



November 19, 2020

Vertex Project #: 20E-00141-036

**Spill Closure Report:** Shaqtus 26 State Com 1H  
Unit D, Section 35, Township 21 South, Range 31 East  
County: Eddy  
API: 30-015-39819  
Tracking Number: NAB1900739710

**Prepared For:** Devon Energy Production Company  
6488 Seven Rivers Highway  
Artesia, New Mexico 88210

**New Mexico Oil Conservation Division – District 2 – Artesia**

811 South First Street  
Artesia, New Mexico 88210

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and liner inspection for a produced water release that occurred on November 13, 2018, at Shaqtus 26 State Com 1H, API 30-015-39818 (hereafter referred to as “Shaqtus 26”). Devon provided notification of the release to New Mexico Oil Conservation Division (NM OCD) District 2 and the New Mexico State Land Office (SLO), who owns the property, on November 26, 2018, via submission of an initial C-141 Release Notification (Attachment 1). The NM OCD incident tracking number assigned to this release is NAB1900739710.

This letter provides a description of the release assessment and liner inspection, and demonstrates that closure criteria established in 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) have been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NM OCD for closure of this release.

## Incident Description

On November 13, 2018, a release occurred at Devon’s Shaqtus 26 site when a water tank ran over due to a pump failure. This incident resulted in the release of approximately 210 barrels (bbls) of produced water into the lined secondary containment. Upon discovery of the release, a hydrovac truck was dispatched to the site to recover all free-standing liquids. Approximately 210 bbls of produced water were recovered from the secondary containment and removed for disposal off-site. All fluids were contained within the lined Spill Prevention Control and Countermeasures containment; no produced water was released into undisturbed areas or waterways.

## Site Characterization

The release at Shaqtus 26 occurred on New Mexico state-owned land, N 32.4398651, W 103.7534485, approximately 25 miles east of Carlsbad, New Mexico. The legal description for the site is Unit D, Section 35, Township 21 South, Range 31 East, Eddy County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has

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3101 Boyd Drive, Carlsbad, New Mexico 88220, USA | P 575.725.5001

historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic are included in Attachment 2.

Shaqtus 26 is typical of oil and gas exploration and production sites in the western portion of the Permian Basin, and is currently used for oil and gas production, and storage. The following sections specifically describe the area surrounding Shaqtus 26.

The surrounding landscape is associated with plains and alluvial fans typical of elevations of 3,100 to 4,200 feet above sea level. The climate is semi-arid, with average annual precipitation ranging between 10 and 14 inches. Litter and, to a lesser extent, bare ground are a significant proportion of ground cover, while grasses compose the remainder. The dominant grass species are black grama, dropseeds and bluestems, with scattered shinnery oak and sand sage (United States Department of Agriculture, Natural Resources Conservation Service, 2020).

The *Geological Map of New Mexico* indicates the surface geology at Shaqtus 26 is comprised of Qep – Eolian and piedmont deposits, that include eolian sands interlaid with piedmont-slope deposits (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service Web Soil Survey indicates the soil at the release site is Kermit-Berino fine sands, characterized by deep, fine sands. This type of soil tends to be excessively-drained with negligible runoff and low available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is low potential for karst geology to be present near Shaqtus 26 (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located at Shaqtus 26. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately 4 miles southeast of the site (United States Department of the Interior, United States Geological Survey, 2020). A freshwater stock pond is located approximately 0.84 miles east of the release site (United States Fish and Wildlife Service, 2020). At Shaqtus 26, there are no continuously flowing watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features nearby as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to Shaqtus 26 is a New Mexico Office of the State Engineer (NM OSE) exploratory well from 2003, located approximately 0.75 miles southwest of the site. This well has no groundwater shown and a well depth of 970 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

## Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC, if the release had escaped secondary containment.

Based on data included in the closure criteria determination worksheet, the release at Shaqtus 26 would not be subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site would

Devon Energy Production Company  
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be determined to be associated with depth to groundwater. As the nearest groundwater well is further than the NM OCD recommended 0.5 miles from the release site, the depth to groundwater cannot be accurately determined. The closure criteria for the site would then be determined to be associated with the following constituent concentration limits.

Depth to Groundwater	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH <sup>1</sup> (GRO + DRO + MRO)	100 mg/kg
	BTEX <sup>2</sup>	50 mg/kg
	Benzene	10 mg/kg

<sup>1</sup>Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)

<sup>2</sup>Benzene, toluene, ethylbenzene and xylenes (BTEX)

## Remedial Actions

On May 14, 2020, Vertex provided 48-hour notification of the liner inspection to NM OCD, as required by Subparagraph (a) of Paragraph (5) of Subsection A 19.15.29.11 NMAC (Attachment 4). On May 19, 2020, Vertex conducted a visual inspection of the production equipment secondary containment liner for cracks, tears, cuts and other signs of damage to verify that the liner remained intact and had the ability to contain the release. The Daily Field Report (DFR) associated with the liner inspection is included in Attachment 5.

## Closure Request

Vertex recommends no remediation action to address the release at Shaqtus 26. The secondary containment liner appeared to be intact and had the ability to contain the release in question, as shown in the inspection photographs included with the DFR (Attachment 5). There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that incident NAB1900739710 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 NM OCD requirements to obtain closure on the November 13, 2018, release at Shaqtus 26.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 505.506.0040 or ngordon@vertex.ca.

Sincerely,



Natalie Gordon  
PROJECT MANAGER

vertex.ca

3101 Boyd Drive, Carlsbad, New Mexico 88220, USA | P 575.725.5001

**Devon Energy Production Company**  
Shaqtus 26 State Com 1H

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## **Attachments**

- Attachment 1. NM OCD C-141 Report
- Attachment 2. Site Schematic
- Attachment 3. Site Characterization Research Documentation
- Attachment 4. Required 48-hr Notification of Liner Inspection to Regulatory Agencies
- Attachment 5. Daily Field Report(s) with Photographs

## References

New Mexico Bureau of Geology and Mineral Resources. (2020). *Interactive Geologic Map*. Retrieved from <http://geoinfo.nmt.edu>.

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2020). *Water Column/Average Depth to Water Report*. Retrieved from <http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html>.

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. (2020). *Web Soil Survey*. Retrieved from <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.

United States Department of the Interior, Bureau of Land Management. (2020). *New Mexico Cave/Karsts*. Retrieved from <https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico>.

United States Fish and Wildlife Service. (2020). *National Wetlands Inventory*. Retrieved from <https://www.fws.gov/wetlands/data/Mapper.html>.

## **Limitations**

This report has been prepared for the sole benefit of Devon Energy Production Company (Devon). This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and Devon. 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.

## **ATTACHMENT 1**

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

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

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

Incident ID	NAB1900739710
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD) NAB1900739710
Contact mailing address	

### Location of Release Source

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner:  State  Federal  Tribal  Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

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

Cause of Release

State of New Mexico  
Oil Conservation Division

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Incident ID	NAB1900739710
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

### Initial Response

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

<input type="checkbox"/> The source of the release has been stopped. <input type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.
Printed Name: _____ Title: _____ Signature: _____ Date: _____ email: _____ Telephone: _____ Operator signature was reviewed by OCD 1/7/19 and approved by AB in order to complete the data entry via OCD permitting.
<b><u>OCD Only</u></b> Received by:  _____ Date: _____

Incident ID	NAB1900739710
District RP	2RP-5153
Facility ID	
Application ID	pAB1900735859

## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>    &lt; 50    </u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico  
Oil Conservation Division

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Application ID	pAB1900735859

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: Tom Bynum Title: EHS Consultant  
 Signature: *Tom Bynum* Date: 11/21/2020  
 email: tom.bynum@dvn.com Telephone: 575-748-2663

**OCD Only**

Received by: Cristina Eads Date: 11/24/2020

Incident ID	NAB1900739710
District RP	2RP-5153
Facility ID	
Application ID	pAB1900735859

## 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)
- NA 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: Tom Bynum Title: EHS Consultant  
 Signature: *Tom Bynum* Date: 11/21/2020  
 email: tom.bynum@dvn.com Telephone: 575-748-2663

**OCD Only**

Received by: Cristina Eads Date: 11/24/2020

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: *Cristina Eads* Date: 02/03/2021  
 Printed Name: Cristina Eads Title: Environmental Specialist

## **ATTACHMENT 2**



 Approximate Lease Boundary     
  Containment  
 Approximate Spill Extent ( ~ 4,370 sq.ft. )



0 20 40 80 ft  
 Map Center:  
 Lat/Long: 32.4398, -103.7534

NAD 1983 UTM Zone 13N  
 Date: May 20/20



**Site Schematic**  
**Shaqtus 26 State Com 1H**

FIGURE:

**1**



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: Imagery from ESRI, 2018.

## **ATTACHMENT 3**

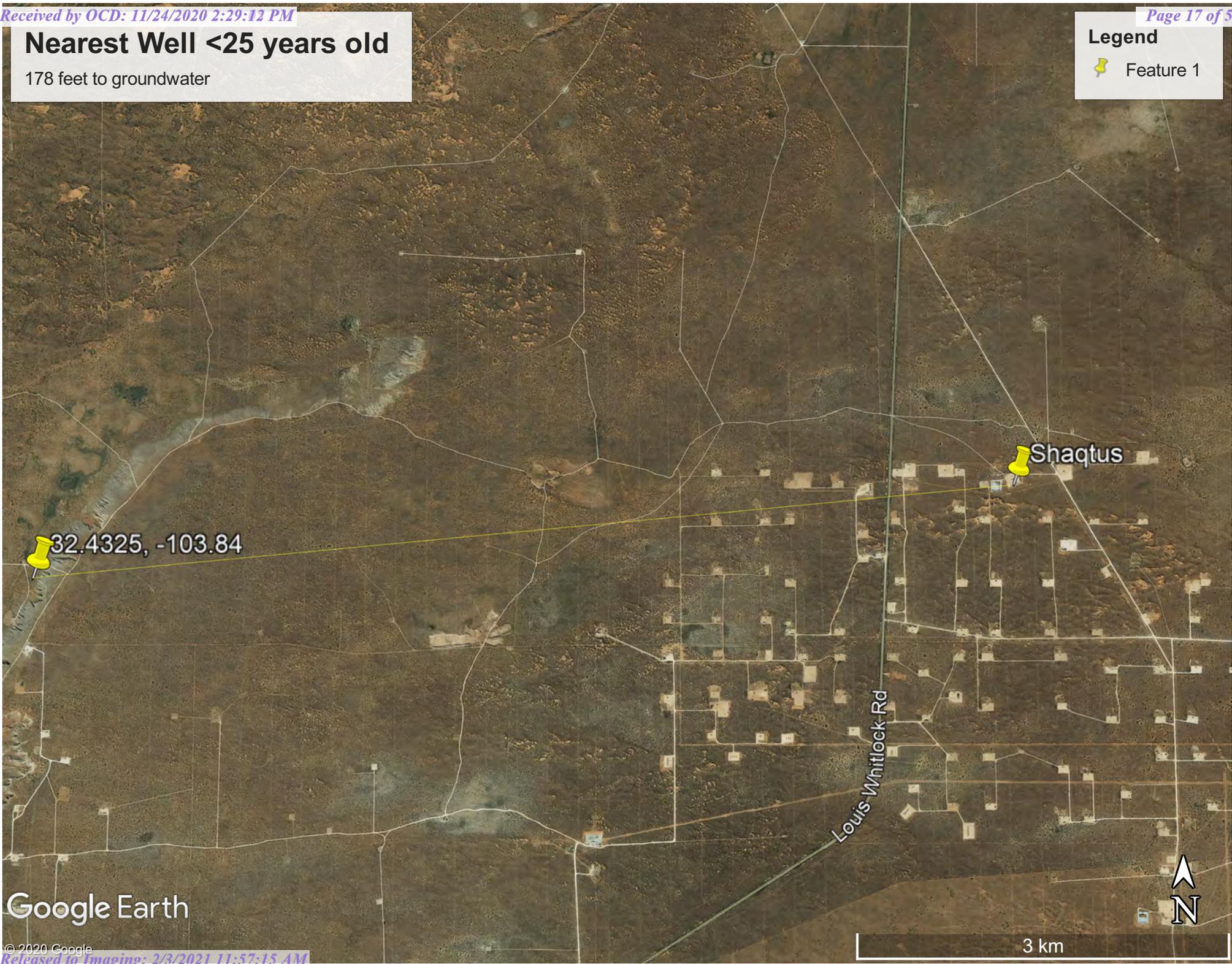
<b>Closure Criteria Worksheet</b>			
<b>Site Name: Closure Criteria Determination Shaqtus 26 State Com 1H</b>			
<b>Spill Coordinates:</b>		<b>X: 32.439803</b>	<b>Y: -103.752975</b>
<b>Site Specific Conditions</b>		<b>Value</b>	<b>Unit</b>
1	Depth to Groundwater	<b>Not Determined</b>	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	50,683	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	4,441	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	25,786	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, <b>or</b>	4,133	feet
	ii) Within 1000 feet of any fresh water well or spring	4,133	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	21,341	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)		Critical High Medium Low
10	Within a 100-year Floodplain	no	year
<b>NMAC 19.15.29.12 E (Table 1) Closure Criteria</b>		< 50'	<50' 51-100' >100'

# Nearest Well <25 years old

178 feet to groundwater

**Legend**

-  Feature 1



Google Earth



# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
<a href="#">C 02949 EXPL</a>	CUB	ED		1	1	4	34	21S	31E	616140	3589231*	1260	970		
<a href="#">C 02744</a>	CUB	ED		3	2	1	11	22S	31E	617374	3586631*	3242	4911		
<a href="#">C 02727</a>	CUB	ED		3	1	1	33	21S	31E	613716	3589809*	3510	913		
<a href="#">C 03233 EXPLORE</a>	CUB	ED		4	4	4	20	21S	31E	613489	3591816*	4213	566		
<a href="#">C 03112 EXPLORE</a>	CUB	ED		3	1	1	09	22S	31E	613753	3586590*	4777	3567		
<a href="#">C 02745</a>	CUB	ED		4	2	2	15	22S	31E	616789	3585013*	4877	925		
<a href="#">C 02746</a>	CUB	ED		4	2	2	15	22S	31E	616789	3585013*	4877	930		
<a href="#">C 02747</a>	CUB	ED		4	2	2	15	22S	31E	616789	3585013*	4877	1076		

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

**Record Count:** 8

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 617226.42

**Northing (Y):** 3589870.6

**Radius:** 5000

\*UTM location was derived from PLSS - see Help

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



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USGS Water Resources

Data Category: Groundwater Geographic Area: United States GO

Click to hide News Bulletins

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- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

Agency code = usgs  
site\_no list = 322557103502401

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

USGS 322557103502401 21S.30E.36.31321

Eddy County, New Mexico  
Latitude 32°25'57", Longitude 103°50'24" NAD27  
Land-surface elevation 3,231 feet above NAVD88  
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

<a href="#">Table of data</a>
<a href="#">Tab-separated data</a>
<a href="#">Graph of data</a>
<a href="#">Reselect period</a>

Date	Time	? Water-level date-time accuracy	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	? Water-level accuracy	? Status	? Method of measurement	? Measuring agency	? Source of measure
1976-12-09		D	180.94			2			U	
1983-01-18		D	178.70			2			U	
1987-10-14		D	181.71			2			U	
1988-03-17		D	182.76			2			U	
1992-12-09		D	179.72			2			S	
1998-02-19		D	178.73			2			S	

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Status		The reported water-level measurement represents a static level
Method of measurement	S	Steel-tape measurement.
Method of measurement	U	Unknown method.
Measuring agency		Not determined
Source of measurement	U	Source is unknown.
Water-level approval status	A	Approved for publication -- Processing and review completed.

- [Questions about sites/data?](#)
- [Feedback on this web site](#)
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- [Data Tips](#)
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[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: 2020-07-06 16:16:58 EDT

8.32 0.27 nadww01

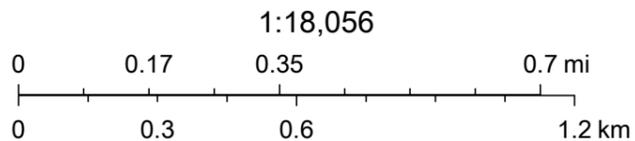
# Publicly Generated Map



11/19/2020, 4:10:35 PM

GIS WATERS PODs

- Active
- OSE District Boundary
- SiteBoundaries



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



# 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)

<b>Well Tag</b>	<b>POD Number</b>	<b>Q64</b>	<b>Q16</b>	<b>Q4</b>	<b>Sec</b>	<b>Tw</b>	<b>Rng</b>	<b>X</b>	<b>Y</b>
C	02949 EXPL	1	1	4	34	21S	31E	616140	3589231*

<b>Driller License:</b> 1184	<b>Driller Company:</b> WEST TEXAS WATER WELL SERVICE	
<b>Driller Name:</b> RONNY KEITH		
<b>Drill Start Date:</b> 08/14/2003	<b>Drill Finish Date:</b> 09/11/2003	<b>Plug Date:</b>
<b>Log File Date:</b> 09/23/2003	<b>PCW Rev Date:</b>	<b>Source:</b> Artesian
<b>Pump Type:</b>	<b>Pipe Discharge Size:</b>	<b>Estimated Yield:</b>
<b>Casing Size:</b>	<b>Depth Well:</b> 970 feet	<b>Depth Water:</b>

Water Bearing Stratifications:	Top	Bottom	Description
	0	2	Other/Unknown
	2	16	Sandstone/Gravel/Conglomerate
	16	29	Sandstone/Gravel/Conglomerate
	29	95	Sandstone/Gravel/Conglomerate
	95	225	Sandstone/Gravel/Conglomerate
	225	577	Sandstone/Gravel/Conglomerate
	577	610	Sandstone/Gravel/Conglomerate
	610	622	Sandstone/Gravel/Conglomerate
	622	639	Sandstone/Gravel/Conglomerate
	639	662	Sandstone/Gravel/Conglomerate
	662	722	Sandstone/Gravel/Conglomerate
	722	735	Sandstone/Gravel/Conglomerate
	735	754	Sandstone/Gravel/Conglomerate
	754	775	Sandstone/Gravel/Conglomerate
	775	782	Sandstone/Gravel/Conglomerate
	782	792	Sandstone/Gravel/Conglomerate
	792	863	Sandstone/Gravel/Conglomerate
	863	932	Sandstone/Gravel/Conglomerate

932	948	Sandstone/Gravel/Conglomerate
948	970	Sandstone/Gravel/Conglomerate

x

<b>Casing Perforations:</b>	<b>Top</b>	<b>Bottom</b>
	755	773

x

\*UTM location was derived from PLSS - see Help

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

11/19/20 4:08 PM

POINT OF DIVERSION SUMMARY

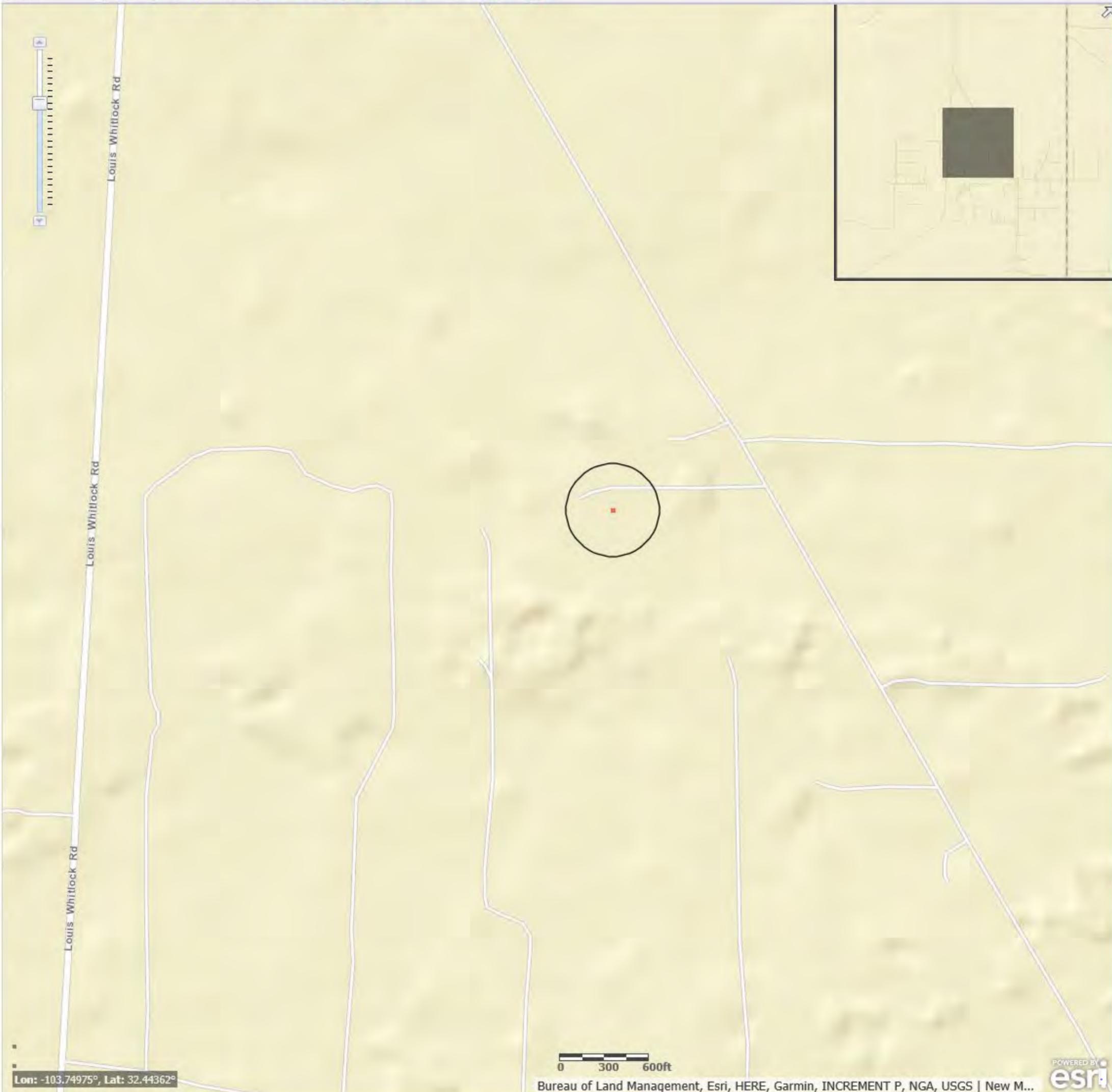
Legend Basemap Query 1:9,028

Legend

All Layers On/Off All Layer Transparency

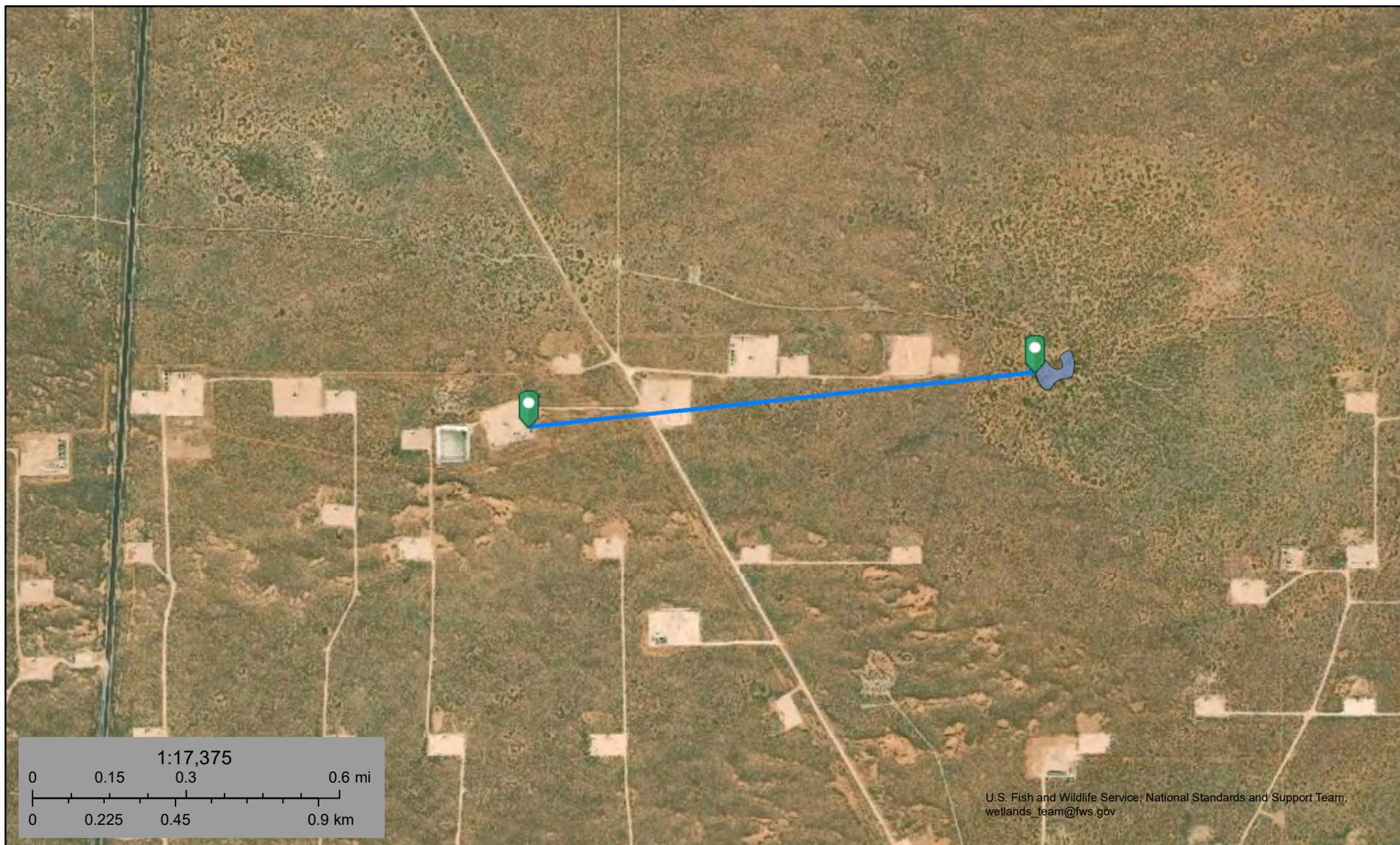
- ▶ Active Fire Perimeters
- ▶ Historic Wildfires
- ▶ Water Quality Stations
- ▶ USGS Stream Gages
- ▶ Climatological Stations
- ▶ NPDES Permits
- ▶ 20.6.4.97 NMAC
- ▶ Impaired Waters 2020 DRAFT
- ▶ Impaired Waters 2018 IR FINAL
- ▶ Assessed Waters 2020 DRAFT
- ▶ Assessed Waters 2018 IR FINAL
- ▶ Air-Water Temperature Correlation
- ▶ Nonpoint Source Program
- ▶ Fish
- ▶ Beaver Habitat
- ▶ Outstanding National Resource Waters
- ▶ Roads
- ▶ Legislative
- ▶ Counties
- ▶ Urban Areas
- ▶ Points of Diversion
- ▼ National Hydrography Dataset

- National Hydrography Dataset
- Points
    - ☑ Gaging Station
    - ▢ Rapids
    - ▢ Spring/Seep
    - ▢ Waterfall
    - ▢ Well
  - Lines
    - Connector
    - - - Canal/Ditch
    - Aqueduct: At or Near Surface
    - Aqueduct: Underground
    - Pipeline: Siphon
    - - - Intermittent Stream
    - Perennial Stream
    - Artificial Path
  - Waterbodies
    - ▢ Playa
    - ▢ Intermittent Lake
    - ▢ Perennial Lake
    - ▢ High Water Stage Intermittent Lake
    - ▢ Average Water Stage Intermittent
  - Lake
    - ▢ Normal Pool Stage Perennial Lake
    - ▢ Aquaculture Reservoir





# Shaqtus 26 State Fed Come 1H Lake 4,44



February 29, 2020

### Wetlands

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

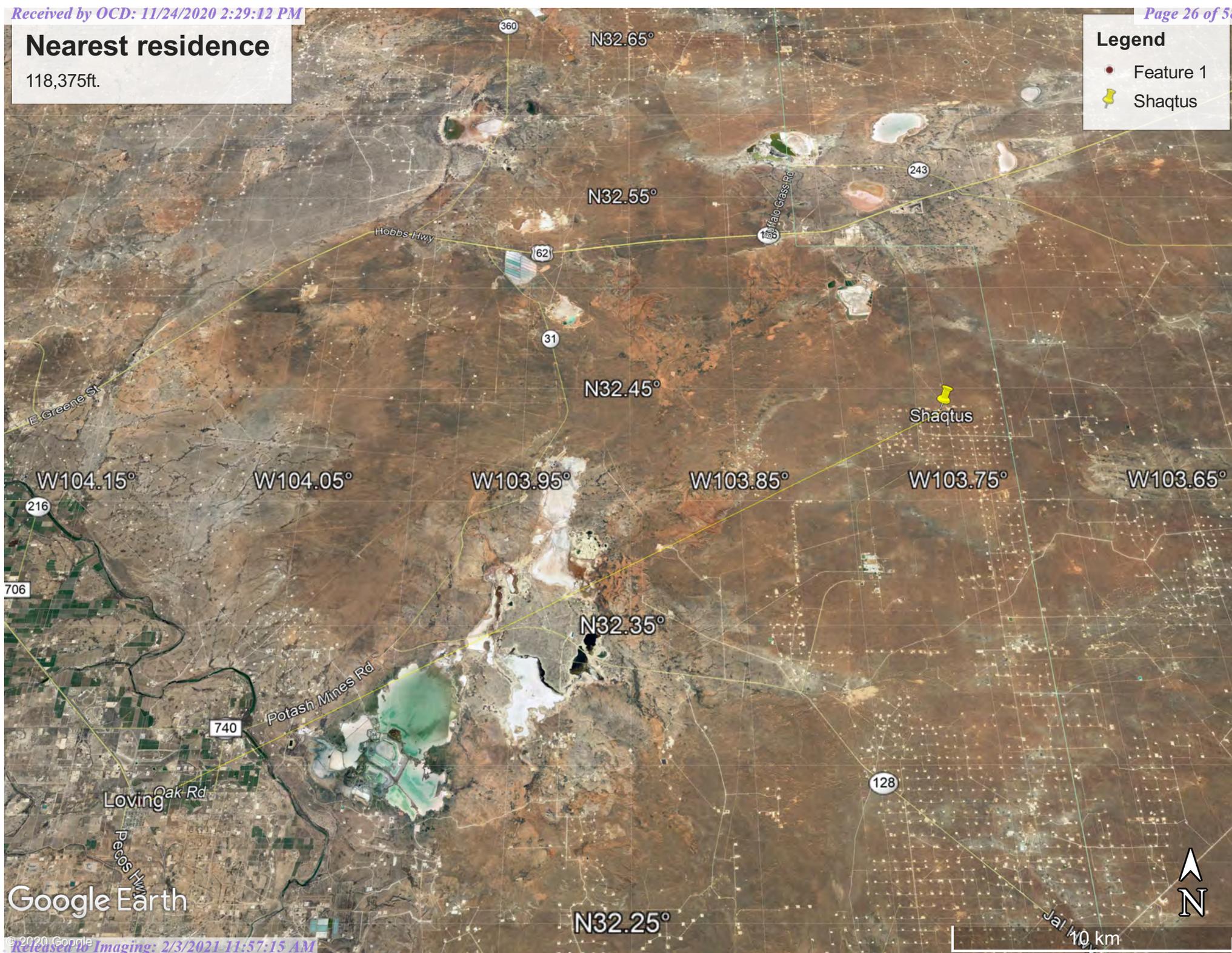
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

# Nearest residence

118,375ft.

## Legend

- Feature 1
- 📌 Shaqtus



Google Earth



# New Mexico Office of the State Engineer

## Active & Inactive Points of Diversion

(with Ownership Information)

(R=POD has been replaced and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)  
 C=the file is closed) (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	q	q	Sec	Tws	Rng	X	Y	Distance
<a href="#">C 02949</a>	CUB	EXP		0 US DEPT OF ENERGY CARLSBAD FIELD OFFICE, WIPP	ED	<a href="#">C 02949 EXPL</a>				Artesian	1	1	4	34	21S	31E	616140	3589231*	1260

Record Count: 1

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 617226.42

**Northing (Y):** 3589870.6

**Radius:** 1610

**Sorted by:** Distance

\*UTM location was derived from PLSS - see Help

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# Shaqtus 26 State Com 1H\_Lake 21,341ft



March 1, 2020

### Wetlands

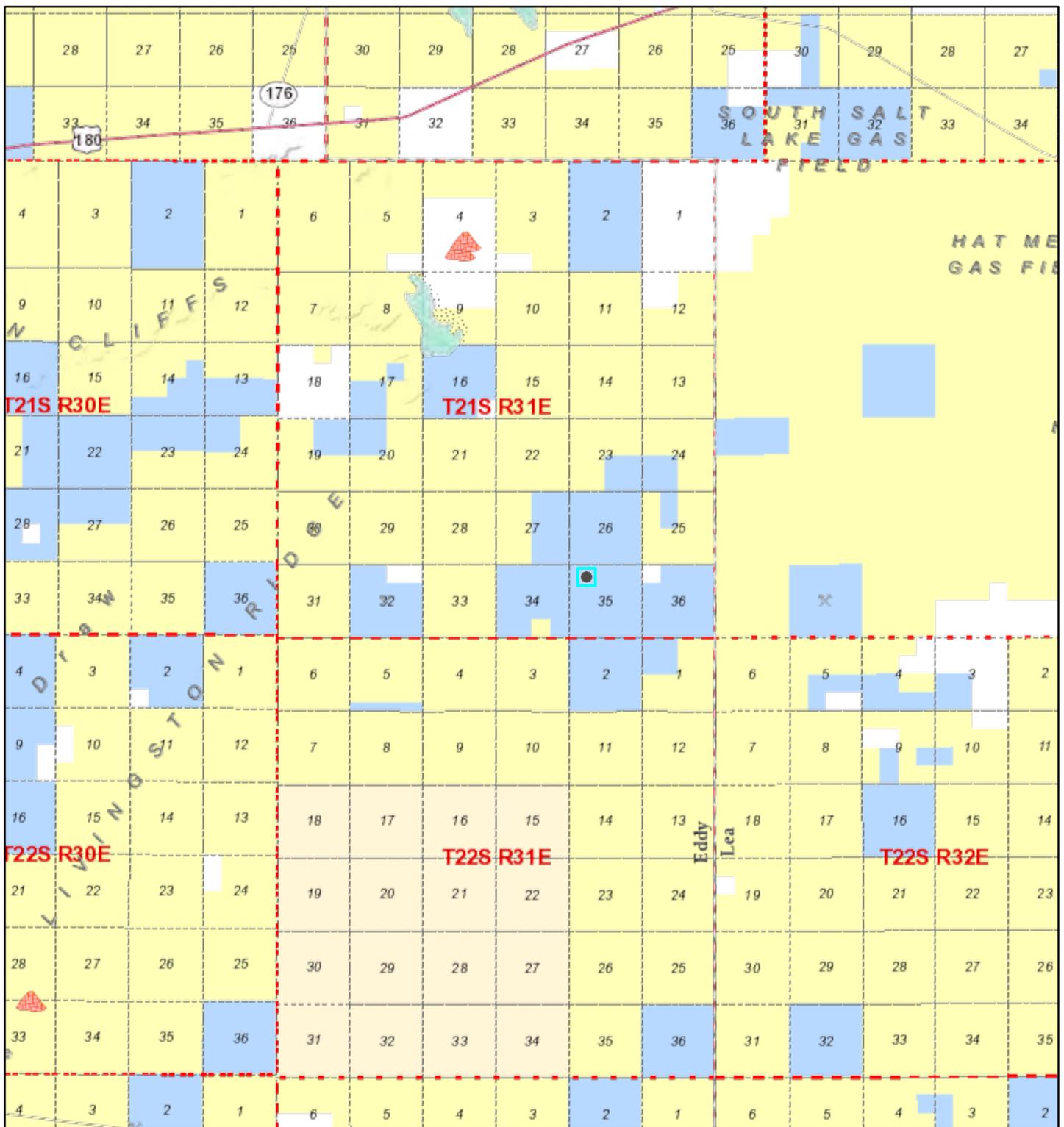
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- 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.

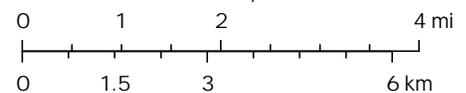
# Active Mines in New Mexico



2020-03-01 3:34:22 PM

1:144,448

Registered Mines

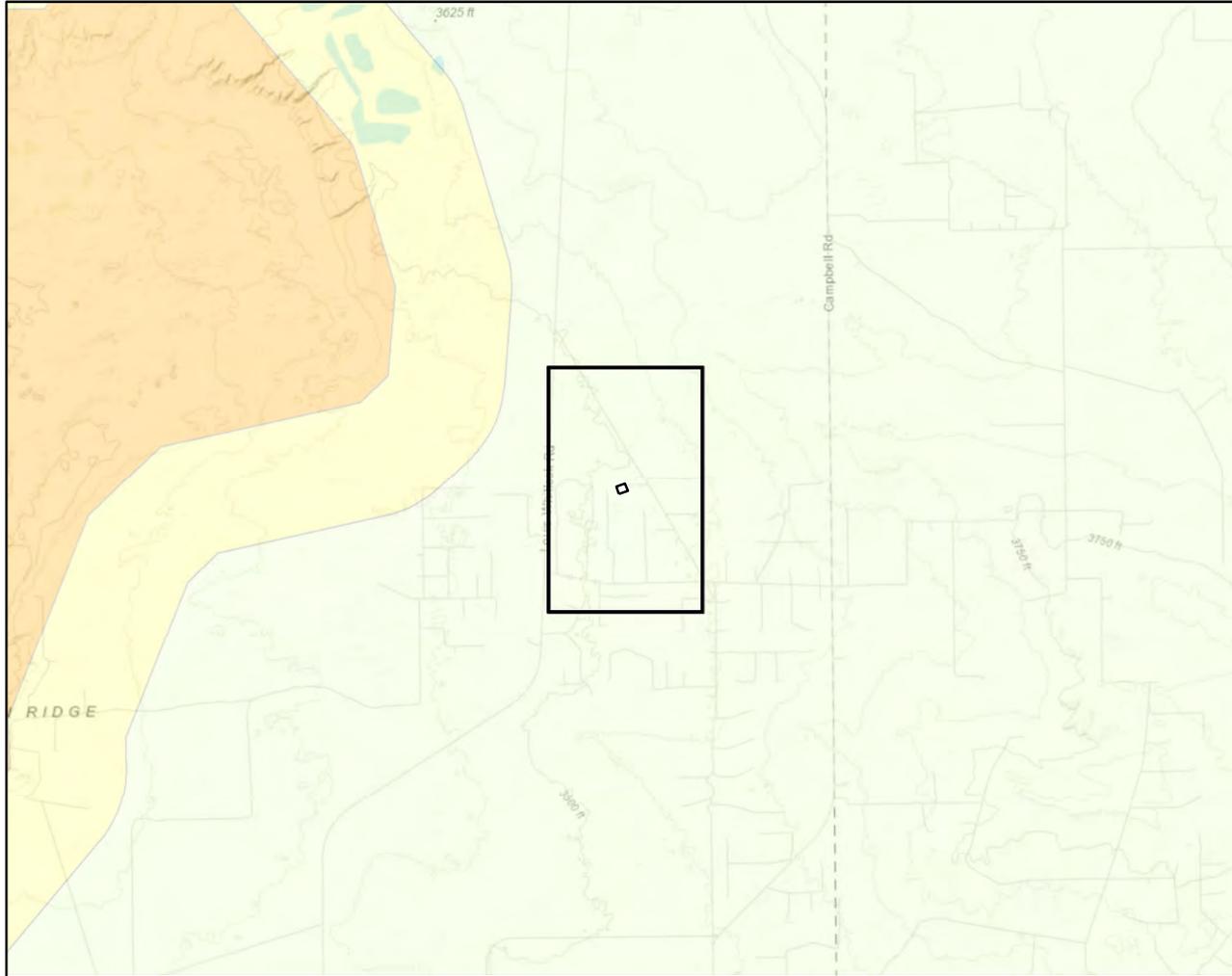


- ✕ Aggregate, Stone etc.
- ✕ Aggregate, Stone etc.
- ▲ Potash

U.S. Bureau of Land Management - New Mexico State Office, Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

EMNRD MMD GIS Coordinator

Document Path: G:\1-Projects\US PROJECTS\Devon Energy Corporation\20E-0014\1036 - Shaqtus 26 State Com. 1H\Shaqtus 26 State Com. 1H Karst Potential (20E-0014) .mxd



**Karst Potential**

- Critical
- High
- Medium
- Low

Approximate Lease Boundary

**Overview Map**

0 0.25 0.5 1 1.5 mi



**Detail Map**

0 750 1,500 ft.



Map Center:  
Lat/Long: 32.439803, -103.752975

NAD 1983 UTM Zone 13N  
Date: Mar 02/20



**Karst Potential  
Shaqtus 26 State Com 1H**

FIGURE:

**X**



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.

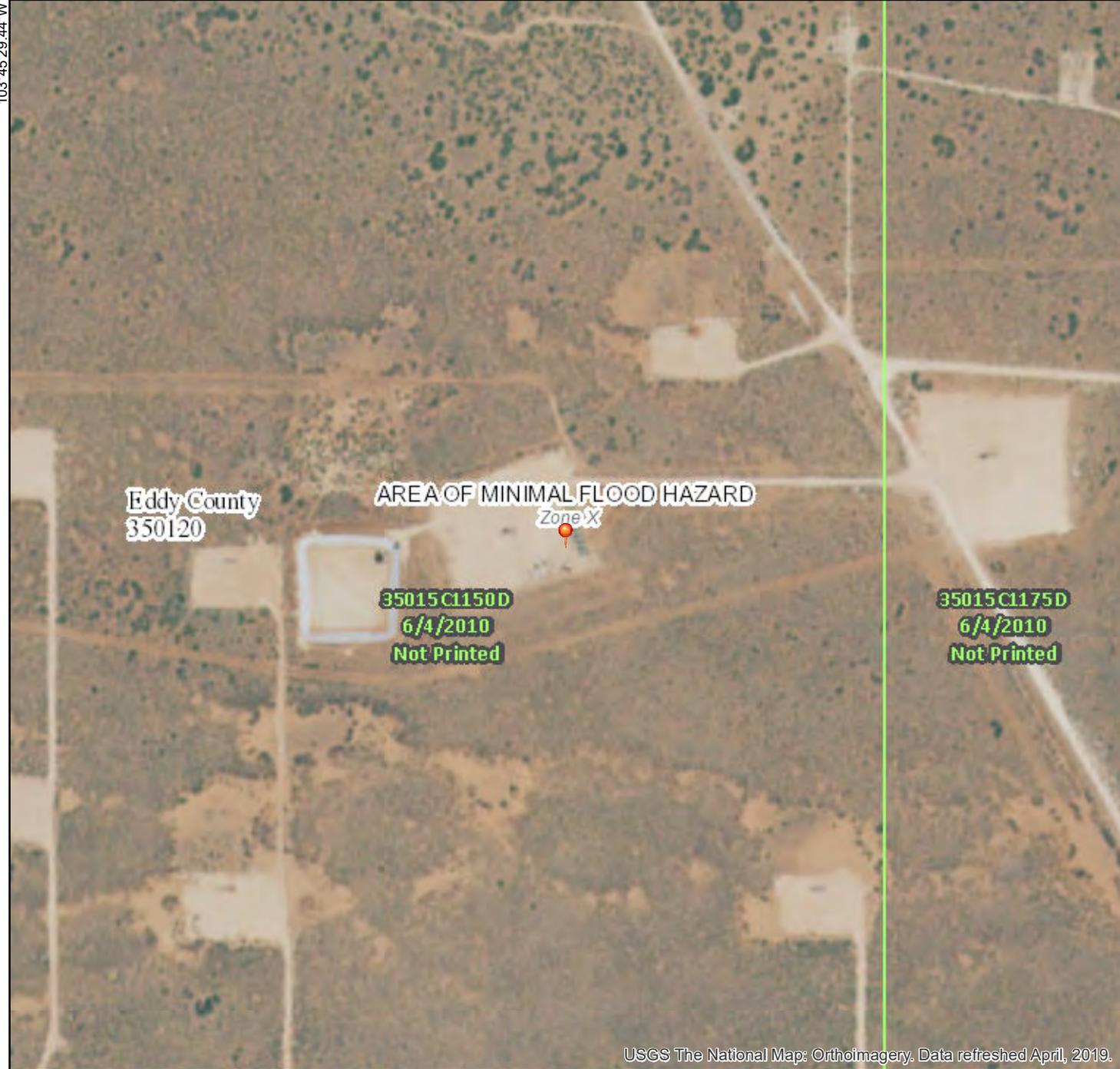
Note: Inset Map, ESRI 2016; Overview Map: ESRI World Topographic

**VERSATILITY. EXPERTISE.**

# National Flood Hazard Layer FIRMette



32°26'38.47"N



## 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
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
		Area of Minimal Flood Hazard Zone X
OTHER AREAS		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		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
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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 3/1/2020 at 5:45:17 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.

USGS The National Map: Orthoimagery. Data refreshed April, 2019.

Released to Imaging: 2/3/2021 11:37:15 AM

1:6,000

32°26'8.11"N

103°44'51.98"W





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



# Preface

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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](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

## Custom Soil Resource Report

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

Custom Soil Resource Report

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

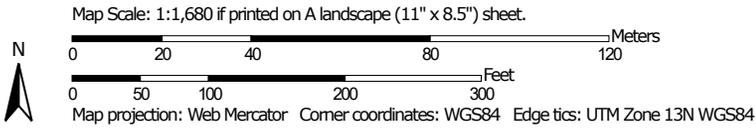
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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce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

### Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



Custom Soil Resource Report

**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 15, Sep 15, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 17, 2017

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.

## Custom Soil Resource Report

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KM	Kermit-Berino fine sands, 0 to 3 percent slopes	11.3	100.0%
<b>Totals for Area of Interest</b>		<b>11.3</b>	<b>100.0%</b>

## 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.

## Custom Soil Resource Report

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.

## Custom Soil Resource Report

**Eddy Area, New Mexico****KM—Kermit-Berino fine sands, 0 to 3 percent slopes****Map Unit Setting**

*National map unit symbol:* 1w4q  
*Elevation:* 3,100 to 4,200 feet  
*Mean annual precipitation:* 10 to 14 inches  
*Mean annual air temperature:* 60 to 64 degrees F  
*Frost-free period:* 190 to 230 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Kermit and similar soils:* 50 percent  
*Berino and similar soils:* 35 percent  
*Minor components:* 15 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Kermit****Setting**

*Landform:* Plains, alluvial fans  
*Landform position (three-dimensional):* Talf, rise  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Linear  
*Parent material:* Mixed alluvium and/or eolian sands

**Typical profile**

*H1 - 0 to 7 inches:* fine sand  
*H2 - 7 to 60 inches:* fine sand

**Properties and qualities**

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Excessively drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Very high (20.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*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:* Low (about 3.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* A  
*Ecological site:* Deep Sand (R042XC005NM)  
*Hydric soil rating:* No

**Description of Berino****Setting**

*Landform:* Fan piedmonts, plains  
*Landform position (three-dimensional):* Riser

## Custom Soil Resource Report

*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 50 inches:* fine sandy loam  
*H3 - 50 to 58 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 7.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* 4e  
*Land capability classification (nonirrigated):* 7e  
*Hydrologic Soil Group:* B  
*Ecological site:* Loamy Sand (R042XC003NM)  
*Hydric soil rating:* No

### Minor Components

#### Active dune land

*Percent of map unit:* 15 percent  
*Hydric soil rating:* No

## References

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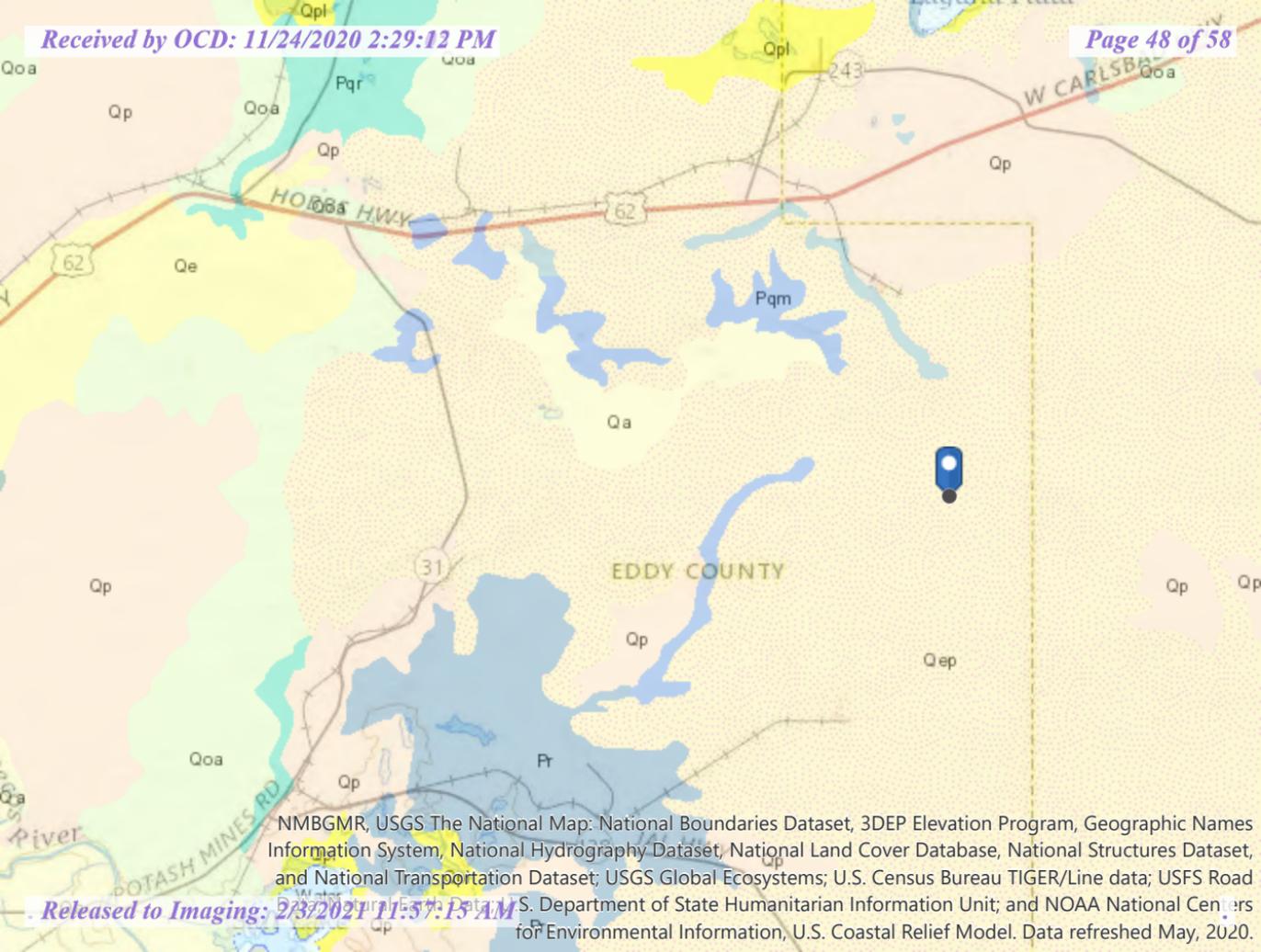
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Custom Soil Resource Report

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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 Bureau TIGER/Line data; USFS Road Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed May, 2020.

## **ATTACHMENT 4**

## Natalie Gordon

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**From:** Dhugal Hanton <vertexresourcegroupusa@gmail.com>  
**Sent:** Thursday, May 14, 2020 5:41 PM  
**To:** Natalie Gordon  
**Subject:** Fwd: NAB1900739710: Shaqtus 26 State Com 1H - 48-hr Notification of Liner Inspection

----- Forwarded message -----

From: **Dhugal Hanton** <[vertexresourcegroupusa@gmail.com](mailto:vertexresourcegroupusa@gmail.com)>  
Date: Thu, May 14, 2020 at 5:40 PM  
Subject: NAB1900739710: Shaqtus 26 State Com 1H - 48-hr Notification of Liner Inspection  
To: <[rmann@slo.state.nm.us](mailto:rmann@slo.state.nm.us)>, Bratcher, Mike, EMNRD <[Mike.Bratcher@state.nm.us](mailto:Mike.Bratcher@state.nm.us)>, Venegas, Victoria, EMNRD <[Victoria.Venegas@state.nm.us](mailto:Victoria.Venegas@state.nm.us)>, Hamlet, Robert, EMNRD <[Robert.Hamlet@state.nm.us](mailto:Robert.Hamlet@state.nm.us)>, <[Lupe.Carrasco@dvn.com](mailto:Lupe.Carrasco@dvn.com)>, <[tom.bynum@dvn.com](mailto:tom.bynum@dvn.com)>, <[wesley.mathews@dvn.com](mailto:wesley.mathews@dvn.com)>, <[amanda.davis@dvn.com](mailto:amanda.davis@dvn.com)>

All,

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled a liner inspection to be conducted at Shaqtus 26 State Com 1H for the following open release:

NAB1900739710 - DOR: November 13, 2018

This work will be conducted on behalf of Devon Energy Production Company.

On Tuesday, May 19, 2020 at approximately 11:00 a.m., Vertex will be onsite to conduct a final liner inspection for closure of the above reference incident. If you need directions to the site or have any questions or concerns regarding this notification, please give me a call at 505-506-0040.

Thank you,  
Natalie

**Natalie Gordon**  
Project Manager

Vertex Resource Group Ltd.  
213 S. Mesa Street  
Carlsbad, NM 88220

**P 575.725.5001 ext 709**  
**C 505.506.0040**  
**F**

[www.vertex.ca](http://www.vertex.ca)

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## **ATTACHMENT 5**



# Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/19/2020
Site Location Name:	Shaqtus 26 State Com 1H	Report Run Date:	5/19/2020 10:53 PM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	30-015-39819
Client Contact Name:	Amanda Davis	Reference	2RP-4844, 2RP-5153
Client Contact Phone #:	(575) 748-0176		

### Summary of Times

Left Office	5/19/2020 1:32 PM
Arrived at Site	5/19/2020 2:53 PM
Departed Site	
Returned to Office	

### Summary of Daily Operations

14:58 Liner inspection

### Next Steps & Recommendations

1



# Daily Site Visit Report

## Site Photos

Viewing Direction: South



North west corner

Viewing Direction: South



Northwest corner

Viewing Direction: South



West side center

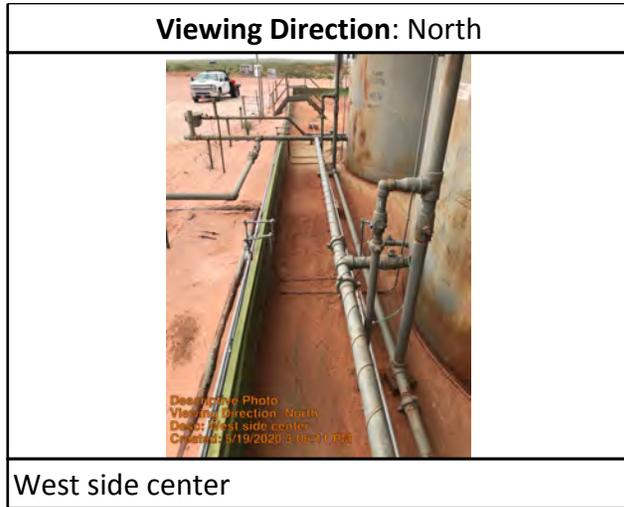
Viewing Direction: East



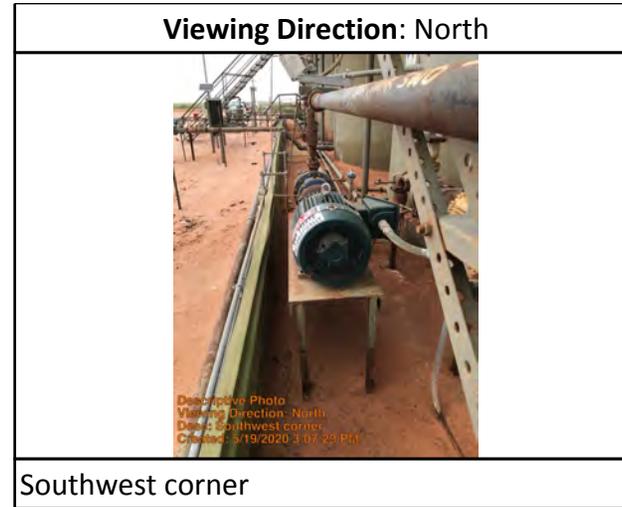
West side center



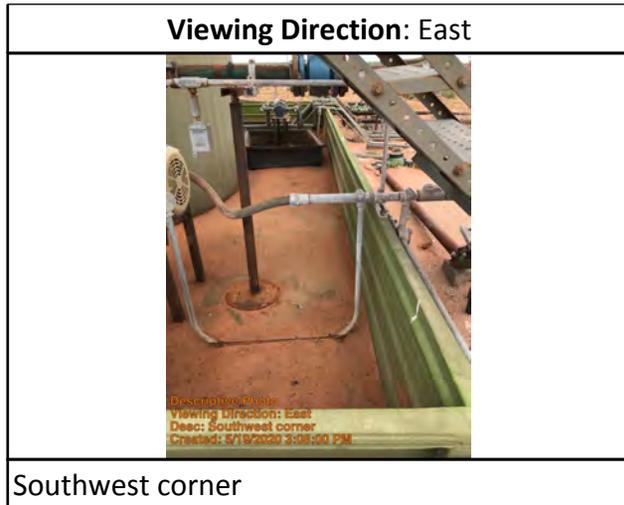
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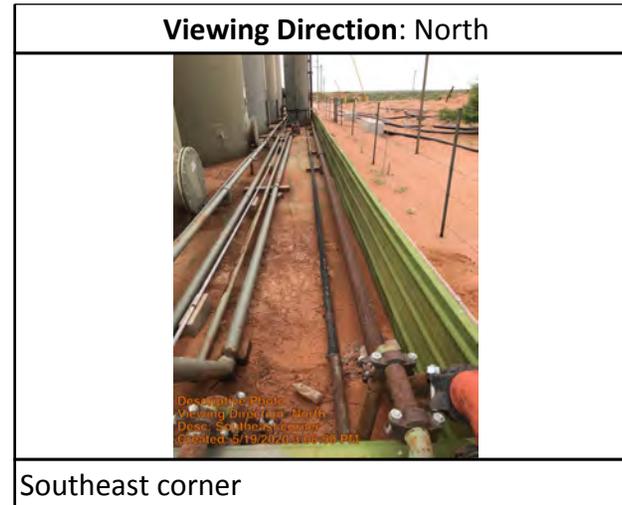
West side center



Southwest corner



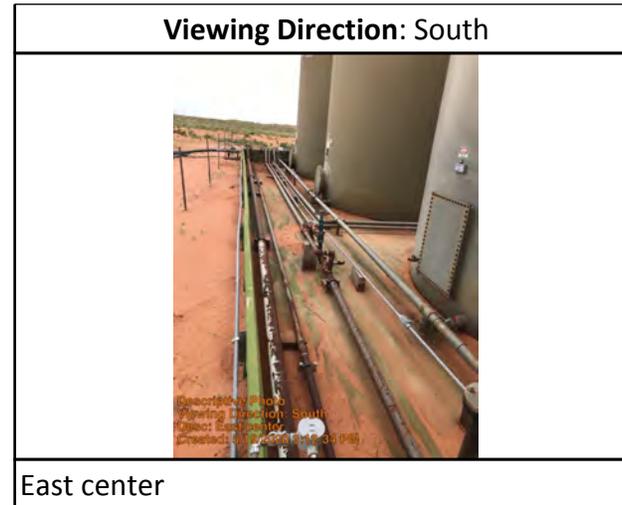
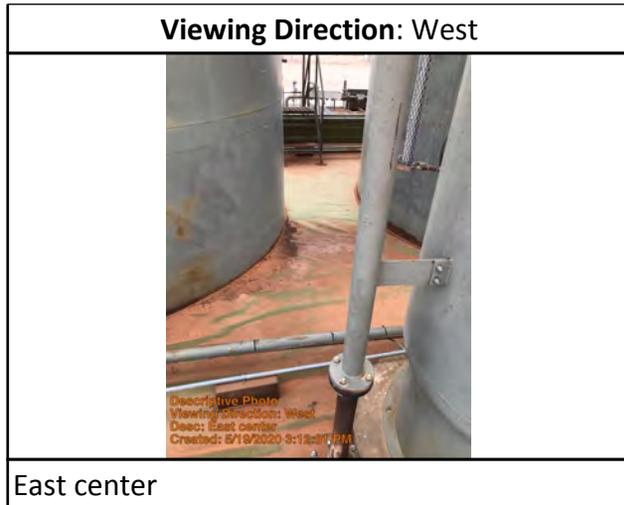
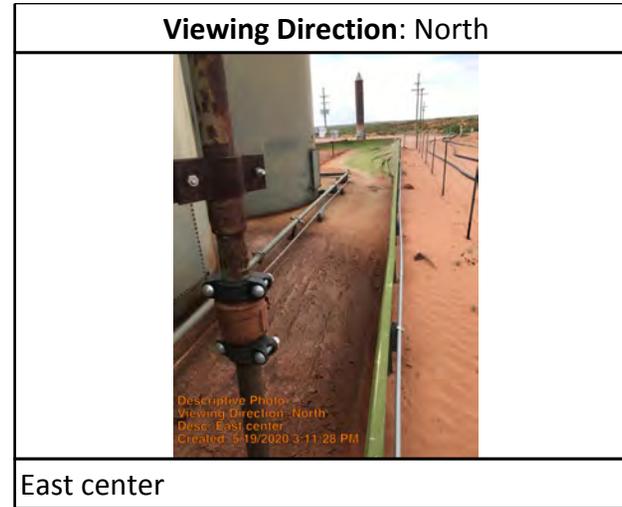
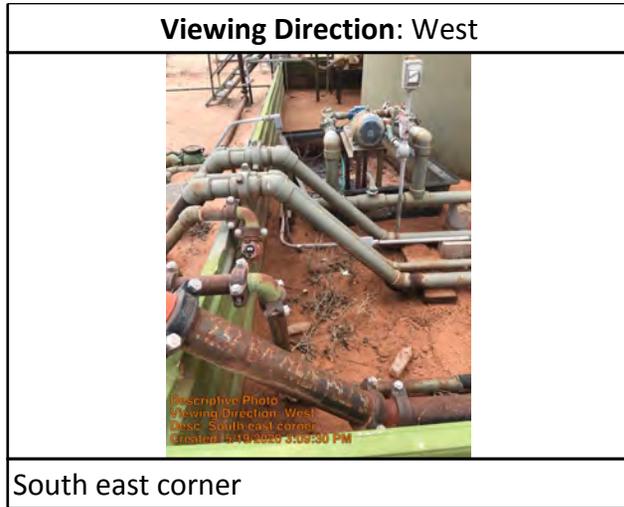
Southwest corner



Southeast corner



# Daily Site Visit Report





# Daily Site Visit Report

<b>Viewing Direction: South</b>	
	
North east corner, liner is wearing, but looks intact	

Desktop Photo  
Viewing Direction: South  
Topic: North east corner, liner is wearing, but looks intact  
Created: 5/19/2020 3:11:32 PM

# Daily Site Visit Report



Daily Site Visit Signature

**Inspector:** Tommy Odell

**Signature:**

**District I**  
 1625 N. French Dr., Hobbs, NM 88240  
 Phone:(575) 393-6161 Fax:(575) 393-0720

**District II**  
 811 S. First St., Artesia, NM 88210  
 Phone:(575) 748-1283 Fax:(575) 748-9720

**District III**  
 1000 Rio Brazos Rd., Aztec, NM 87410  
 Phone:(505) 334-6178 Fax:(505) 334-6170

**District IV**  
 1220 S. St Francis Dr., Santa Fe, NM 87505  
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 11327

**CONDITIONS OF APPROVAL**

Operator:		OGRID:	Action Number:	Action Type:
DEVON ENERGY PRODUCTION COMPAN		6137	11327	C-141
333 West Sheridan Ave.		Oklahoma City, OK73102		
OCD Reviewer		Condition		
ceads		None		