



December 03, 2020

Vertex Project #: 20E-01585-007

Spill Closure Report: North Brushy Draw Federal 35 #010
Unit O, Section 35, Township 25 South, Range 29 East
County: Eddy
API: 30-015-43638
Tracking Number: NRM2029455049

Prepared For: WPX Energy Permian, LLC
5315 Buena Vista Drive
Carlsbad, New Mexico 88220

New Mexico Oil Conservation Division – District 2 – Artesia

811 South First Street
Artesia, New Mexico 88210

WPX Energy (WPX) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and liner inspection for a release that occurred at North Brushy Draw Federal 35 #010 (hereafter referred to as “North Brushy Draw”). WPX provided immediate notification of the release to New Mexico Oil Conservation Division (NM OCD) District 2, on October 19, 2020, via email, followed by submission of the initial C-141 Release Notification (Attachment 1). The NM OCD tracking number assigned to this release is NRM2029455049.

This letter provides a description of the spill 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 October 18, 2020, a release occurred at WPX’s North Brushy Draw site when a produced water dump line developed a leak. This incident resulted in the release of approximately 79 barrels (bbls) of produced water and 1 bbl of oil into the lined secondary containment. Upon discovery of the release, a hydrovac truck was dispatched to recover all free-standing liquids. Approximately 79 bbls of produced water and 1 bbl of oil were recovered from the secondary containment and removed for disposal off-site. All fluids were contained within the lined Spill Prevention Control and Countermeasures (SPCC) containment and no produced water or oil were released into undisturbed areas or waterways.

Site Characterization

The release at North Brushy Draw occurred on federally-owned land, N 32.08029, W 103.95152, approximately 25 miles southeast of Carlsbad, New Mexico. The legal description for the site is Unit O, Section 35, Township 25 South, Range 29 East, Eddy County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic are included in Attachment 2.

vertex.ca

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

North Brushy Draw 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 the constructed wellpad where the storage tanks are located.

The Geological Map of New Mexico indicates the surface geology at North Brushy Draw is comprised primarily of lithologic unit Qep – Eolian and piedmont deposits that include eolian sands interlaid with piedmont-slope deposits (New Mexico Bureau of Geology and Mineral Resources, 2020). The National Resources Conservation Service Web Soil Survey characterizes the soil at the site as on the cusp of Berino Complex and Pajarito loamy fine sand, which are associated with fan piedmonts, plains and dunes. These types of soils, typically found at elevations of 2,700 to 5,500 feet above sea level, tend to be well-drained with low to very low runoff and moderate available moisture 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 North Brushy Draws (United States Department of the Interior, United States Geological Survey, 2020).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Pecos River located approximately 3.6 miles west-southwest of the site (United States Fish and Wildlife Service, 2020). At North Brushy Draw, 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.

The nearest recent groundwater well is a New Mexico Office of the State Engineer-identified well from 1995 located 2.9 miles northwest of the site. Data for that well shows a depth to groundwater of 60 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 would be 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 North Brushy Draw 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 be determined to be associated with depth to groundwater. As the nearest groundwater well is further than 0.5 miles from the release site, the depth to groundwater at North Brushy Draw cannot be accurately determined. The closure criteria for the site would be determined to be associated with the following constituent concentration limits.

WPX Energy Permian, LLC
North Brushy Draw Federal 35 #010

2020 Spill Assessment and Closure
October 2020

Table 1. Closure Criteria for Soils Impacted by a Release		
Depth to Groundwater	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH ¹ (GRO + DRO + MRO)	100 mg/kg
	BTEX ²	50 mg/kg
	Benzene	10 mg/kg

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

²Benzene, toluene, ethylbenzene and xylenes (BTEX)

Liner Inspection

On November 17, 2020, WPX 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 November 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 inspection is included in Attachment 5.

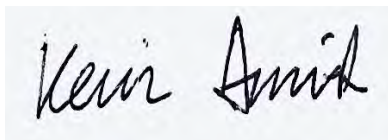
Closure Request

Vertex recommends no remediation action to address the release at North Brushy Draw. 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 NRM2029455049 be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. WPX 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 October 18, 2020 release at North Brushy Draw.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.988.0871 or ksmith@vertex.ca.

Sincerely,



KEVIN SMITH
ENVIRONMENTAL TECHNICIAN

vertex.ca

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

WPX Energy Permian, LLC
North Brushy Draw Federal 35 #010

2020 Spill Assessment and Closure
October 2020

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 with Photographs

WPX Energy Permian, LLC
North Brushy Draw Federal 35 #010

2020 Spill Assessment and Closure
October 2020

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, United States Geological Survey. (2020a). *Caves and Karst in the U.S. National Park Service*. Retrieved from <https://www.arcgis.com/home/webmap/viewer.html?webmap=14675403c37948129acb758138f2dd1e>

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

WPX Energy Permian, LLC
North Brushy Draw Federal 35 #010

2020 Spill Assessment and Closure
October 2020

Limitations

This report has been prepared for the sole benefit of WPX Energy (WPX). 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 WPX. 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	NRM2029455049
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: WPX Energy Permian, LLC.	OGRID: 246289
Contact Name: Jim Raley	Contact Telephone: 575-689-7597
Contact email: james.ralej@wpxenergy.com	Incident # (assigned by OCD)
Contact mailing address: 5315 Buena Vista Dr., Carlsbad, NM 88220	

Location of Release Source

Latitude 32.079725 Longitude -103.951616
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: North Brushy Draw 35 #010	Site Type: Production Facility
Date Release Discovered: 10/18/2020	API# (if applicable): 30-015-43638

Unit Letter	Section	Township	Range	County
O	35	25S	29E	Eddy

Surface Owner: ☐ State ☒ Federal ☐ Tribal ☐ Private

Nature and Volume of Release

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

<input checked="" type="checkbox"/> Crude Oil	Volume Released (bbls)1	Volume Recovered (bbls)1
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 79	Volume Recovered (bbls) 79
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" 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: Produced water dump line developed leak, releasing fluids to lined secondary containment.


bbl estimate = recovered fluids

Incident ID	NRM2029455049
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? Volume exceeded 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Email to NMOCD District II Office and NMOCD Director on 10/19/2019.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped.	
<input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: Jim Raley	Title: Environmental Specialist
Signature: 	Date: 10/19/2020
email: james.ralej@wpenergy.com	Telephone: 575-689-7597
<u>OCD Only</u>	
Received by: Ramona Marcus	Date: 10/20/2020

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Jim Raley Title: Environmental Specialist

Signature:  Date: 12/28/2018

email: jim@jraley.com Telephone: 575-689-7597

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: _____

ATTACHMENT 2



0 25 50 Feet
Map Center:
Lat/Long: 32.08029, -103.95152

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



Site Schematic
North Brushy Draw Fed 35 #00H

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, 2020.

VERSATILITY. EXPERTISE.



ATTACHMENT 3


Closure Criteria Worksheet.			
Site Name: North Brushy Draw Federal 35 #010H			
Spill Coordinates:		X: 32.08029	Y: -103.95152
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	60	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	19,008	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	38,492	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	10,650	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	3,363	feet
	ii) Within 1000 feet of any fresh water well or spring	15,206	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	9,238	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	Undetermined	year
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'


Depth to Groundwater Map

Distance to well = 2.88 miles

Legend

-  Feature 1
-  Line Measure

 C 02371 (200' bgs)

North Brushy Draw Federal 35-9H 

Google Earth

2 km





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	DepthWell	DepthWater	Water Column
C 02371		C	ED	2	3	15	25S	29E		596741	3555106*	4675	200	60	140
C 02680		CUB	ED	2	3	15	25S	29E		596741	3555106*	4675	200		
C 01360		CUB	ED	4	3	3	05	26S	30E	602997	3548152	4806	770	173	597
C 01361		CUB	ED	3	4	3	05	26S	30E	603240	3548157	4995	775	184	591

Average Depth to Water: 139 feet
Minimum Depth: 60 feet
Maximum Depth: 184 feet

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 599247 Northing (Y): 3551158.99 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.

7/20/20 12:05 PM WATER COLUMN/ AVERAGE DEPTH TO WATER



Distance to Watercourse = 3.62 miles



July 20, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

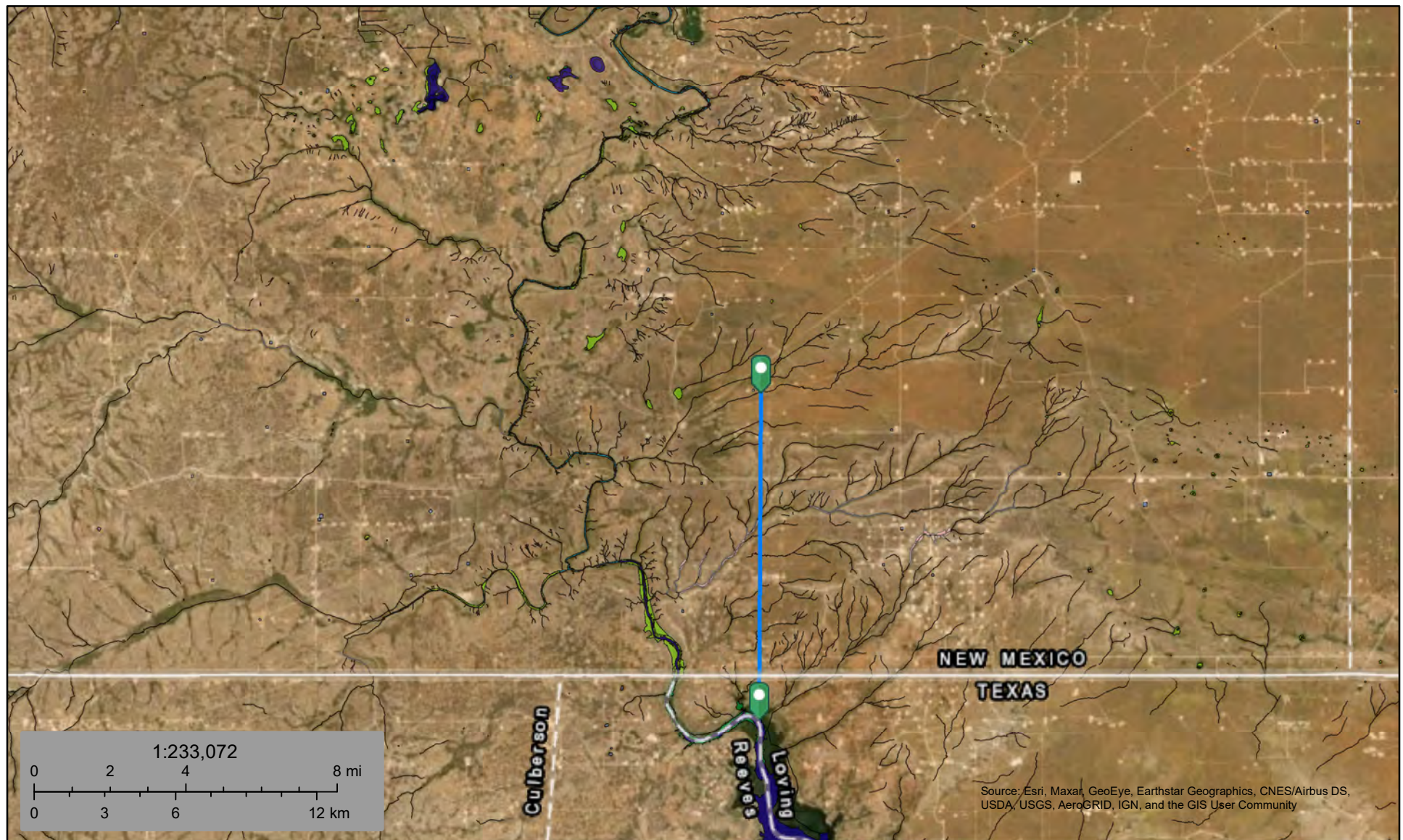
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- 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.



Distance to Lake Bed = 7.29 miles



July 20, 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.



Distance to Wetland = 1.75 miles



July 20, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

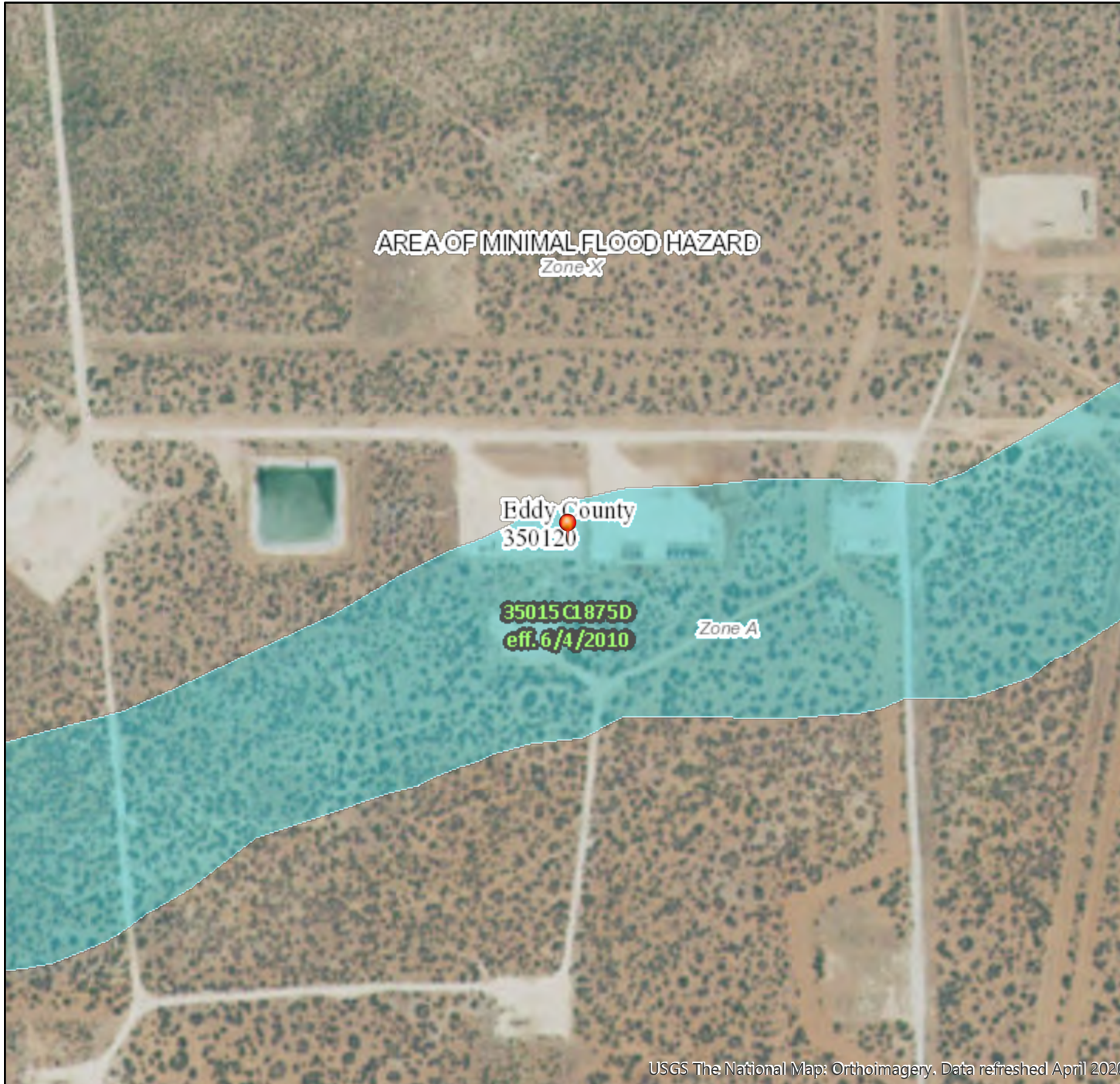
- Lake
- Other
- Riverine

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.

National Flood Hazard Layer FIRMette



108°57'12"W 32°54'3"N



USGS The National Map: Orthoimagery. Data refreshed April 2020

108°56'35"W 32°51'7"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
		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		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 7/20/2020 at 4:04 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.

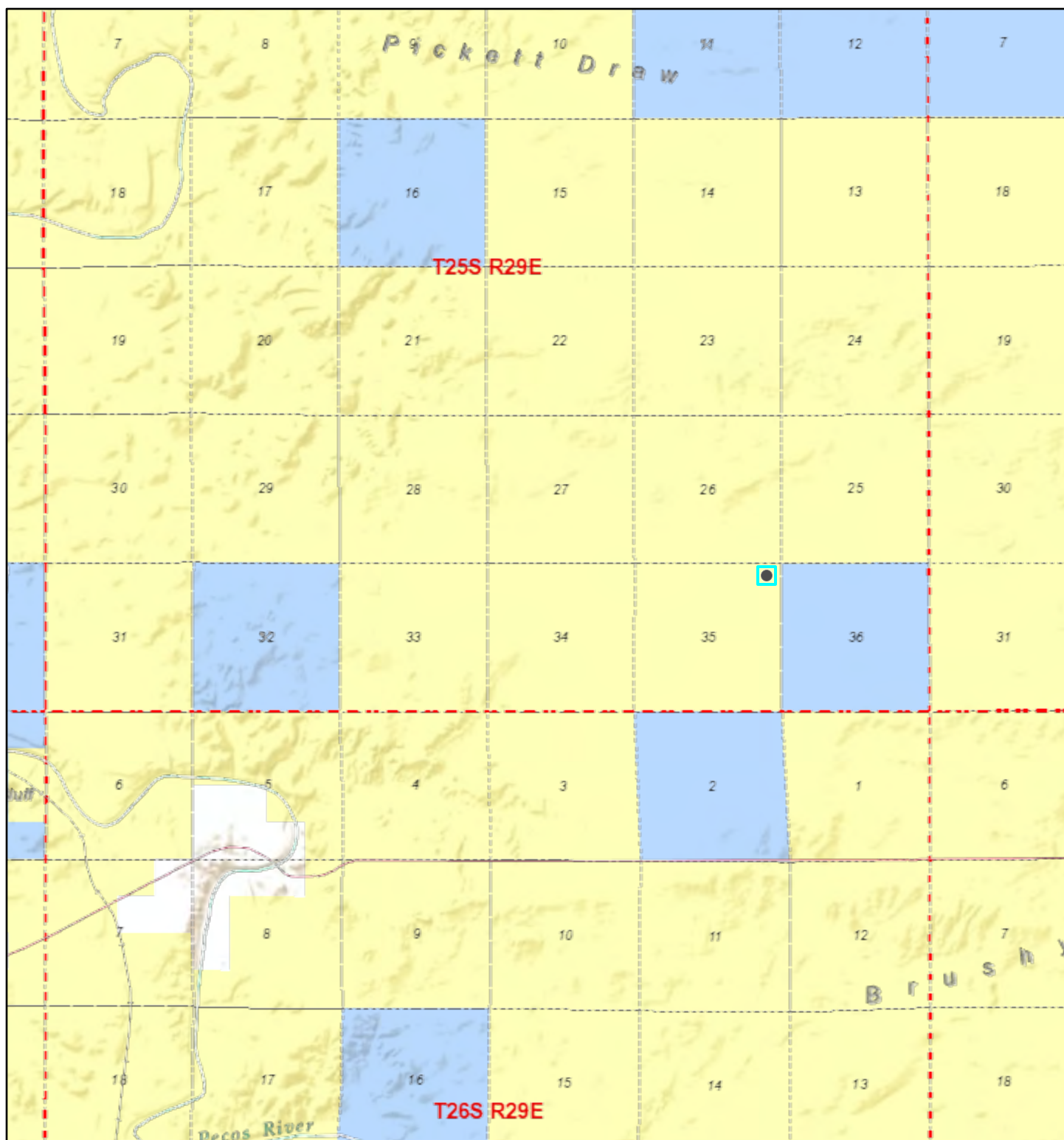
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory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

Released to Imaging: 4/21/2021 10:16:23 AM

1:6,000

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

Active Mines in New Mexico



7/20/2020, 1:47:07 PM

Registered Mines

✕ Aggregate, Stone etc.

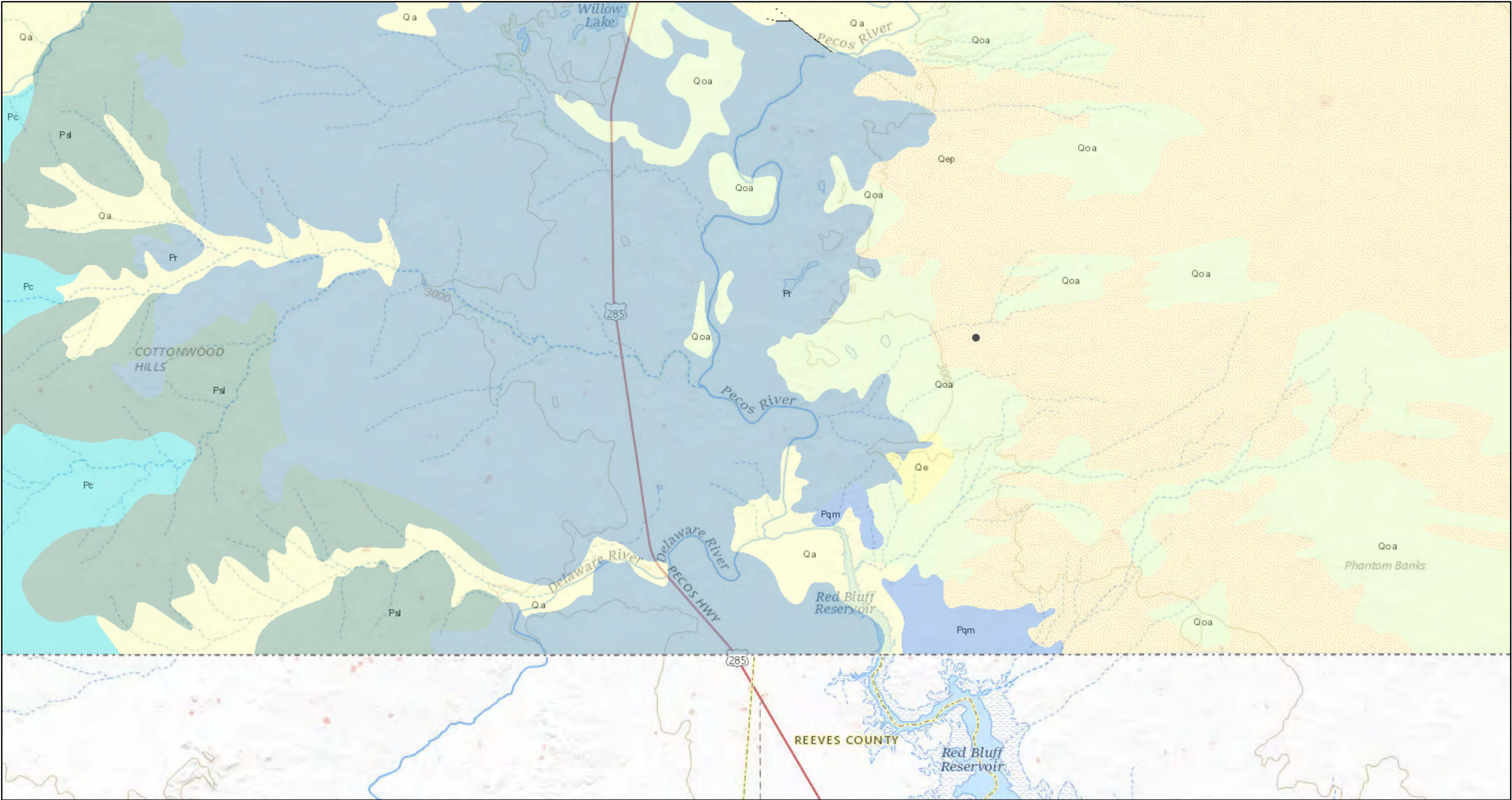
1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

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

ArcGIS Web Map



7/20/2020, 2:51:46 PM

Faults

Fault, Concealed

Fault, Exposed

- - -

Fault, Intermittent

Dikes

Dike intruding fault

<all other values>

Dike

~~~~~

Shere Zone

\*\*\*\*\*

Volcanic Vents

1:144,448

0

1.5

3

6 mi

0

2.5

5

10 km

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;

Released to Imaging: 4/21/2021 10:16:23 AM

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

Web AppBuilder for ArcGIS





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



July 20, 2020

# 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](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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require



alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

# Contents

---

|                                                                 |    |
|-----------------------------------------------------------------|----|
| <b>Preface</b> .....                                            | 2  |
| <b>How Soil Surveys Are Made</b> .....                          | 5  |
| <b>Soil Map</b> .....                                           | 8  |
| Soil Map.....                                                   | 9  |
| Legend.....                                                     | 10 |
| Map Unit Legend.....                                            | 11 |
| Map Unit Descriptions.....                                      | 11 |
| Eddy Area, New Mexico.....                                      | 13 |
| BB—Berino complex, 0 to 3 percent slopes, eroded.....           | 13 |
| PA—Pajarito loamy fine sand, 0 to 3 percent slopes, eroded..... | 15 |
| <b>References</b> .....                                         | 17 |

## 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

---

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

## 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 16, Jun 8, 2020

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 |
|------------------------------------|---------------------------------------------------------|--------------|----------------|
| BB                                 | Berino complex, 0 to 3 percent slopes, eroded           | 13.8         | 43.8%          |
| PA                                 | Pajarito loamy fine sand, 0 to 3 percent slopes, eroded | 17.7         | 56.2%          |
| <b>Totals for Area of Interest</b> |                                                         | <b>31.4</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,

## Custom Soil Resource Report

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.

## Custom Soil Resource Report

**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

## Custom Soil Resource Report

**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

**Pajarito**

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

**Wink**

*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

## Custom Soil Resource Report

**PA—Pajarito loamy fine sand, 0 to 3 percent slopes, eroded****Map Unit Setting***National map unit symbol: 1w54**Elevation: 2,700 to 5,500 feet**Mean annual precipitation: 5 to 15 inches**Mean annual air temperature: 57 to 70 degrees F**Frost-free period: 180 to 250 days**Farmland classification: Not prime farmland***Map Unit Composition***Pajarito and similar soils: 98 percent**Minor components: 2 percent**Estimates are based on observations, descriptions, and transects of the mapunit.***Description of Pajarito****Setting***Landform: Dunes, interdunes, plains**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 13 inches: loamy fine sand**H2 - 13 to 36 inches: fine sandy loam**H3 - 36 to 60 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: 15 percent**Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)**Sodium adsorption ratio, maximum in profile: 1.0**Available water storage in profile: Moderate (about 7.9 inches)***Interpretive groups***Land capability classification (irrigated): 2e**Land capability classification (nonirrigated): 7e**Hydrologic Soil Group: A*

Custom Soil Resource Report

*Ecological site:* Loamy Sand (R042XC003NM)

*Hydric soil rating:* No

**Minor Components**

**Wink**

*Percent of map unit:* 1 percent

*Ecological site:* Loamy Sand (R042XC003NM)

*Hydric soil rating:* No

**Berino**

*Percent of map unit:* 1 percent

*Ecological site:* Loamy Sand (R042XC003NM)

*Hydric soil rating:* No

# References

---

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)



## **ATTACHMENT 4**

## Natalie Gordon

---

**From:** Dhugal Hanton <vertexresourcegroupusa@gmail.com>  
**Sent:** Tuesday, November 17, 2020 1:41 PM  
**To:** Natalie Gordon  
**Subject:** Fwd: North Brushy Draw Fed 35 #010 - 48-hr Notification of Liner Inspection

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

From: **Dhugal Hanton** <[vertexresourcegroupusa@gmail.com](mailto:vertexresourcegroupusa@gmail.com)>  
Date: Tue, Nov 17, 2020 at 1:40 PM  
Subject: North Brushy Draw Fed 35 #010 - 48-hr Notification of Liner Inspection  
To: Enviro, OCD, EMNRD <[OCD.Enviro@state.nm.us](mailto:OCD.Enviro@state.nm.us)>, CFO\_Spill, BLM\_NM <[blm\\_nm\\_cfo\\_spill@blm.gov](mailto:blm_nm_cfo_spill@blm.gov)>, <[lynda.laumbach@wpxenergy.com](mailto:lynda.laumbach@wpxenergy.com)>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled a liner inspection to be conducted at North Brushy Draw Federal 35 #010 for the following two releases:

NRM2025450470 - DOR: 09/08/2020  
NRM2029455049 - DOR: 10/18/2020

This work will be completed on behalf of WPX Energy Permian.

On Thursday, November 19, 2020 at approximately 11:00 a.m., John Ramirez of Vertex will be onsite to conduct a liner inspection. He can be reached at 575-725-1809. If you need directions to the site, please do not hesitate to contact him.

If you 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**

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

Confidentiality Notice: This message and any attachments are solely for the intended recipient and may contain confidential or privileged information. If you are not the intended recipient, any disclosure, copying, use, or distribution of the information included in this message and any attachment is prohibited. If you have received this communication in error, please notify us by reply email and immediately and permanently delete this message and any attachments. Thank you.

## **ATTACHMENT 5**



## Daily Site Visit Report

|                         |                                   |                  |                    |
|-------------------------|-----------------------------------|------------------|--------------------|
| Client:                 | WPX Energy                        | Inspection Date: | 11/19/2020         |
| Site Location Name:     | North Brushy Draw Fed<br>35 #010H | Report Run Date: | 11/19/2020 6:08 PM |
| Client Contact Name:    | Jim Raley                         | API #:           | 30-015-43638       |
| Client Contact Phone #: | (575) 689 7597                    |                  |                    |
| Unique Project ID       |                                   | Project Owner:   |                    |
| Project Reference #     |                                   | Project Manager: |                    |

### Summary of Times

|                 |                     |
|-----------------|---------------------|
| Arrived at Site | 11/19/2020 7:46 AM  |
| Departed Site   | 11/19/2020 10:00 AM |

### Field Notes

**8:50** Arrived on site, filled out safety paper work and began liner inspection.

### Next Steps & Recommendations

**1** Head back to office and upload DFR

# Daily Site Visit Report



## Site Photos

**Viewing Direction: West**



Looking West, standing towards westside of containment. Liner integrity looks good.

**Viewing Direction: North**



Looking North, standing at southwest corner of containment. Liner integrity looks good.

**Viewing Direction: East**



Looking East, standing in northwest corner of containment. Liner integrity looks good.

**Viewing Direction: East**



Looking east, standing about in the middle of containment. Looking behind the water tanks. Liner integrity looks good.



## Daily Site Visit Report

**Viewing Direction: South**



Behind the second water tank from the east.

**Viewing Direction: West**



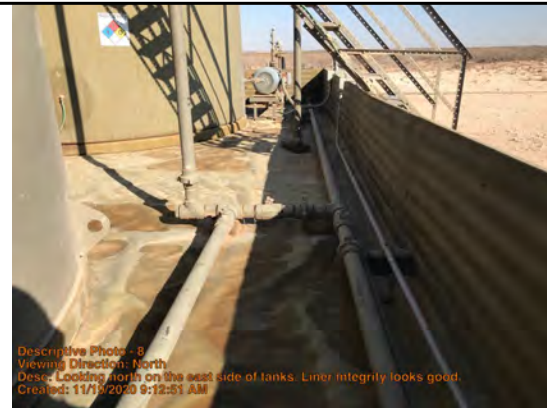
Looking west, in between tanks, standing on east side of containment. Liner integrity looks good.

**Viewing Direction: East**



Looking east in front of tanks, standing in the southeast corner of containment. Liner integrity looks good.

**Viewing Direction: North**



Looking north on the east side of tanks. Liner integrity looks good.

## Daily Site Visit Report



Daily Site Visit Signature

**Inspector:** John Ramirez

**Signature:**

Signature 

|                |               |
|----------------|---------------|
| Incident ID    | NRM2029455049 |
| District RP    |               |
| Facility ID    |               |
| Application ID |               |

## Closure

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

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

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

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

Printed Name: Jim Raley Title: Environmental Specialist

Signature:  Date: 12/28/2018

email: jim@jraley.com Telephone: 575-689-7597

### OCD Only

Received by: Robert Hamlet Date: 4/21/2021

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: Robert Hamlet Date: 4/21/2021

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced



**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 13171

**CONDITIONS OF APPROVAL**

|                                                                           |                                                                                                                                                  |  |        |                |              |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|----------------|--------------|
| Operator:                                                                 |                                                                                                                                                  |  | OGRID: | Action Number: | Action Type: |
| WPX ENERGY PERMIAN, LLC      3500 One Williams Center      Tulsa, OK74172 |                                                                                                                                                  |  | 246289 | 13171          | C-141        |
| OCD Reviewer                                                              | Condition                                                                                                                                        |  |        |                |              |
| rhamlet                                                                   | We have received your closure report and final C-141 for Incident #NRM2029455049 NORTH BRUSHY DRAW 35 #010, thank you. This closure is approved. |  |        |                |              |