFB	90.8	15-244		%Rec	1	5/24/2023 8:44:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	5/24/2023 8:44:54 PM
Toluene	ND	0.049		mg/Kg	1	5/24/2023 8:44:54 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/24/2023 8:44:54 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/24/2023 8:44:54 PM
Surr: 4-Bromofluorobenzene	95.0	39.1-146		%Rec	1	5/24/2023 8:44:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 6:59:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-013 **Matrix:** SOIL

Client Sample ID: BS23-02 1ft
Collection Date: 5/19/2023 10:05:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	5/24/2023 8:54:40 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/24/2023 8:54:40 PM
Surr: DNOP	127	69-147		%Rec	1	5/24/2023 8:54:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/24/2023 9:55:22 PM
Surr: BFB	92.8	15-244		%Rec	1	5/24/2023 9:55:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/25/2023 12:06:00 PM
Toluene	ND	0.049		mg/Kg	1	5/25/2023 12:06:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/25/2023 12:06:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/25/2023 12:06:00 PM
Surr: 4-Bromofluorobenzene	92.6	39.1-146		%Rec	1	5/25/2023 12:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 7:11:57 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305B54**
Date Reported: **5/26/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Apache 13 Fed 1
Lab ID: 2305B54-014 **Matrix:** SOIL

Client Sample ID: BS23-03 1ft
Collection Date: 5/19/2023 10:10:00 AM
Received Date: 5/23/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/24/2023 9:05:40 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/24/2023 9:05:40 PM
Surr: DNOP	153	69-147	S	%Rec	1	5/24/2023 9:05:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/24/2023 10:18:52 PM
Surr: BFB	89.3	15-244		%Rec	1	5/24/2023 10:18:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/25/2023 12:27:00 PM
Toluene	ND	0.048		mg/Kg	1	5/25/2023 12:27:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/25/2023 12:27:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/25/2023 12:27:00 PM
Surr: 4-Bromofluorobenzene	85.9	39.1-146		%Rec	1	5/25/2023 12:27:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	ND	60		mg/Kg	20	5/24/2023 7:24:22 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305B54**
26-May-23

Client: Devon Energy
Project: Apache 13 Fed 1

Sample ID: **MB-75144**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75144**	RunNo: **96996**							
Prep Date: **5/24/2023**	Analysis Date: **5/24/2023**	SeqNo: **3520026**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75144**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75144**	RunNo: **96996**							
Prep Date: **5/24/2023**	Analysis Date: **5/24/2023**	SeqNo: **3520028**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.3	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305B54**
26-May-23

Client: Devon Energy
Project: Apache 13 Fed 1

Sample ID: **LCS-75133** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75133** RunNo: **97001**
Prep Date: **5/23/2023** Analysis Date: **5/24/2023** SeqNo: **3519507** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	61.9	130			
Surr: DNOP	6.2		5.000		124	69	147			

Sample ID: **LCS-75146** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75146** RunNo: **97001**
Prep Date: **5/24/2023** Analysis Date: **5/24/2023** SeqNo: **3519508** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.0		5.000		100	69	147			

Sample ID: **MB-75133** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75133** RunNo: **97001**
Prep Date: **5/23/2023** Analysis Date: **5/24/2023** SeqNo: **3519510** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.5		10.00		94.9	69	147			

Sample ID: **MB-75146** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75146** RunNo: **97001**
Prep Date: **5/24/2023** Analysis Date: **5/24/2023** SeqNo: **3519511** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		106	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305B54**
26-May-23

Client: Devon Energy
Project: Apache 13 Fed 1

Sample ID: **lcs-75127**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **75127**	RunNo: **96974**							
Prep Date: **5/23/2023**	Analysis Date: **5/24/2023**	SeqNo: **3519391**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.3	70	130			
Surr: BFB	5000		1000		496	15	244			S

Sample ID: **mb-75127**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **75127**	RunNo: **96974**							
Prep Date: **5/23/2023**	Analysis Date: **5/24/2023**	SeqNo: **3519392**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	910		1000		90.8	15	244			

Sample ID: **2305b54-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH23-05 0ft**	Batch ID: **75127**	RunNo: **96974**							
Prep Date: **5/23/2023**	Analysis Date: **5/24/2023**	SeqNo: **3519394**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.8	24.11	0	98.5	70	130			
Surr: BFB	5300		964.3		548	15	244			S

Sample ID: **2305b54-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **BH23-05 0ft**	Batch ID: **75127**	RunNo: **96974**							
Prep Date: **5/23/2023**	Analysis Date: **5/24/2023**	SeqNo: **3519395**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.34	0	98.3	70	130	0.766	20	
Surr: BFB	5400		973.7		554	15	244	0	0	S

Sample ID: **mb-75132**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **PBS**	Batch ID: **75132**	RunNo: **97020**							
Prep Date: **5/23/2023**	Analysis Date: **5/25/2023**	SeqNo: **3521524**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	900		1000		90.2	15	244			

Sample ID: **lcs-75132**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **75132**	RunNo: **97020**							
Prep Date: **5/23/2023**	Analysis Date: **5/25/2023**	SeqNo: **3521525**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		190	15	244			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305B54**

26-May-23

Client: Devon Energy

Project: Apache 13 Fed 1

Sample ID: **LCS-75127** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **75127** RunNo: **96974**

Prep Date: **5/23/2023** Analysis Date: **5/24/2023** SeqNo: **3519397** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	85.2	70	130			
Toluene	0.88	0.050	1.000	0	87.9	70	130			
Ethylbenzene	0.89	0.050	1.000	0	89.0	70	130			
Xylenes, Total	2.7	0.10	3.000	0	89.2	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.1	39.1	146			

Sample ID: **mb-75127** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **75127** RunNo: **96974**

Prep Date: **5/23/2023** Analysis Date: **5/24/2023** SeqNo: **3519398** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		95.9	39.1	146			

Sample ID: **2305b54-002ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-05 2ft** Batch ID: **75127** RunNo: **96974**

Prep Date: **5/23/2023** Analysis Date: **5/24/2023** SeqNo: **3519401** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	0.9940	0	86.5	70	130			
Toluene	0.89	0.050	0.9940	0	89.7	70	130			
Ethylbenzene	0.90	0.050	0.9940	0	90.4	70	130			
Xylenes, Total	2.7	0.099	2.982	0	91.6	70	130			
Surr: 4-Bromofluorobenzene	1.0		0.9940		102	39.1	146			

Sample ID: **2305b54-002amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **BH23-05 2ft** Batch ID: **75127** RunNo: **96974**

Prep Date: **5/23/2023** Analysis Date: **5/24/2023** SeqNo: **3519407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	0.9901	0	87.9	70	130	1.15	20	
Toluene	0.89	0.050	0.9901	0	90.1	70	130	0.0371	20	
Ethylbenzene	0.92	0.050	0.9901	0	92.8	70	130	2.23	20	
Xylenes, Total	2.7	0.099	2.970	0	92.1	70	130	0.148	20	
Surr: 4-Bromofluorobenzene	1.0		0.9901		102	39.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305B54**

26-May-23

Client: Devon Energy

Project: Apache 13 Fed 1

Sample ID: **mb-75127**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **75127**	RunNo: **97020**							
Prep Date: **5/23/2023**	Analysis Date: **5/25/2023**	SeqNo: **3520527**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.86		1.000		86.1	39.1	146			

Sample ID: **lcs-75127**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **75127**	RunNo: **97020**							
Prep Date: **5/23/2023**	Analysis Date: **5/25/2023**	SeqNo: **3520528**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	86.7	70	130			
Toluene	0.87	0.050	1.000	0	86.5	70	130			
Ethylbenzene	0.84	0.050	1.000	0	84.5	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.9	70	130			
Surr: 4-Bromofluorobenzene	0.87		1.000		86.5	39.1	146			

Sample ID: **mb-75132**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **75132**	RunNo: **97020**							
Prep Date: **5/23/2023**	Analysis Date: **5/25/2023**	SeqNo: **3521548**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.86		1.000		86.2	39.1	146			

Sample ID: **lcs-75132**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **75132**	RunNo: **97020**							
Prep Date: **5/23/2023**	Analysis Date: **5/25/2023**	SeqNo: **3521549**	Units: **%Rec**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		86.8	39.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque. NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Devon Energy | Work Order Number: 2305B54 | RcptNo: 1

Received By: Tracy Casarrubias 5/23/2023 7:30:00 AM

Completed By: Tracy Casarrubias 5/23/2023 8:04:16 AM

Reviewed By: 5-23-23

Chain of Custody

1. Is Chain of Custody complete?	Yes ☐	No ☑	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: 5/23/23

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions: Mailing address,phone number and Emailare missing on COC- TMC 5/23/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.4	Good	Yes	Morty		

Chain-of-Custody Record

Client: Devon Energy (Vertex)

Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☒ Rush 48hr

Project Name: Apache 13 Fed 1

Project #: 22E-02816

Project Manager: Kent Stallings

Sampler: Fernando Rodriguez

On Ice: ☒ Yes ☐ No Marty

# of Coolers: 1

Cooler Temp(including CF): 4.4 -0- 4.4 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2305B54	(BTEX) MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/19	9:00	soil	BH23-05 0 ft	4oz jar	Ice	001	✓	✓					✓			
	9:05		BH23-05 2 ft			002	✓	✓					✓			
	9:10		BH23-06 0 ft			003	✓	✓					✓			
	9:15		BH23-06 2 ft			004	✓	✓					✓			
	9:20		BH23-07 0 ft			005	✓	✓					✓			
	9:25		BH23-07 2 ft			006	✓	✓					✓			
	9:30		BH23-08 0 ft			007	✓	✓					✓			
	9:35		BH23-08 2 ft			008	✓	✓					✓			
	9:40		BH23-09 0 ft			009	✓	✓					✓			
	9:45		BH23-09 2 ft			010	✓	✓					✓			
	9:50		BH23-09 4 ft			011	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/19	18:00				5/20/23	1030
5/20/23	1900				5/23/23	7:30

Remarks:
Hazard Divest Site - Apache 13 Fed 1
GL Account: 7700100
CC: 100788490I

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Devon Energy (Vertex)

Mailing Address: On file

Phone #:

email or Fax#:

QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☐ Standard ☑ ~~Rush~~ 48hr

Project Name: Apache 13 Fed 1

Project #: 22E-02816

Project Manager: Kent Stallings

Sampler: Fernando Rodriguez

On Ice: ☑ ~~Yes~~ ☐ No Mary

# of Coolers: 1

Cooler Temp(including CF): ~~5.4~~ 4.4-0=4.4 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2305854	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/9	10:00	Soil	BS23-01 1ft	4oz jar	Ice	012	✓	✓					✓			
5/9	10:05	Soil	BS23-02 1ft	4oz jar	Ice	013	✓	✓					✓			
5/9	10:10	Soil	BS23-03 1ft	4oz jar	Ice	014	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/10	18:01				5/22/23	1030
5/22/23	1900				5/23/23	7:30

Remarks:
Harvard Divest Site: Apache 13 Fed 1
GL Account: 7700100
CC: 100788490 1

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX F – Original Closure Report (Pima)

Pima Environmental Services, LLC
1601 N. Turner Ste 500
Hobbs, NM 88240
575-964-7740

February 2nd, 2021

NMOCD District 2
Mr. Mike Bratcher
811 S. First Street
Artesia, NM 88210

Re: Site Assessment and Closure Report
Apache 13 Fed #001
API No. 30-015-27434
GPS: Latitude 32.3956909 Longitude -103.826644
H-13-22S-30E
Eddy County, NM
NMOCD Ref. No. NSEB0819748645 (2RP-197)

Dear Mr. Bratcher,

Pima Environmental Services, LLC (Pima) has been contracted by Devon Energy Production Company (Devon) to perform a spill assessment and to perform approved remediation activities for a produced water spill that occurred at the Apache 13 Fed #001. The initial C-141 was submitted on 6/26/2008 (Appendix C). This incident was assigned Incident ID NSEB0819748645 (2RP-197), by the New Mexico Oil Conservation Division (NMOCD).

Site Characterization

The Apache 13 Fed #1 is located approximately twenty-five (25) miles southeast of Carlsbad, NM. This spill site is in Unit H, Section 13, Township 22S, Range 30E, Latitude 32.3956909, Longitude -103.826644, Eddy County, NM. Figure 1 references a location map.

Per the New Mexico Bureau of Geology and Mineral Resources, the geology is in the Rustler Formation (Upper Permian)- Siltstone, gypsum, sandstone, and dolomite, Paleozoic in age (PR). The soil in this area is made up of Potter-Simona complex, 5 to 25 percent slopes according to the United States Department of Agriculture Natural Resources Conservation Service soil survey (Appendix B). The drainage courses in this area are well-drained. There is a low potential for karst geology to be present in the area of the Apache (Figure 3).

According to the New Mexico Office of the State Engineer, depth to the nearest groundwater in this area is greater than 100 feet below grade surface (BGS). According to the United States Geological Survey (USGS), the nearest groundwater is greater than 100 feet BGS. The Pecos River is the closest waterway and is located approximately 14 miles to the southwest of this location. See Appendix A for referenced water surveys.

Table 1 NMAC and Closure Criteria 19.15.29					
Depth to Groundwater (Appendix B)	Constituent & Limits				
	Chlorides	Total TPH	GRO+DRO	BTEX	Benzene
>100'	20,000 mg/kg	2,500 mg/kg	1,000 mg/kg	50 mg/kg	10 mg/kg
<50	600 mg/kg	100 mg/kg	100 mg/kg	50 mg/kg	10mg/kg
If the release occurred within any of the following areas, the responsible party would treat the release as if the groundwater were less than 50 feet per Rule 19.15.29					
Water Issues				Yes	No
Within **300** feet of any continuously flowing watercourse or any other significant watercourse					x
Within **200** feet of any lakebed, sinkhole or playa lake (measures from the ordinary high-water mark					x
Within **300** feet from an occupied permanent residence, school, hospital, institution or church					x
Within **500** feet of a spring or a private, domestic freshwater well used by less than five households for domestic or stock water purposes					x
Within **1000** feet of any freshwater well or spring					x
Within incorporated municipal boundaries or within a defined municipal freshwater well field					x
Within **300** feet of a wetlands					x
Within the area overlying a subsurface mine					x
Within an unstable area (Karst)					x
Within a 100-year floodplain					x

Reference Figure 2 for a TOPO Map.

Release Information

2RP-197: On June 20th, 2008, while a swab rig was swabbing, the lease operator noticed a leak had developed from a seam on the 210-bbl water tank. The released fluids were calculated to be approximately 40 bbls of produced water and were contained inside the firewall. The remaining fluid in the tank was transferred into an empty oil tank. A vac truck was dispatched and was able to recover approximately 30 bbls of produced water.

Site Assessment and Soil Sampling Results

Another Environmental Service Company conducted the initial site assessment and soil sampling. They submitted a work plan that was approved by the NMOCD. See attached Appendix F for the literature.

On July 6th, 2020, Pima Environmental conducted a follow-up site assessment and further soil sampling to confirm the findings and get a more in-depth picture of the horizontal extent of the contamination. The laboratory results of this sampling event can be found in the following data table.

7-6-20 Soil Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is >100')								
Sample Date 7-6-20		NM Approved Laboratory Results						
Sample ID	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
S-1 North Comp.	0	ND	ND	ND	110	54	164	510
S-2 South Comp.	0	ND	ND	ND	ND	ND	ND	120
S-3 East Comp.	0	ND	ND	ND	ND	ND	ND	ND
S-4 West Comp.	0	ND	ND	ND	ND	ND	ND	ND
BG-1	0	ND	ND	ND	ND	ND	ND	ND
BG-2	0	ND	ND	ND	ND	ND	ND	ND
BG-3	0	ND	ND	ND	ND	ND	ND	ND
BG-4	0	ND	ND	ND	ND	ND	ND	**2900**

ND- Analyte Not Detected

Remediation Activities

On January 15th, 2021, Pima mobilized personnel and equipment to conduct remedial activities based on our most recent assessment. An initial area of 30'x35' at sample point BG-4 was marked off running west to east and excavated to a depth of 1' BGS. Bottom and sidewall composite samples were obtained to ensure that the vertical and horizontal extents of the contamination had been removed. Each composite sample was representative of no more than 200 square feet. The laboratory results of this sampling event can be found in the following data table.

1-15-21 Soil Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is >100')								
Sample Date 1-15-21		NM Approved Laboratory Results						
Sample ID	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
BG-4								
N-Wall	0	ND	ND	ND	ND	ND	ND	210
S-Wall	0	ND	ND	ND	ND	ND	ND	330
E-Wall	0	ND	ND	ND	ND	ND	ND	260
W-Wall	0	ND	ND	ND	ND	ND	ND	84
Bottom-1	1'	ND	ND	ND	ND	ND	ND	81
Bottom-2	1'	ND	ND	ND	ND	ND	ND	170
Bottom-3	1'	ND	ND	ND	ND	ND	ND	410
Bottom-4	1'	ND	ND	ND	ND	ND	ND	150

ND- Analyte Not Detected

Complete Laboratory Reports are attached in Appendix C.

Based on the sample results, the bottom and sidewalls are below NMOCD Closure Criteria 19.15.29 NMAC.

The contaminated stockpiled material was transported to Lea Land; an NMOCD approved disposal site. The excavation was then backfilled with clean like material, machine compacted, and contoured to match the surrounding terrain.

Closure Request

After careful review, Pima requests that this incident, NSEB0819748645 (2RP-197), be closed. Devon has complied with the approved work plan and applicable closure requirements.

Should you have any questions or need additional information, please feel free to contact Tom Bynum at 580-748-1613 or tom@pimaoil.com.

Respectfully,

Tom Bynum

Tom Bynum
Environmental Project Manager
Pima Environmental Services,
LLC

Attachments

Figures:
1- Location Map
2- TOPO Map
3- Karst Map
4- Site Map

Appendices:
Appendix A- Referenced Water Surveys
Appendix B- Soil Survey and Geological Data
Appendix C- C-141's
Appendix D- Laboratory Results
Appendix E- Photographic Documentation
Appendix F- Work Plan

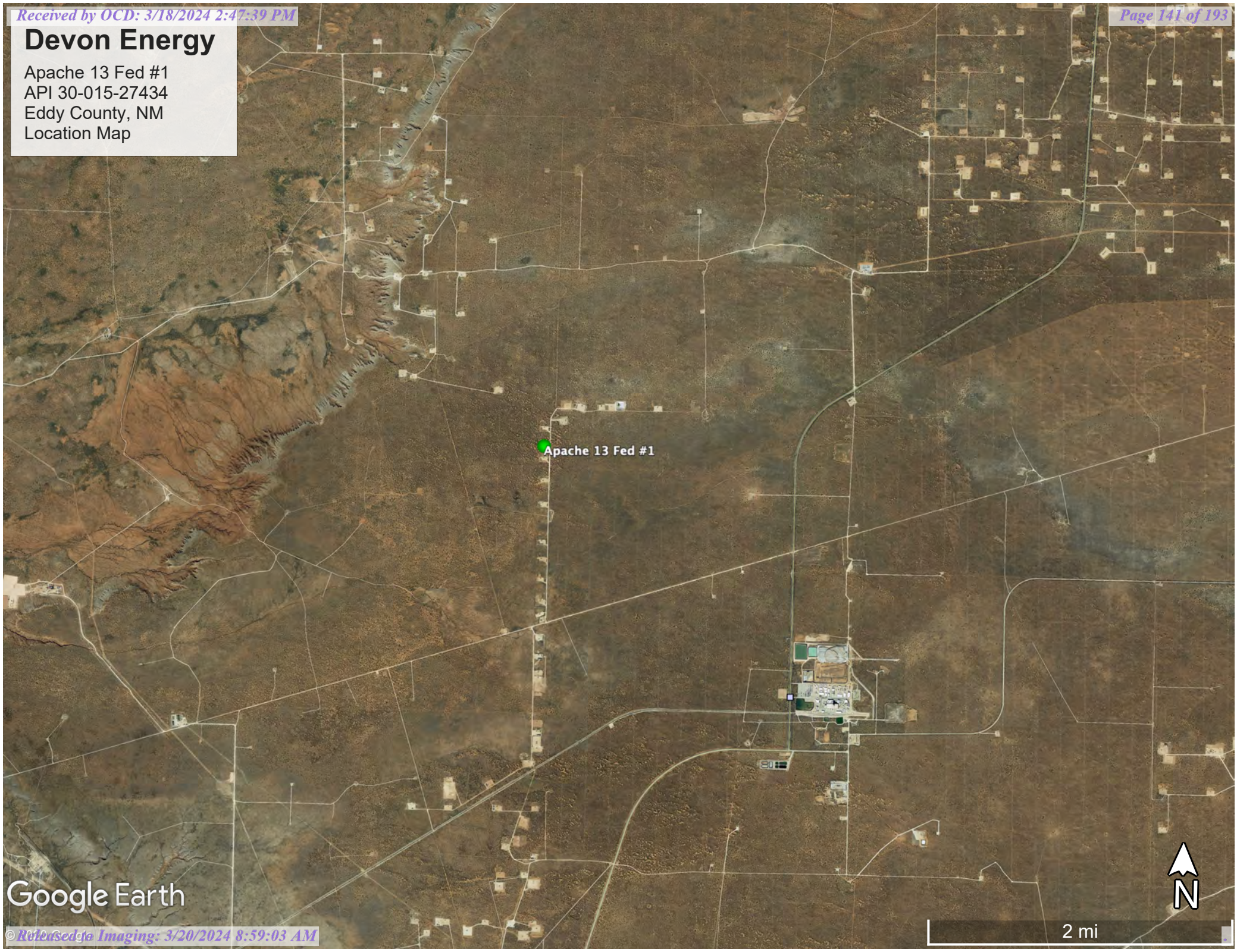
Pima Environmental Services

Figures:

1 - Location Map
2 - TOPO Map
3 - Karst Map
4 - Site Map

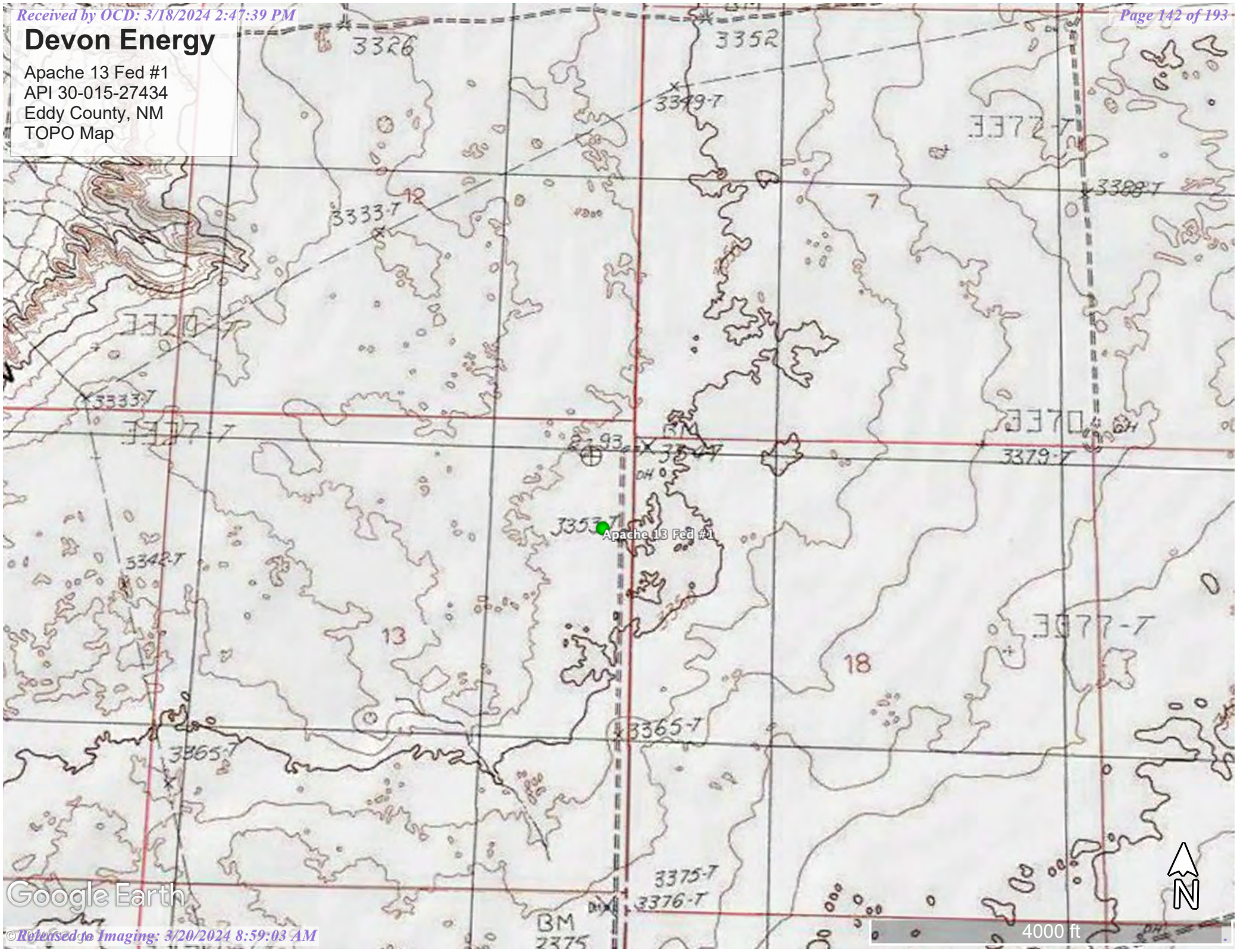
Devon Energy

Apache 13 Fed #1
API 30-015-27434
Eddy County, NM
Location Map



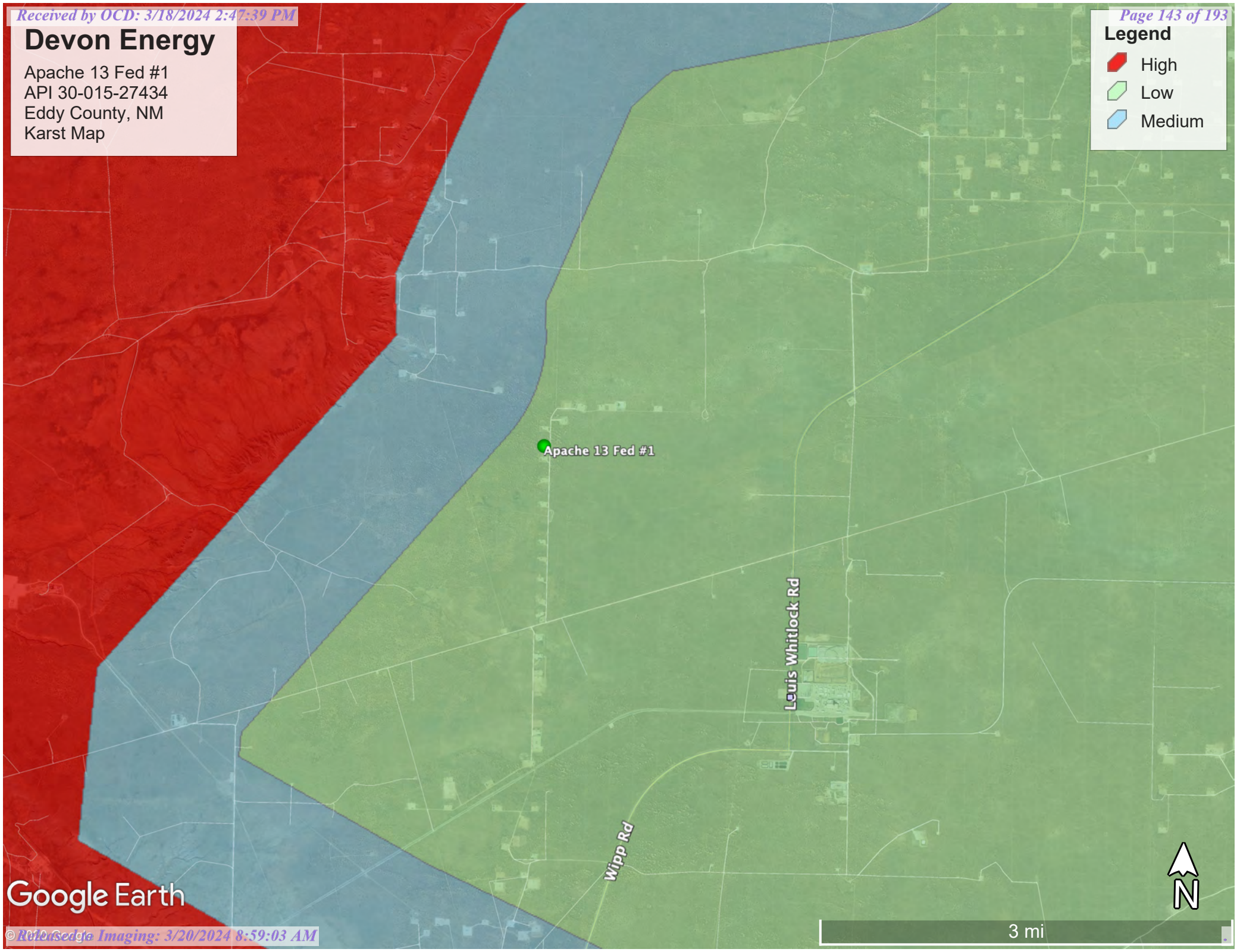
Devon Energy

Apache 13 Fed #1
API 30-015-27434
Eddy County, NM
TOPO Map



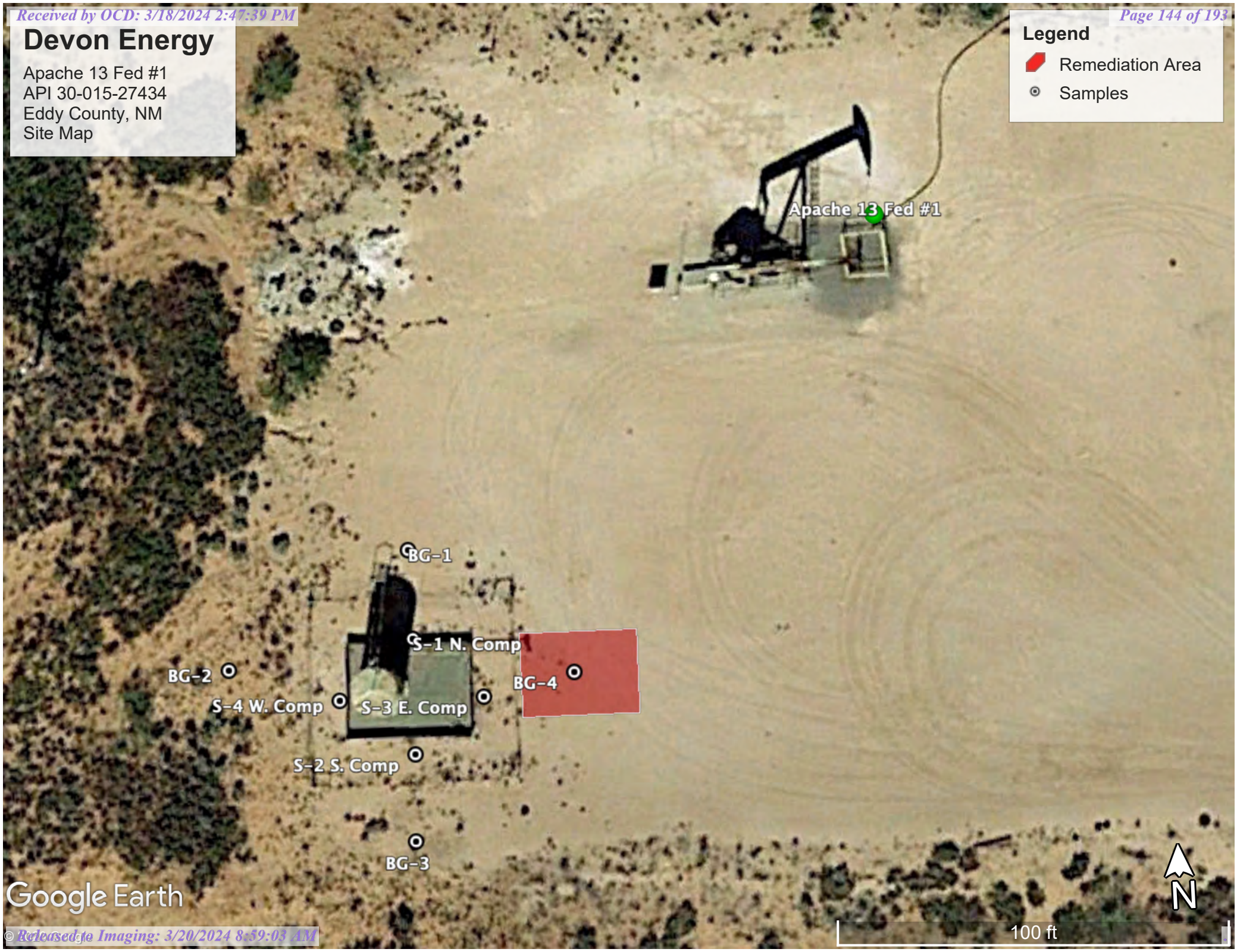
Devon Energy

Apache 13 Fed #1
API 30-015-27434
Eddy County, NM
Karst Map



Devon Energy

Apache 13 Fed #1
API 30-015-27434
Eddy County, NM
Site Map



Pima Environmental Services

Appendix A
Water Surveys:
OSE
USGS

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02749		CUB	ED	1	1	1	18	22S	31E	610556	3585146*	311	640		
C 02750		CUB	ED	1	1	1	18	22S	31E	610556	3585146*	311	741		
C 02751		CUB	ED	1	1	1	18	22S	31E	610556	3585146*	311	637		
C 02748		CUB	ED	1	2	3	17	22S	31E	612576	3584364*	2286	3856		
C 02683		CUB	ED	3	1	1	20	22S	31E	612184	3583356*	2398	840		
C 02413		CUB	ED	1	2	1	20	22S	31E	612586	3583560*	2606	737		
C 02950 EXPL		CUB	ED	4	2	4	23	22S	30E	608740	3582576*	2837	845		
C 02637		CUB	ED	1	3	3	24	22S	30E	608950	3582377*	2895	759		
C 03002		CUB	ED	4	2	4	06	22S	31E	611933	3587375*	2928	668		
C 03221 EXPLORE		CUB	ED	1	2	1	30	22S	31E	610995	3581935*	3041	651		
C 02682		CUB	ED	4	4	4	08	22S	31E	613566	3585379*	3245	4400		
C 02639		CUB	ED	4	4	4	17	22S	31E	613585	3583770*	3424	3928		
C 02414		CUB	ED	3	1	3	16	22S	31E	613782	3584176*	3504	846		
C 02684		CUB	ED	4	2	2	20	22S	31E	613590	3583368*	3582	1060		
C 03976 POD1		CUB	ED	1	3	4	20	22S	31E	612967	3582387	3630	180		
C 03976 POD2		CUB	ED	1	3	4	20	22S	31E	612967	3582387	3630	70		
C 03976 POD3		CUB	ED	1	3	4	20	22S	31E	612967	3582387	3630	182		
C 03976 POD4		CUB	ED	1	3	4	20	22S	31E	612968	3582386	3631	71		
C 02759		CUB	ED	1	2	1	29	22S	31E	612604	3581952*	3714	795		
C 02755		CUB	ED	4	4	2	20	22S	31E	613595	3582966*	3777	1040		
C 03112 EXPLORE		CUB	ED	3	1	1	09	22S	31E	613753	3586590*	3791	3567		
C 02758		CUB	ED	3	2	1	29	22S	31E	612604	3581752*	3875	661		
C 02762		CUB	ED	3	2	1	29	22S	31E	612604	3581752*	3875	672		
C 02763		CUB	ED	3	2	1	29	22S	31E	612604	3581752*	3875	660		
C 02753		CUB	ED	1	4	4	20	22S	31E	613404	3582362*	3972	851		
C 02986		CUB	ED	1	4	4	20	22S	31E	613404	3582362*	3972	71		
C 02990		CUB	ED	1	4	4	20	22S	31E	613404	3582362*	3972	71		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 27

UTMNAD83 Radius Search (in meters):

Easting (X): 610355.197 **Northing (Y):** 3584908.448 **Radius:** 4000

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

6/16/20 12:28 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Click to hide News Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =
- 322215103502701

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

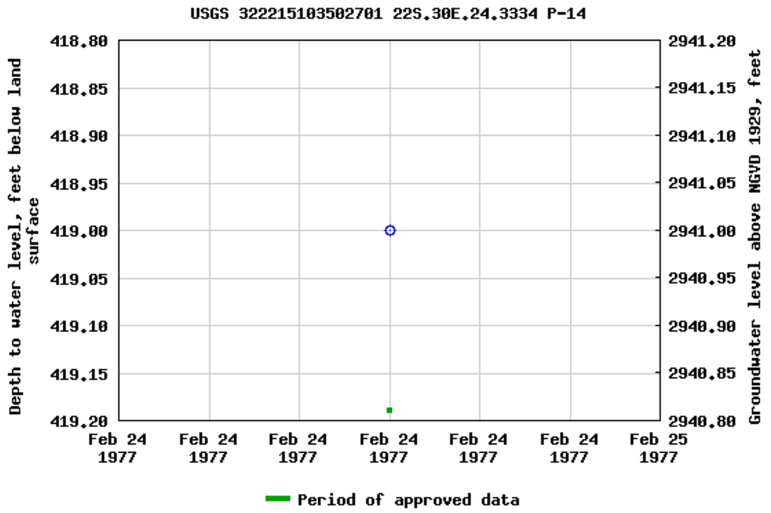
USGS 322215103502701 22S.30E.24.3334 P-14

Available data for this site: Groundwater: Field measurements | GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°22'15", Longitude 103°50'27" NAD27
Land-surface elevation 3,360 feet above NGVD29

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help

Data Tips
Explanation of terms
Subscribe for system changes
News

National Water Information System: Mapper

Help Info

Sites Map

Search

Surface-Water Sites

Groundwater Sites

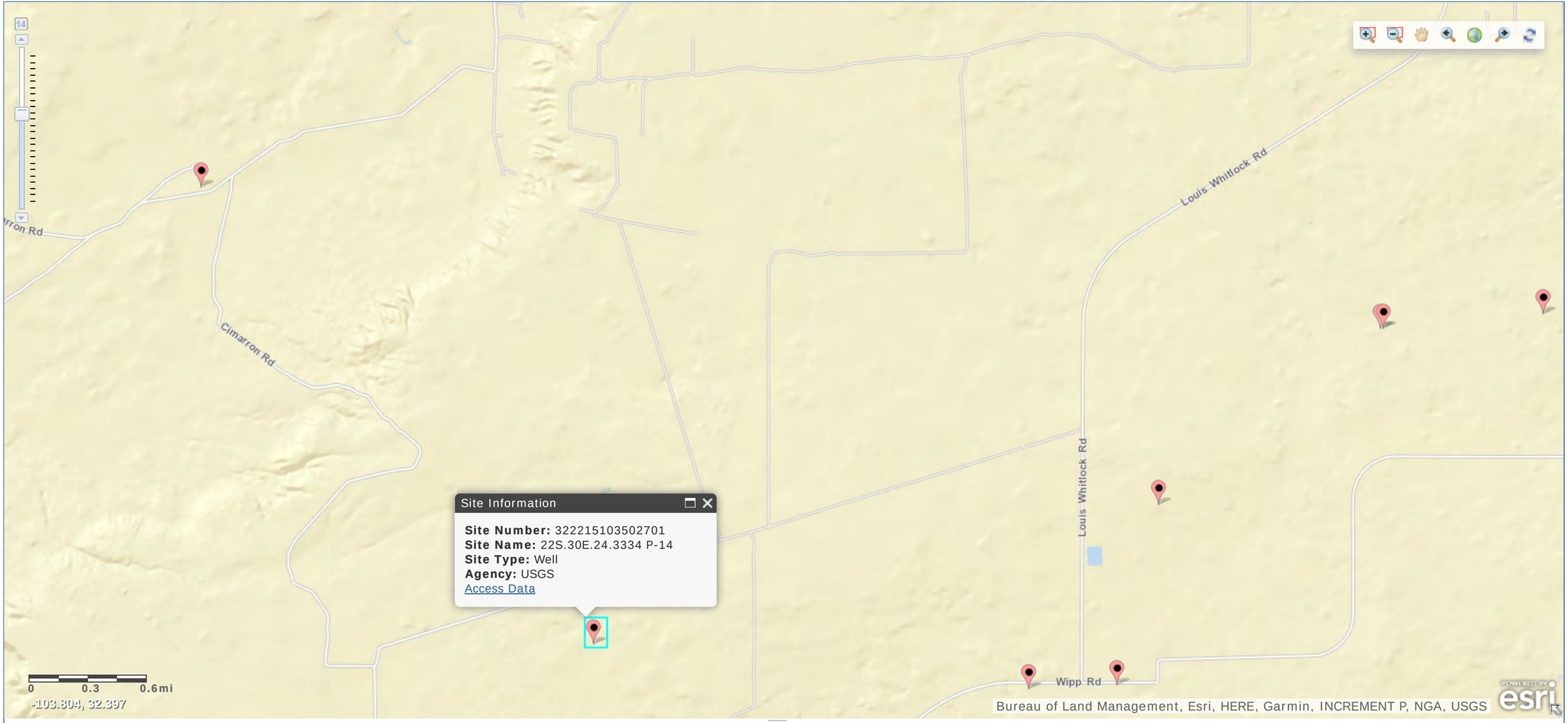
Active Sites
- Any data
- Instantaneous data
- Daily data
- Water-quality data
- Measurements
- Annual Report

Inactive Sites
- Any data
- Instantaneous data
- Daily data
- Water-quality data
- Measurements
- Annual Report

Springs

Atmospheric Sites

Other Sites



Site Information

Pima Environmental Services

Appendix B
Soil Survey & Geological Data:
FEMA Flood Map

Eddy Area, New Mexico

BB—Berino complex, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w43
Elevation: 2,000 to 5,700 feet
Mean annual precipitation: 5 to 15 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Berino and similar soils: 60 percent
Pajarito and similar soils: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berino

Setting

Landform: Fan piedmonts, plains
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 17 inches: fine sand
H2 - 17 to 58 inches: sandy clay loam
H3 - 58 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Description of Pajarito

Setting

Landform: Interdunes, plains, dunes
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 9 inches: loamy fine sand
H2 - 9 to 72 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Cacique

Percent of map unit: 4 percent
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Wink

Percent of map unit: 4 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Pajarito

Percent of map unit: 4 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Kermit

Percent of map unit: 3 percent
Ecological site: Deep Sand (R042XC005NM)
Hydric soil rating: No

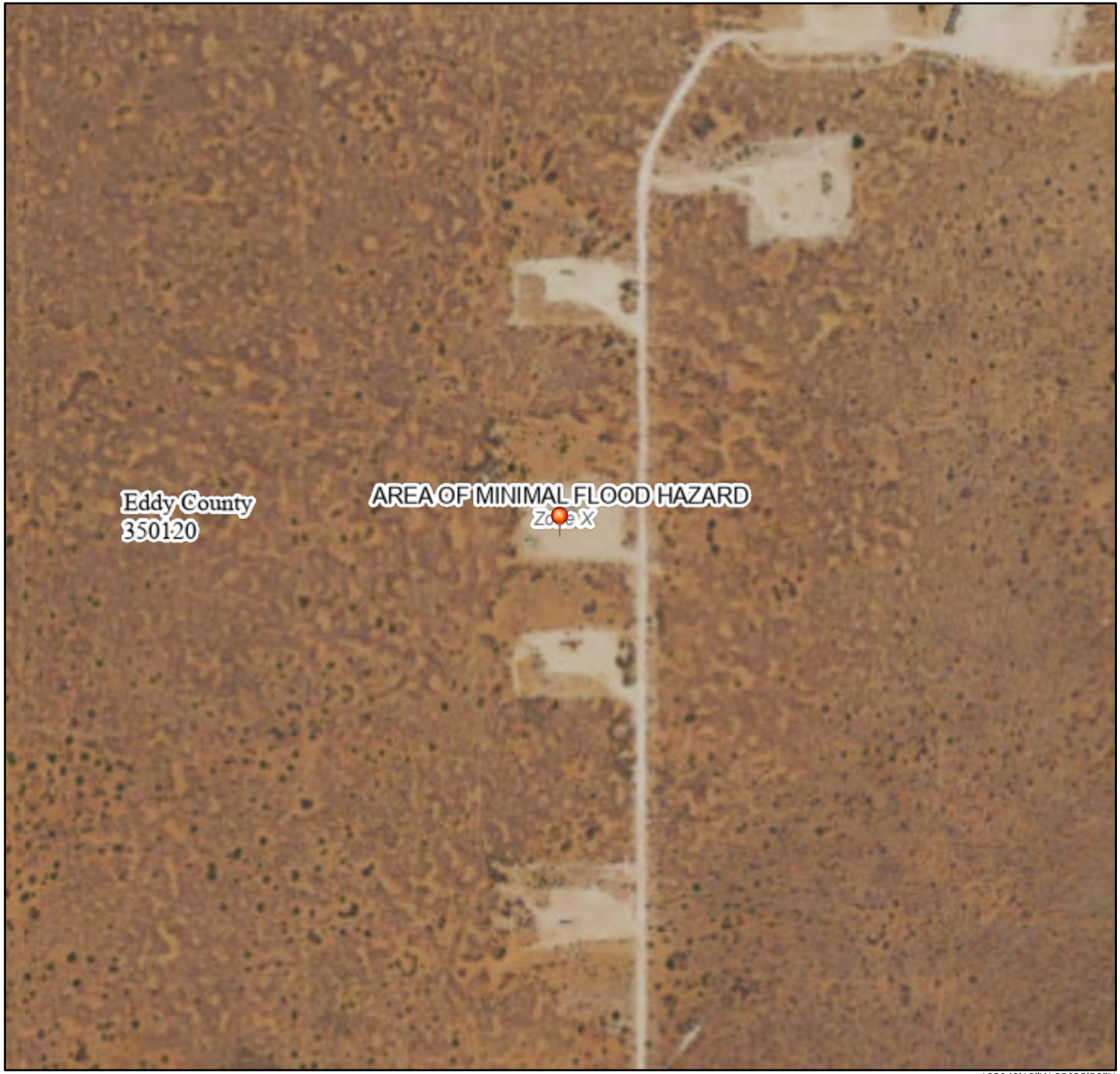
Data Source Information

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 15, Sep 15, 2019

National Flood Hazard Layer FIRMette

FEMA

103°49'55"W 32°23'59"N



103°49'18"W 32°23'29"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/1/2021 at 2:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Pima Environmental Services

Appendix C
C-141's:
Initial
Final

District I
1625 N. French Dr , Hobbs, NM 88240
District II
1301 W Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St Francis Dr , Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

JUL -7 2008
OCD-ARTESIA

Form C-141
Revised March 17, 1999

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

Release Notification and Corrective Action

i SEB0819748796
nSEB0819748645

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company Devon Energy 6137	Contact Tracy Kidd
Address P. O. Box 250 Artesia, NM 88211	Telephone No. (505) 513-0628
Facility Name Apache 13 Fed #1 30-015-27434	Facility Type Gas Well

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	13	T22S	30E	1330	North	330	East	Eddy

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 40 bbls.	Volume Recovered 30 bbls.
Source of Release Leak in seam of water tank	Date and Hour of Occurrence June 20, 2008	Date and Hour of Discovery 9:58 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jim Amos, BLM; Mike Bratcher OCD	
By Whom? Tracy Kidd – Production Foreman	Date and Hour June 20, 2008 4:30 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*
While a swab rig was swabbing a 210 bbl. Tank, the lease operator noticed a leak had developed in the seam of the tank and water was discharging onto the ground area within the firewall. Afterwards, all fluids were transferred from the storage tank into an empty oil tank. It was estimated 40 bbls. of produced water was released and 30 bbls were recovered.

Describe Area Affected and Cleanup Action Taken.*
41'x87' area contained inside firewall. Picked up fluid with vacuum truck and emptied tank. Cleaned up area inside firewall.

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

Signature: Jerry Chaney	OIL CONSERVATION DIVISION
Printed Name: Jerry Chaney for Tracy Kidd	Approved by District Supervisor: Accepted for record NMOCD
Title: Assistant Production Foreman	Approval Date: / Expiration Date:
Date: 6-26-08 Phone: (505) 513-0628	SEE ATTACHED STIPULATIONS / Attached ☑ 2RP-197

* Attach Additional Sheets If Necessary
SEB0819748832

State of New Mexico
Oil Conservation Division

Incident ID	NSEB0819748645
District RP	2RP-197
Facility ID	
Application ID	pSEB0819749027

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?	>100 (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	NSEB0819748645
District RP	2RP-197
Facility ID	
Application ID	pSEB0819749027

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: Wesley Mathews Title: EHS Professional

Signature: Wesley Mathews Date: 2/2/21

email: wesley.mathews@dvn.com Telephone: 575-318-6841

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NSEB0819748645
District RP	2RP-197
Facility ID	
Application ID	pSEB0819749027

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: Wesley Mathews Title: EHS Professional

Signature: Wesley Mathews Date: 2/2/21

email: wesley.mathews@dvn.com Telephone: 575-318-6841

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: _____ Date: _____

Printed Name: _____ Title: _____

Pima Environmental Services

Appendix D:
Laboratory Results

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

January 22, 2021

Chris Jones
Pima Environmental Services LLC
1601 N. Turner Ste 500
Hobbs, NM 88240
TEL: (575) 631-6977
FAX

RE: Apache 13 FED Com 1 OrderNo.: 2101634

Dear Chris Jones:

Hall Environmental Analysis Laboratory received 8 sample(s) on 1/16/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: N - Wall
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:00:00 PM
Lab ID: 2101634-001 **Matrix:** SOIL
Received Date: 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	1/20/2021 2:05:36 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/20/2021 2:05:36 AM
Surr: DNOP	113	30.4-154		%Rec	1	1/20/2021 2:05:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/20/2021 2:38:44 PM
Surr: BFB	99.5	75.3-105		%Rec	1	1/20/2021 2:38:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	1/20/2021 2:38:44 PM
Toluene	ND	0.050		mg/Kg	1	1/20/2021 2:38:44 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/20/2021 2:38:44 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/20/2021 2:38:44 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	1/20/2021 2:38:44 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	210	60		mg/Kg	20	1/19/2021 1:44:10 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: S - Wall
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:05:00 PM
Lab ID: 2101634-002 **Matrix:** SOIL **Received Date:** 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	1/20/2021 2:28:41 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	1/20/2021 2:28:41 AM
Surr: DNOP	119	30.4-154		%Rec	1	1/20/2021 2:28:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/20/2021 3:02:20 PM
Surr: BFB	99.8	75.3-105		%Rec	1	1/20/2021 3:02:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	1/20/2021 3:02:20 PM
Toluene	ND	0.049		mg/Kg	1	1/20/2021 3:02:20 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/20/2021 3:02:20 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/20/2021 3:02:20 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	1/20/2021 3:02:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	330	60		mg/Kg	20	1/19/2021 2:46:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: E - Wall
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:10:00 PM
Lab ID: 2101634-003 **Matrix:** SOIL **Received Date:** 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/20/2021 2:51:47 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/20/2021 2:51:47 AM
Surr: DNOP	119	30.4-154		%Rec	1	1/20/2021 2:51:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/20/2021 3:25:57 PM
Surr: BFB	101	75.3-105		%Rec	1	1/20/2021 3:25:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	1/20/2021 3:25:57 PM
Toluene	ND	0.050		mg/Kg	1	1/20/2021 3:25:57 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/20/2021 3:25:57 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/20/2021 3:25:57 PM
Surr: 4-Bromofluorobenzene	106	80-120		%Rec	1	1/20/2021 3:25:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	260	61		mg/Kg	20	1/19/2021 2:58:36 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: W - Wall
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:15:00 PM
Lab ID: 2101634-004 **Matrix:** SOIL **Received Date:** 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/20/2021 3:14:54 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/20/2021 3:14:54 AM
Surr: DNOP	103	30.4-154		%Rec	1	1/20/2021 3:14:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/20/2021 5:00:31 PM
Surr: BFB	99.4	75.3-105		%Rec	1	1/20/2021 5:00:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	1/20/2021 5:00:31 PM
Toluene	ND	0.049		mg/Kg	1	1/20/2021 5:00:31 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/20/2021 5:00:31 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/20/2021 5:00:31 PM
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	1/20/2021 5:00:31 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	84	60		mg/Kg	20	1/19/2021 3:11:01 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: Bottom-1
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:20:00 PM
Lab ID: 2101634-005 **Matrix:** SOIL
Received Date: 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/20/2021 3:38:15 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/20/2021 3:38:15 AM
Surr: DNOP	112	30.4-154		%Rec	1	1/20/2021 3:38:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/20/2021 5:24:05 PM
Surr: BFB	99.9	75.3-105		%Rec	1	1/20/2021 5:24:05 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	1/20/2021 5:24:05 PM
Toluene	ND	0.049		mg/Kg	1	1/20/2021 5:24:05 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/20/2021 5:24:05 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/20/2021 5:24:05 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	1/20/2021 5:24:05 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	81	60		mg/Kg	20	1/19/2021 3:23:26 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: Bottom-2
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:25:00 PM
Lab ID: 2101634-006 **Matrix:** SOIL **Received Date:** 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	1/20/2021 4:01:48 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/20/2021 4:01:48 AM
Surr: DNOP	122	30.4-154		%Rec	1	1/20/2021 4:01:48 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/20/2021 5:47:36 PM
Surr: BFB	99.6	75.3-105		%Rec	1	1/20/2021 5:47:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	1/20/2021 5:47:36 PM
Toluene	ND	0.050		mg/Kg	1	1/20/2021 5:47:36 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/20/2021 5:47:36 PM
Xylenes, Total	ND	0.099		mg/Kg	1	1/20/2021 5:47:36 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	1/20/2021 5:47:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	170	60		mg/Kg	20	1/19/2021 3:35:50 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: Bottom-3
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:30:00 PM
Lab ID: 2101634-007 **Matrix:** SOIL **Received Date:** 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	1/20/2021 4:25:24 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/20/2021 4:25:24 AM
Surr: DNOP	128	30.4-154		%Rec	1	1/20/2021 4:25:24 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/20/2021 6:11:28 PM
Surr: BFB	97.7	75.3-105		%Rec	1	1/20/2021 6:11:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	1/20/2021 6:11:28 PM
Toluene	ND	0.049		mg/Kg	1	1/20/2021 6:11:28 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/20/2021 6:11:28 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/20/2021 6:11:28 PM
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	1/20/2021 6:11:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	410	60		mg/Kg	20	1/19/2021 3:48:15 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2101634**
Date Reported: **1/22/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Pima Environmental Services LLC
Client Sample ID: Bottom-4
Project: Apache 13 FED Com 1
Collection Date: 1/15/2021 12:35:00 PM
Lab ID: 2101634-008 **Matrix:** SOIL **Received Date:** 1/16/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/20/2021 4:48:59 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/20/2021 4:48:59 AM
Surr: DNOP	96.0	30.4-154		%Rec	1	1/20/2021 4:48:59 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/20/2021 6:35:02 PM
Surr: BFB	99.0	75.3-105		%Rec	1	1/20/2021 6:35:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	1/20/2021 6:35:02 PM
Toluene	ND	0.050		mg/Kg	1	1/20/2021 6:35:02 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/20/2021 6:35:02 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/20/2021 6:35:02 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	1/20/2021 6:35:02 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	150	61		mg/Kg	20	1/19/2021 4:00:39 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2101634**
22-Jan-21

Client: Pima Environmental Services LLC
Project: Apache 13 FED Com 1

Sample ID: **MB-57609**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **57609**	RunNo: **74716**							
Prep Date: **1/19/2021**	Analysis Date: **1/19/2021**	SeqNo: **2636793**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-57609**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **57609**	RunNo: **74716**							
Prep Date: **1/19/2021**	Analysis Date: **1/19/2021**	SeqNo: **2636794**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2101634**

22-Jan-21

Client: Pima Environmental Services LLC

Project: Apache 13 FED Com 1

Sample ID: **MB-57593** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **57593** RunNo: **74697**
Prep Date: **1/18/2021** Analysis Date: **1/19/2021** SeqNo: **2637248** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		105	30.4	154			

Sample ID: **LCS-57593** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **57593** RunNo: **74697**
Prep Date: **1/18/2021** Analysis Date: **1/19/2021** SeqNo: **2637249** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.2		5.000		104	30.4	154			

Sample ID: **MB-57585** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **57585** RunNo: **74697**
Prep Date: **1/18/2021** Analysis Date: **1/19/2021** SeqNo: **2637290** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		116	30.4	154			

Sample ID: **LCS-57585** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **57585** RunNo: **74697**
Prep Date: **1/18/2021** Analysis Date: **1/20/2021** SeqNo: **2637291** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	109	68.9	141			
Surr: DNOP	5.6		5.000		112	30.4	154			

Sample ID: **LCS-57592** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **57592** RunNo: **74729**
Prep Date: **1/18/2021** Analysis Date: **1/19/2021** SeqNo: **2637435** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.3		5.000		125	30.4	154			

Sample ID: **MB-57592** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **57592** RunNo: **74729**
Prep Date: **1/18/2021** Analysis Date: **1/19/2021** SeqNo: **2637438** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	14		10.00		144	30.4	154			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2101634**
22-Jan-21

Client: Pima Environmental Services LLC
Project: Apache 13 FED Com 1

Sample ID: **mb-57575**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **57575**	RunNo: **74750**
Prep Date: **1/16/2021**	Analysis Date: **1/20/2021**	SeqNo: **2637942** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		100	75.3	105			

Sample ID: **lcs-57575**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **57575**	RunNo: **74750**
Prep Date: **1/16/2021**	Analysis Date: **1/20/2021**	SeqNo: **2637945** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.4	80	120			
Surr: BFB	1100		1000		108	75.3	105			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2101634**
22-Jan-21

Client: Pima Environmental Services LLC
Project: Apache 13 FED Com 1

Sample ID: **mb-57575**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **PBS**	Batch ID: **57575**	RunNo: **74750**							
Prep Date: **1/16/2021**	Analysis Date: **1/20/2021**	SeqNo: **2637986**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

Sample ID: **LCS-57575**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**							
Client ID: **LCSS**	Batch ID: **57575**	RunNo: **74750**							
Prep Date: **1/16/2021**	Analysis Date: **1/20/2021**	SeqNo: **2637987**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.4	80	120			
Toluene	0.96	0.050	1.000	0	96.5	80	120			
Ethylbenzene	0.97	0.050	1.000	0	96.6	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.7	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Pima Environmental Servi** Work Order Number: **2101634** RcptNo: 1

Received By: **Isaiah Ortiz** **1/16/2021 9:15:00 AM** I-OK

Completed By: **Isaiah Ortiz** **1/16/2021 9:42:08 AM** I-OK

Reviewed By: DF 1/16/2021

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑ 10
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: 1/16/21 (<2 or >12 unless noted)
Adjusted?
Checked by:

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.4	Good	Not Present			

Chain-of-Custody Record

Client: Pima Environmental

Mailing Address: 1601 N. Turner ste 500
Hobbs, NM 88240

Phone #: 575-631-6977

email or Fax#:

QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 4 Days
☑ Standard ☐ Rush

Project Name: APACHE 13 FED Com 1

Project #: 10

Project Manager: Chris Jones

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.4 °C ± 0 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2101634	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Chloride
1/15/21	12:00	Soil	N-WALL	GLASS	ICE	001											
	1205		S-WALL			002											
	1210		E-WALL			003											
	1215		W-WALL			004											
	1220		Bottom-1			005											
	1225		Bottom-2			006											
	1230		Bottom-3			007											
	1235		Bottom-4			008											

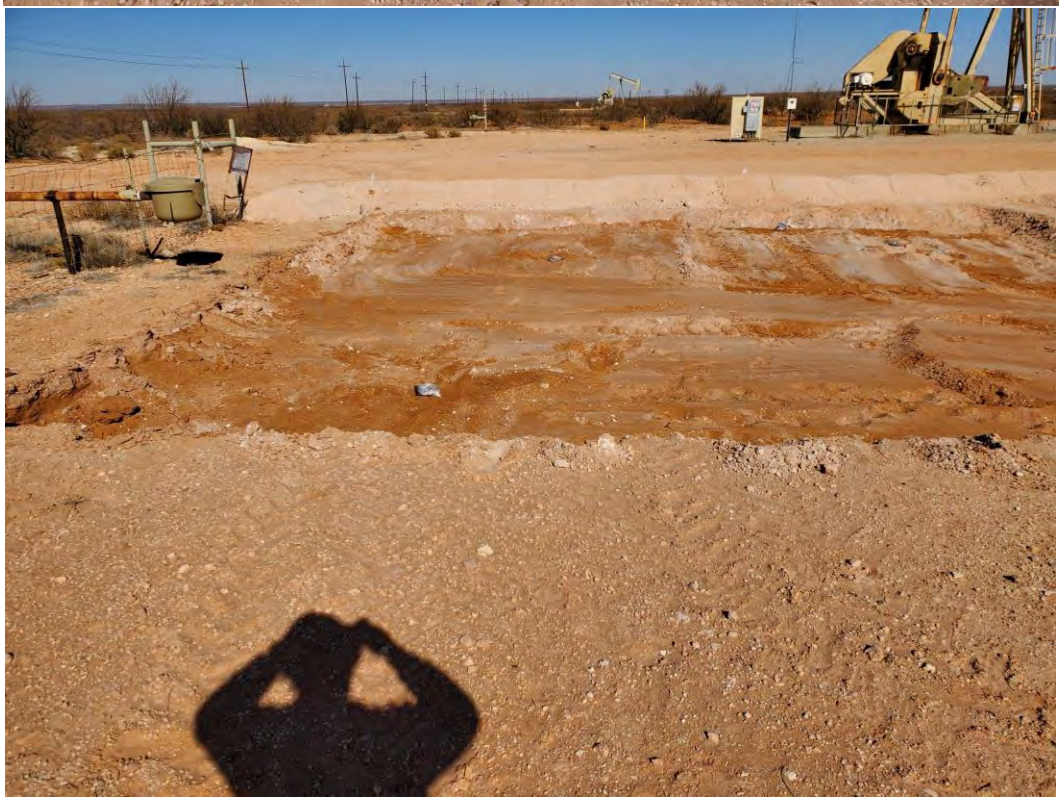
Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/15/21					1/15/21	1230
1/15/21	1900				1/16/21	0915

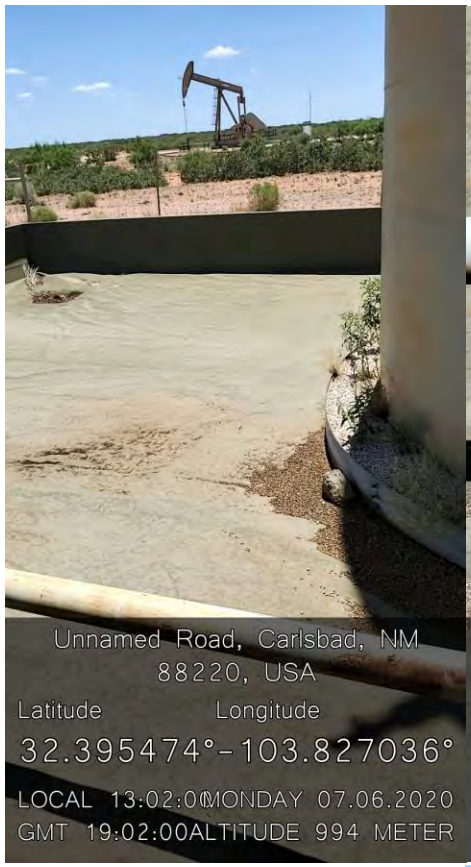
Remarks: Bill to Devon

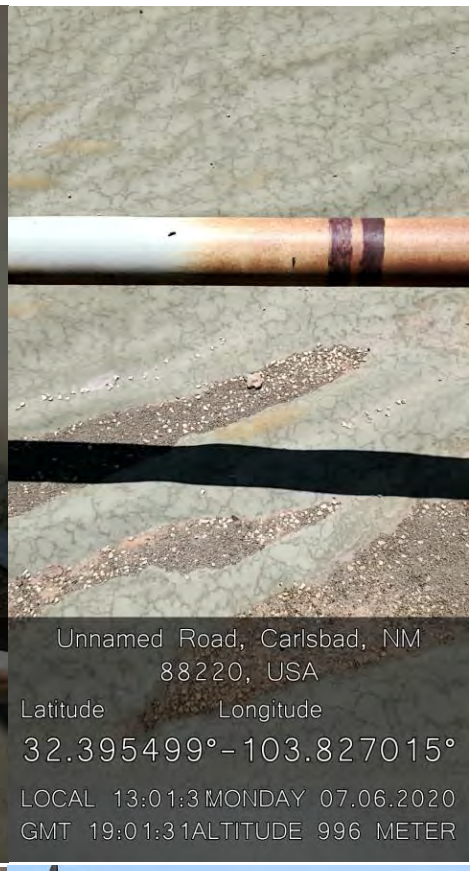
If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

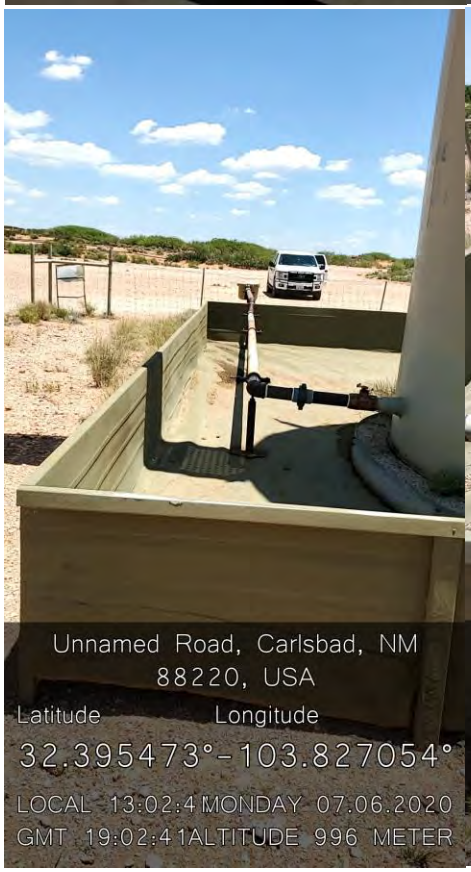
Pima Environmental Services

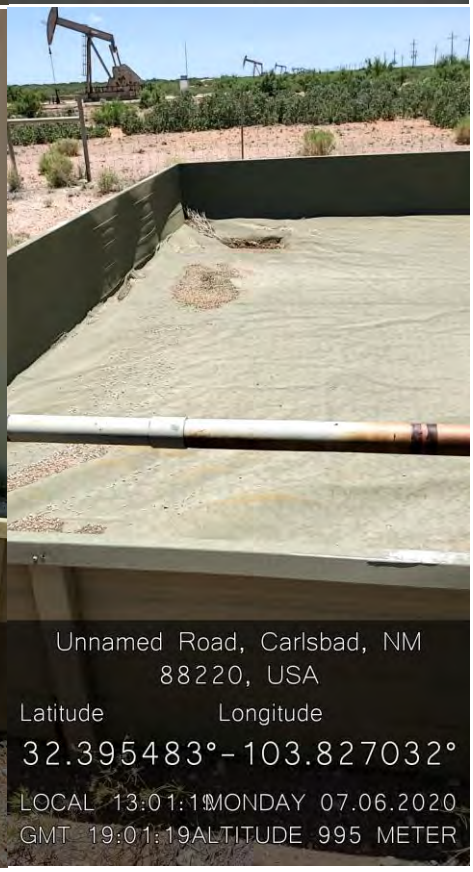
Appendix E:
Photographic Documentation

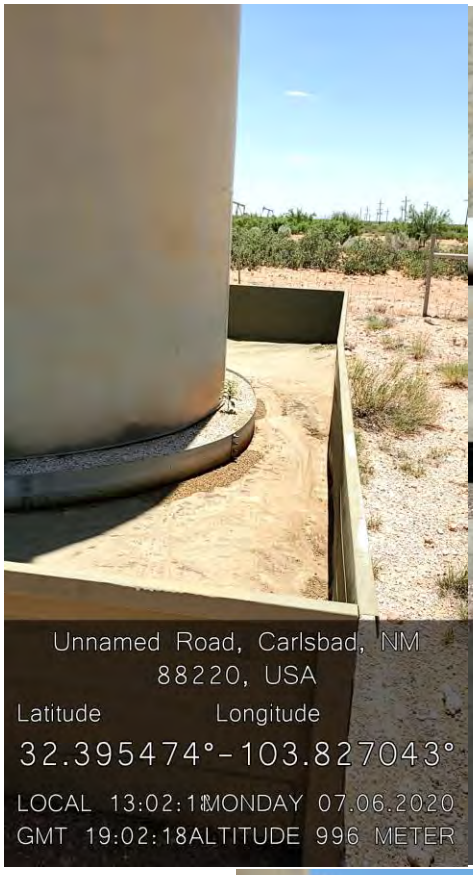


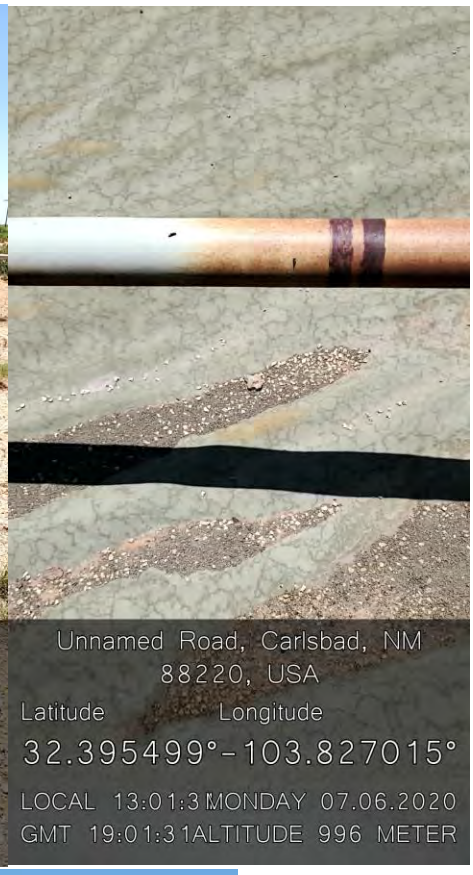

Unnamed Road, Carlsbad, NM
88220, USA
Latitude Longitude
32.395474°-103.827036°
LOCAL 13:02:00 MONDAY 07.06.2020
GMT 19:02:00 ALTITUDE 994 METER

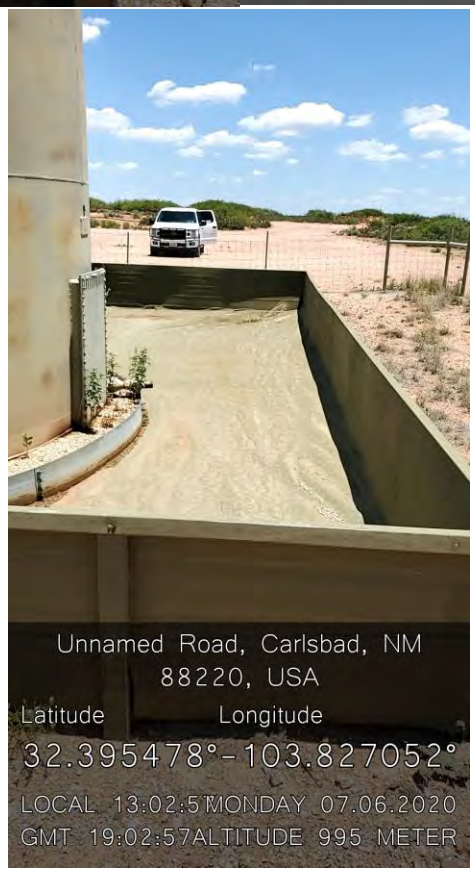

Unnamed Road, Carlsbad, NM
88220, USA
Latitude Longitude
32.395499°-103.827015°
LOCAL 13:01:31 MONDAY 07.06.2020
GMT 19:01:31 ALTITUDE 996 METER


Unnamed Road, Carlsbad, NM
88220, USA
Latitude Longitude
32.395473°-103.827054°
LOCAL 13:02:41 MONDAY 07.06.2020
GMT 19:02:41 ALTITUDE 996 METER


Unnamed Road, Carlsbad, NM
88220, USA
Latitude Longitude
32.395483°-103.827032°
LOCAL 13:01:19 MONDAY 07.06.2020
GMT 19:01:19 ALTITUDE 995 METER


Unnamed Road, Carlsbad, NM
88220, USA
Latitude Longitude
32.395474°-103.827043°
LOCAL 13:02:18MONDAY 07.06.2020
GMT 19:02:18ALTITUDE 996 METER


Unnamed Road, Carlsbad, NM
88220, USA
Latitude Longitude
32.395499°-103.827015°
LOCAL 13:01:31MONDAY 07.06.2020
GMT 19:01:31ALTITUDE 996 METER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88220, USA
Latitude Longitude
32.395478°-103.827052°
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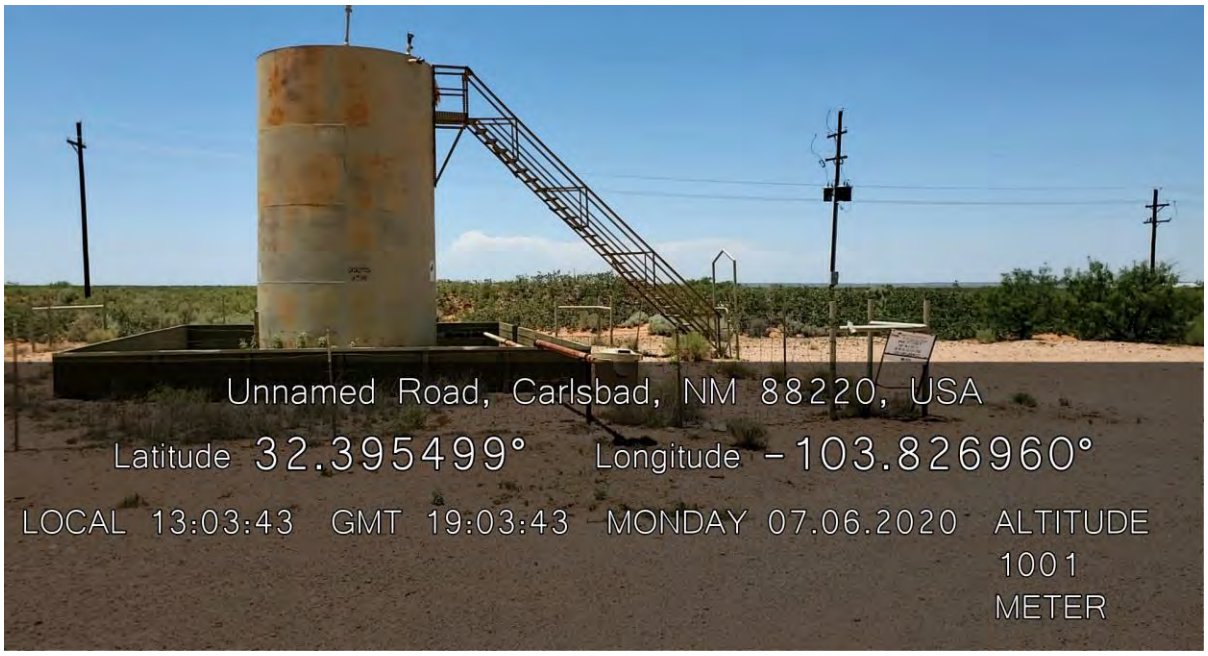
GMT 19:02:57ALTITUDE 995 METER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Latitude 32.395499° Longitude -103.826960°
LOCAL 13:03:43 GMT 19:03:43 MONDAY 07.06.2020 ALTITUDE
1001
METER

Pima Environmental Services

Appendix F:
Approved Work Plan
Correspondence

devon

Devon Energy Corporation
P. O. Box 250
Artesia, NM 88211

Phone (505) 748-3371
6488 Seven Rivers Hwy

AUG 18 200
OCD-ARTESIA

August 14, 2008

State of New Mexico
Oil Conservation Division
Mike Bratcher
1301 W. Grand Avenue
Artesia, NM 88210

RE: Apache 13 Federal 001 30-015-27434
Eddy County, New Mexico

Dear Mr. Bratcher:

Enclosed please accept our plan for the remediation of the above mentioned lease for a spill with occurred on June 20, 2008. A C-141 dated June 26, 2008 was submitted but we failed to include a remediation plan.

We are planning on having all soil samples ran and analyzed at depths ranging from 1' to 12' and all contaminated soil removed and moved to an approved disposal site.

We would appreciate your acceptance of this plan and we will cooperate at the highest level for this remediation. We will have all work done on this lease that we had done on the Todd 13 Battery that met your approval.

We will await your response.

Respectfully,

Adrienne Verkler

Adrienne Verkler for
Jerry Chaney
Asst. Production Foreman
Devon Energy Production Co, LP
Artesia Division

2RP-197

Bonham, Sherry, EMNRD

From: Bonham, Sherry, EMNRD
Sent: Friday, August 29, 2008 11:01 AM
To: Adrienne Verkler (adrienne.verkler@dvn.com)
Subject: Apache 13 Federal 001 30 015 27434

Contacts: Adrienne Verkler

Adrienne,
Per our conversation this morning:

NMOCD District II is in receipt of a letter (plan) dated August 14, 2008 regarding the remediation of a release at the above mentioned site.

The plan to remove all contaminated soil and haul to an approved disposal site is approved with the following stipulations:

- Notify the OCD 48 hours prior to obtaining confirmation samples where analyses are to be submitted to the OCD.
- Confirmation soil analyses are to be presented to OCD for review prior to any backfilling activities.
- Upon satisfactory completion of remediation activities, please submit a final report C-141.
- Remediation requirements may be subject to change as site conditions warrant.
- Remediation to be completed on or before October 10, 2008.

Please be advised that NMOCD acceptance of this plan 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 this plan does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

Should you have any questions or concerns, please don't hesitate to contact me.

Thanks.

Sherry Bonham
NMOCD District II

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

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nSEB0819748645**
Incident Name	**NSEB0819748645 APACHE 13 FED #001 @ 30-015-27434**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-015-27434] APACHE 13 FED #001**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	APACHE 13 FED #001
Date Release Discovered	06/20/2008
Surface Owner	Federal

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Equipment Failure | Tank (Any) | Produced Water | Released: 40 BBL | Recovered: 30 BBL | Lost: 10 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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.

I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dvn.com Date: 03/18/2024

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 26 and 50 (ft.)
What method was used to determine the depth to ground water	U.S. Geological Survey
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between ½ and 1 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between ½ and 1 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Between 1 and 5 (mi.)
An (non-karst) unstable area	Between ½ and 1 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Between 1 and 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	440
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	01/15/2021
On what date will (or did) the final sampling or liner inspection occur	05/19/2023
On what date will (or was) the remediation complete(d)	02/09/2023
What is the estimated surface area (in square feet) that will be reclaimed	1050
What is the estimated volume (in cubic yards) that will be reclaimed	116.7
What is the estimated surface area (in square feet) that will be remediated	1050
What is the estimated volume (in cubic yards) that will be remediated	116.7
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	R360 Artesia LLC LANDFARM [fEEM0112340644]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
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.	
I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dvn.com Date: 03/18/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only *Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.*	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**324393**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**05/19/2023**
What was the (estimated) number of samples that were to be gathered	**1**
What was the sampling surface area in square feet	**1**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	1050
What was the total volume (cubic yards) remediated	116.7
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	see report

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 (in .pdf format) 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.

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.

I hereby agree and sign off to the above statement	Name: Dale Woodall Title: EHS Professional Email: Dale.Woodall@dvn.com Date: 03/18/2024

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Action 324378

CONDITIONS

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	Action Number: 324378
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation approved.	3/20/2024
amaxwell	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	3/20/2024