State of New Mexico
Oil Conservation Division

Incident ID	nAPP2234031246
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.***

☒ N/A A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ X 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)

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

☒ N/A 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: Jim Raley Date: 1/3/2023

email: jim.raley@dvn.com Telephone: 575-688-7597

OCD Only

Received by: Jocelyn Harimon Date: 01/03/2023

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: 4/11/2023

Printed Name: Robert Hamlet Title: Environmental Specialist - Advanced

VERTEX

December 29, 2022 Vertex Project #: 22E-04169

Spill Closure Report: Ross Draw Unit #034
Section 22, Township 26 South, Range 30 East
API: 30-015-41578
County: Eddy
Incident Report: nAPP2234031246

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

New Mexico Oil Conservation Division - District 2 - Artesia
811 South 1st Street
Artesia, New Mexico 88210

WPX Energy Permian, LLC (WPX) retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment for a release of produced water due to a mechanical failure on the water pump allowing the produced water tank to overflow inside the lined containment at Ross Draw Unit #034 API 30-015-41578, Incident nAPP2210326434 (hereafter referred to as "RDU 34"). WPX provided spill notification to the New Mexico Oil Conservation District (NMOCD) District 2, via submission of an initial C-141 Release Notification (Attachment 1). This letter provides a description of the Spill Assessment and includes a request for Spill Closure. The spill area is located at N 32.0336418, W -103.8763428.

This letter provides a description of the 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 NMOCD for closure of this release.

Background

The site is located approximately 10.44 miles northeast of Angeles, Texas. The legal location for the site is Section 22, Township 26 South and Range 30 East in Eddy County, New Mexico. The spill area is located on Bureau of Land Management property.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2022) indicates the site's surface geology is comprised primarily of Qep – Eolian and piedmont deposits (Holocene to middle Pleistocene) and is characterized as eolian sands and piedmont-slope deposits. The National Resources Conservation Service *Web Soil Survey* characterizes the predominant soil texture on the site is Upton-Simona Complex. It tends to be well drained with high runoff and very low available moisture levels in the soil profile. The soils are very shallow, derived from mixed calcareous eolian deposits. Surface layers are very cobbly loam, very gravelly loam, cobbly loam, gravelly fine sandy loam, or gravelly sandy loam (United States Department of Agriculture, Natural Resources Conservation Service, 2022).

The surrounding landscape is associated with ridges and fans at elevations of 2,000 to 5,700 feet above sea level. The climate is semi-arid, with an annual precipitation ranging between 6 to 14 inches. Historically, the plant community has a grassland/shrub aspect, dominated by grasses but with shrubs and half-shrubs sparse and evenly distributed. Black grama dominates the area. Creosote, catclaw mimosa, and mesquite are common shrubs.

There is no surface water located at RDU 34. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Pecos River where it flows into Red Bluff Lake located approximately 5.19 miles southwest of the site (Google Inc., 2022). There are no continuous 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.

Incident Description

The spill occurred on November 30, 2022, due to a mechanical failure on the water pump allowing the produced water tank to overflow. The spill was reported on December 6, 2022, and involved the release of approximately 15 barrels (bbl.) of produced water into the lined containment. Approximately 15 bbl. of free fluid was removed during initial spill clean-up. The NMOCD C-141 Report: nAPP2234031246 is included in Attachment 1. The Daily Field Report (DFR) and site photographs are included in Attachment 2.

Closure Criteria Determination

The depth to groundwater was determined using information from the United States Geological Survey National Water Information Mapping System and Office of the State Engineers Water Rights Database. A 0.5-mile search radius was used to determine groundwater depth. The closest recorded depth to groundwater was determined to be greater than 125 feet below ground surface and 1.33 miles from the site. Documentation used in Closure Criteria Determination research is included in Attachment 3.

Closure Criteria Worksheet			
Site Name: Ross Draw Unit #034			
Spill Coordinates:		**X: 32.0336418**	**Y: -103.8763428**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**>125**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	27,409	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	27,409	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	36,477	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**	17,491	feet
	ii) Within 1000 feet of any fresh water well or spring	17,491	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	1,291	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain	Undetermined	year
11	Soil Type	Upton-Simona Complex	
12	Ecological Classification	Shallow	
13	Geology	Qep	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<50' 51-100' >100'

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 RDU 34 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 the following constituent concentration limits based on depth to groundwater. The constituent concentration closure criteria determined for the site are presented in Table 1.

Table 1. Closure Criteria for Soils Impacted by a Release

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

TDS - Total dissolved solids, TPH - Total petroleum hydrocarbons = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO), BTEX - Benzene, toluene, ethylbenzene, and xylenes

Remedial Actions Taken

An initial site inspection of the spill area was completed on December 10, 2022, which identified the area of the spill specified in the initial C-141 Report. The DFR associated with the site inspection is included in Attachment 2.

Notification that a liner inspection was scheduled to be completed was provided to the NMOCD on December 6, 2022. Visual observation of the liner was completed on all sides and the base of the containment, around equipment, and of all seams in the liner. As evidenced in the DFR, liner integrity was confirmed, and the Liner Inspection Notification email is included in Attachment 4.

Closure Request

Vertex recommends no remediation action to address the release at RDU 34. The secondary containment liner appeared to be intact and had the ability to contain the release, as shown in the inspection photographs included with the DFR (Attachment 2). There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that incident nAPP2234031246 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 NMOCD requirements to obtain closure on the open release at RDU 34.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.361.9880 or mpeppin@vertex.ca.

Monica Peppin
PROJECT MANAGER, REPORTING

December 29, 2022
Date

Attachments

Attachment 1. NMOCD C-141 Report
Attachment 2. Daily Field Report with Pictures
Attachment 3. Closure Criteria Research Determination Documentation
Attachment 4. Required 48-hr Notification of Liner Inspection to Regulatory Agencies

References

Google Inc. (2022). *Google Earth Pro* (Version 7.3.4) [Software]. Retrieved from http://www.google.com/earth

New Mexico Bureau of Geology and Mineral Resources. (2022). *Interactive Geologic Map*. Retrieved from http://geoinfo.nmt.edu.

New Mexico Mining and Minerals Division. (2022). *Coal Mine Resources in New Mexico*. Retrieved from http://www.emnrd.state.nm.us/MMD/gismapminedata.html

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

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2022). *Water Column/Average Depth to Water Report*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

United States Department of Agriculture, Natural Resources Conservation Service. (2022). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of Homeland Security, FEMA Flood Map Service Center. (2020). Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karsts*. Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico.

United States Fish and Wildlife Service. (2022). *National Wetlands Inventory Surface Waters and Wetland*. Retrieved from https://www.fws.gov/ wetlands/data/Mapper.html.

Limitations

This report has been prepared for the sole benefit of WPX Energy Permian, LLC. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division and Bureau of Land Management, without the express written consent of Vertex Resource Services Inc. (Vertex) and WPX Energy Permian, LLC. 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	nAPP2234031246
District RP	
Facility ID	
Application ID	

Responsible Party

Responsible Party WPX Energy Permain, LLC	OGRID 246289
Contact Name Jim Raley	Contact Telephone 575-689-7597
Contact email Jim.Raley@dvn.com	Incident # *(assigned by OCD)* nAPP2234031246
Contact mailing address 5315 Buena Vista Drive, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.0336418 Longitude -103.8763428
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: ROSS DRAW UNIT #034	Site Type: Oil Well
Date Release Discovered: 11/30/2022	API# *(if applicable) 30-015-41578*

Unit Letter	Section	Township	Range	County
D	22	26S	30E	Eddy

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)

☐ Crude Oil	Volume Released (bbls) 0	Volume Recovered (bbls) 0
☒ Produced Water	Volume Released (bbls) 16	Volume Recovered (bbls) 16
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☒ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: Valve on tank left open, allowing produced water to leak into lined secondary containment.

Volume Estimate = Recovered Volume

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2234031246
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release? Volume exceeded 25 bbls, significant property damage.
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

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not 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 Professional_____

Signature: _Jim Raley_____ Date: __12/6/2022_____

email: ___jim.raley@dvn.com_____ Telephone: 575-689-7597_____

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2234031246
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	>125 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

- ☒ N/A Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ N/A 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
- ☒ N/A Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ N/A Laboratory data including chain of custody

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2234031246
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Facility ID	
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Printed Name: Jim Raley Title: Environmental Specialist

Signature: Jim Raley Date: 1/3/2023

email: jim.raley@dvn.com Telephone: 575-689-7597

OCD Only

Received by: Jocelyn Harimon Date: 01/03/2023

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2234031246
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Jim Raley Title: Environmental Specialist

Signature: Jim Raley Date: 1/3/2023

email: jim.raley@dvn.com Telephone: 575-689-7597

OCD Only

Received by: Jocelyn Harimon Date: 01/03/2023

- [ ] Approved
- [ ] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: Date:

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2234031246
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.***

☒ N/A A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☒ X 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)

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

☒ N/A 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: Jim Raley Date: 1/3/2023

email: jim.raley@dvn.com Telephone: 575-688-7597

OCD Only

Received by: Jocelyn Harimon Date: 01/03/2023

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

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	
Site Location Name:	Ross Draw Unit #034	Report Run Date:	12/10/2022 10:40 PM
Client Contact Name:	Jim Raley	API #:	
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	
Departed Site	

Daily Site Visit Report

Site Sketch

Site Sketch

Daily Site Visit Report

Field Notes

13:18 Arrived on site, filled out safety paperwork

13:18 Started liner inspection

13:18 Liner is clean with no signs of tears or abrasion

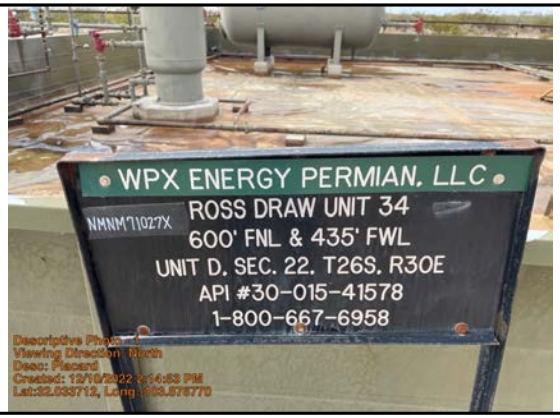
13:19 Gathered site photos, filled out daily field report

Next Steps & Recommendations

1 Liner is clean and free of any tears or abrasions

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: West
	
Placard	

Viewing Direction: West	**Viewing Direction**: West
	

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: North
	
Viewing Direction: North	**Viewing Direction**: East
	

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: East
	
Viewing Direction: South	**Viewing Direction**: South
	

Daily Site Visit Report

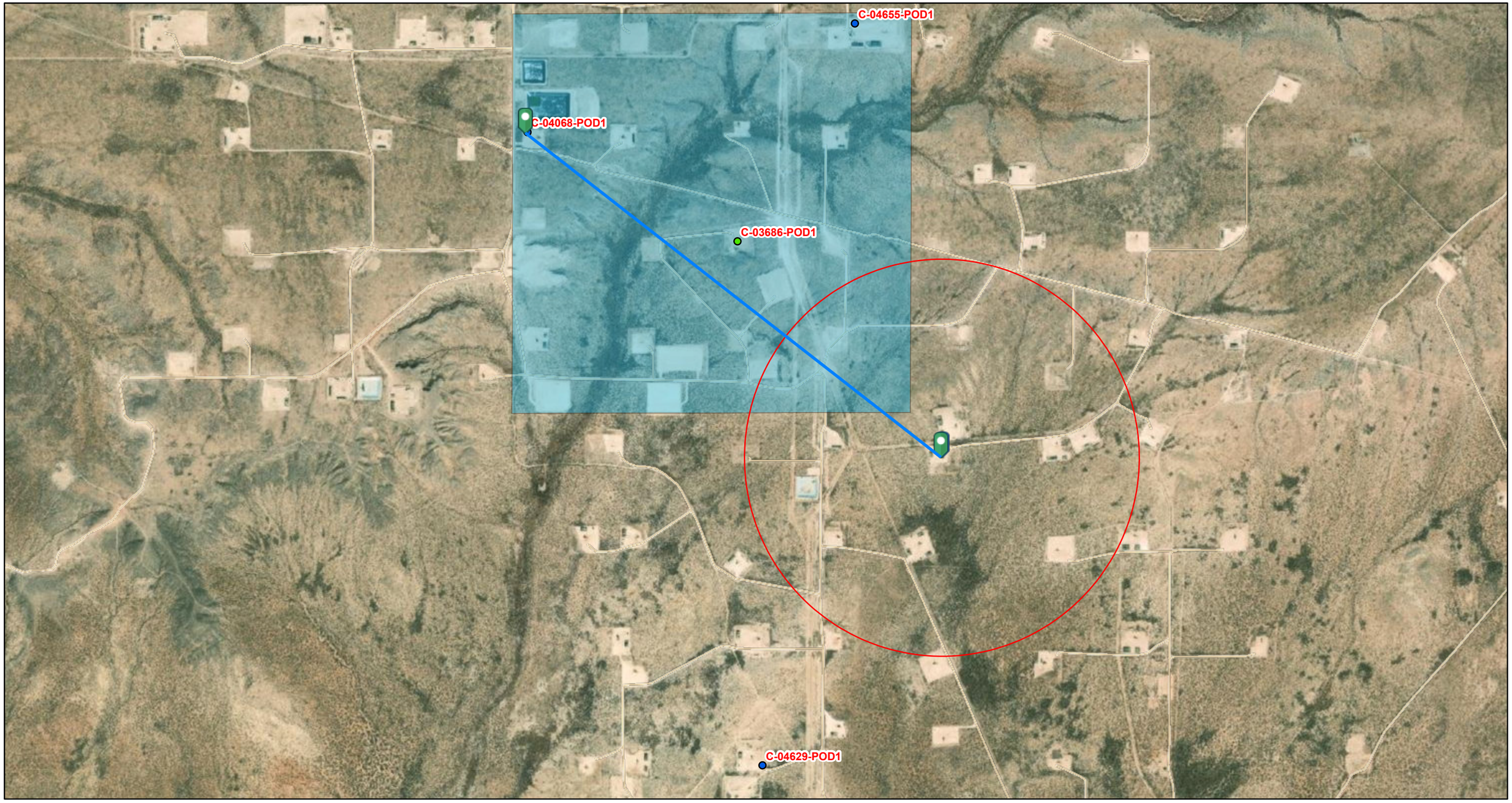
Daily Site Visit Signature

Inspector: Zachery Englebert

Signature: 

ATTACHMENT 3

Ross Draw Unit #034



12/6/2022, 4:52:09 PM

Override 1

GIS WATERS PODs

Active

Pending

OSE District Boundary

New Mexico State Trust Lands

Both Estates

SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

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

Web Generated Map
Map is generated by web users.

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2017 MAY 17 PM 1:58

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NUMBER (WELL NUMBER)	OSE FILE NUMBER(S)
C-4068 POD1	C-4068
WELL OWNER NAME(S)	PHONE (OPTIONAL)
RKI Exploration and Production, LLC	
WELL OWNER MAILING ADDRESS	CITY / STATE / ZIP
3500 One Williams Center MD 35,	Tulsa / OK / 74172

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	2	43.95	N
	LONGITUDE	103	53	39.23	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

NW/4SW/4NW/4 Section 16, Township 26S, Range 30 E, N.M.P.M.

2. DRILLING & CASING INFORMATION

LICENSE NUMBER	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
5/11/2017	5/12/2017	n/a	125	none encountered

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): n/a

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: hollow stem auger with air rotary

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	125	±6.625	n/a	n/a	n/a	n/a	n/a

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
n/a	n/a	n/a	n/a	n/a	n/a

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 10/29/15)

FILE NUMBER	C-4068	POD NUMBER	1	TRN NUMBER	6006777
LOCATION	26S. 30E. 16.1.3.1			EXPL	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	5	5	white caliche small gravel	Y ✓ N	
5	20	15	light brown fine sand with small gravel	Y ✓ N	
20	40	20	tan sand, medium gravel, sandstone	Y ✓ N	
40	50	10	white tannish sand/sandstone	Y ✓ N	
50	90	40	tannish very fine sandstone	Y ✓ N	
90	110	20	fine reddish tan sandstone	Y ✓ N	
110	125	15	fine reddish sandstone with small layers of reddish clay	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD

MISCELLANEOUS INFORMATION: Log adapted from Souder Miller & Associates oversight. Boring to determine presence/absence of water. Boring advanced with combination of air rotary and hollow stem auger tooling. No water encountered. Boring not converted to well. Boring abandoned see plugging record.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Guadalupe "Lupe" Leyba, Shane Eldridge

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 20 DAYS AFTER COMPLETION OF WELL DRILLING:

Jackie D. Atkins — 5/17/2017

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 10/29/2015)

FILE NUMBER	C-4068	POD NUMBER	1	TRN NUMBER	6006777
LOCATION	26S.30E.16.1.3.1			EXPL	PAGE 2 OF 2

Tom Blaine, P.E.
State Engineer

Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER

Trn Nbr: 606777
File Nbr: C 04068
Well File Nbr: C 04068 POD1

Jun. 12, 2017

JUSTIN BARMORE
RKI EXPLORATION AND PRODUCTION LLC
3500 ONE WILLIAMS CENTER MD 35
TULSA, OK 74172

Greetings:

The above numbered permit was issued in your name on 05/08/2017.

The Well Record was received in this office on 05/17/2017, stating that it had been completed on 05/12/2017, and was a dry well. The well is to be plugged or capped or otherwise maintained in a manner satisfactory to the State Engineer.

Please note that another well can be drilled under this permit if the well is completed and the well log filed on or before 05/15/2018.

If you have any questions, please feel free to contact us.

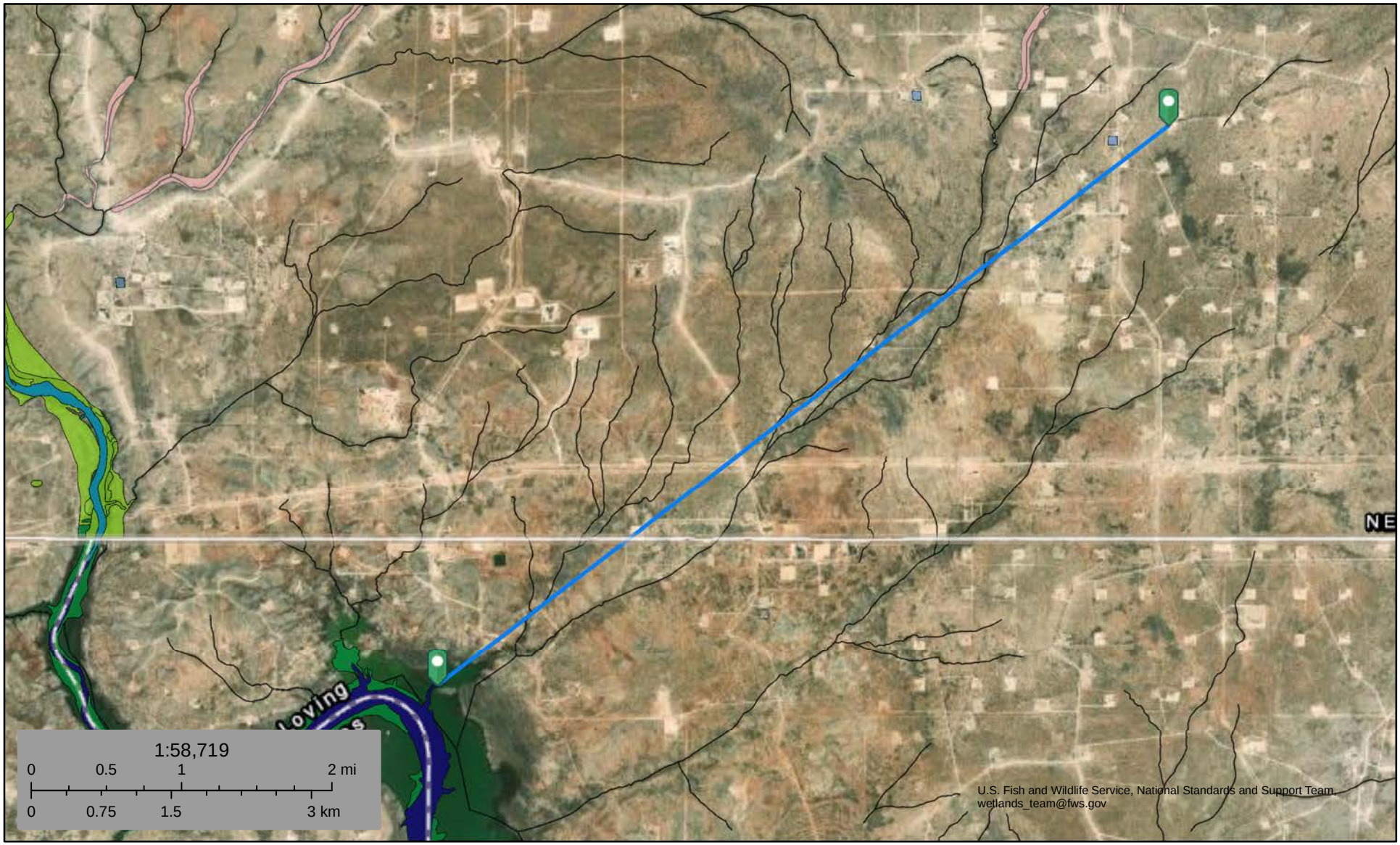
Sincerely,

Deborah Dunaway
(575)622-6521

drywell

U.S. Fish and Wildlife Service
National Wetlands Inventory

Ross Draw Unit #034



December 6, 2022

Wetlands

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

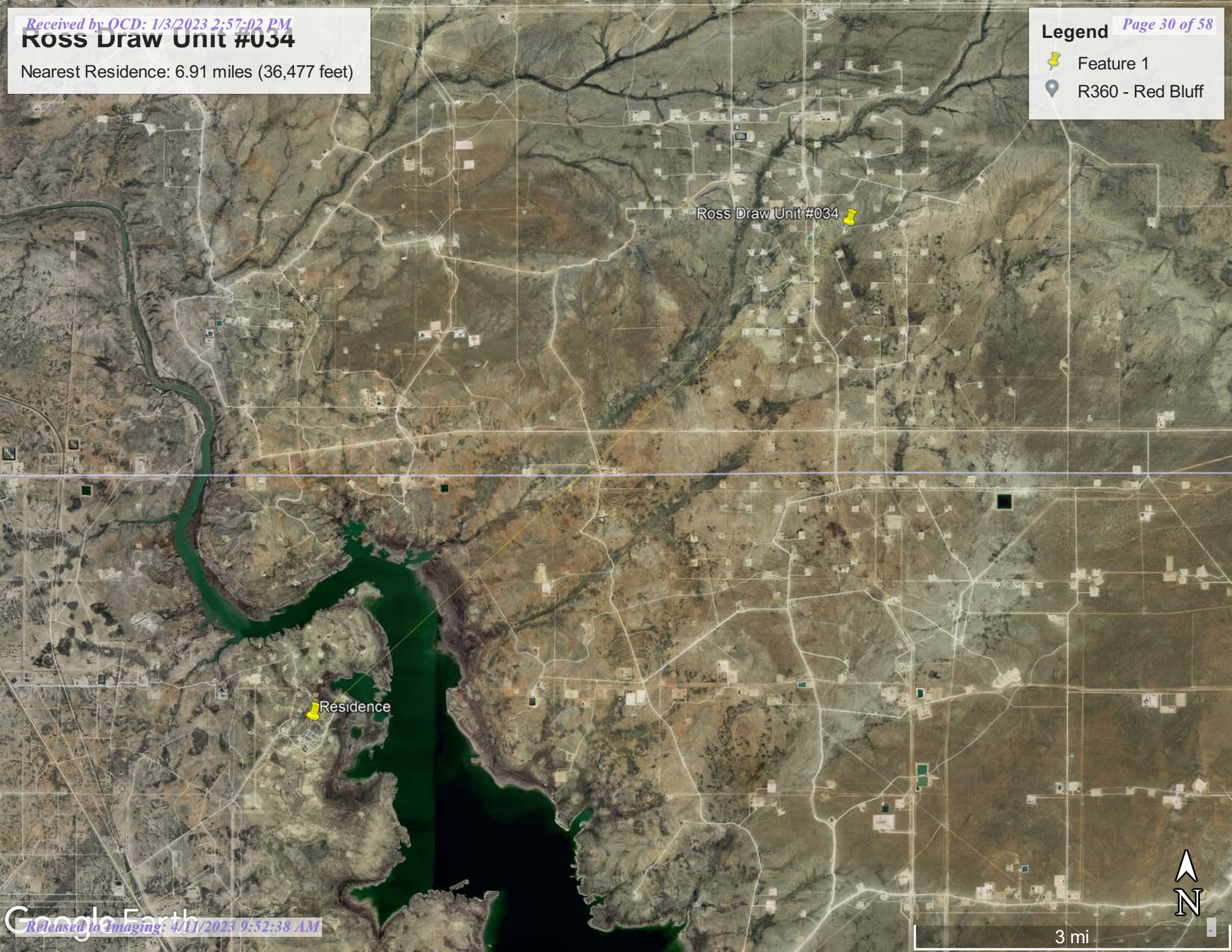
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Ross Draw Unit #034

Nearest Residence: 6.91 miles (36,477 feet)

Legend

- Feature 1
- R360 - Red Bluff



Ross Draw Unit #034

12/6/2022, 4:58:29 PM

Override 1

OSE District Boundary

SiteBoundaries

GIS WATERS PODs

New Mexico State Trust Lands

Active

Both Estates

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: LWD 01209 **Subbasin:** CUB **Cross Reference:** LWD-C-14
Primary Purpose: PLS NON 72-12-1 LIVESTOCK WATERING
Primary Status: DCL DECLARATION
Total Acres: 11 **Subfile:** - **Header:** -
Total Diversion: 22.7 **Cause/Case:** -
Owner: BUCK & LARUE JACKSON TRUST

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	631580	DCL 1992-03-16	DCL	PRC	LWD-C-14	T	11	22.7	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
LWD 01209 POD1			1	2	1	19	26S	31E	611349	3544855*	

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

Priority Summary

Priority	Status	Acres	Diversion	Pod Number
12/31/1906	DCL	11	22.7	LWD 01209 POD1

Place of Use

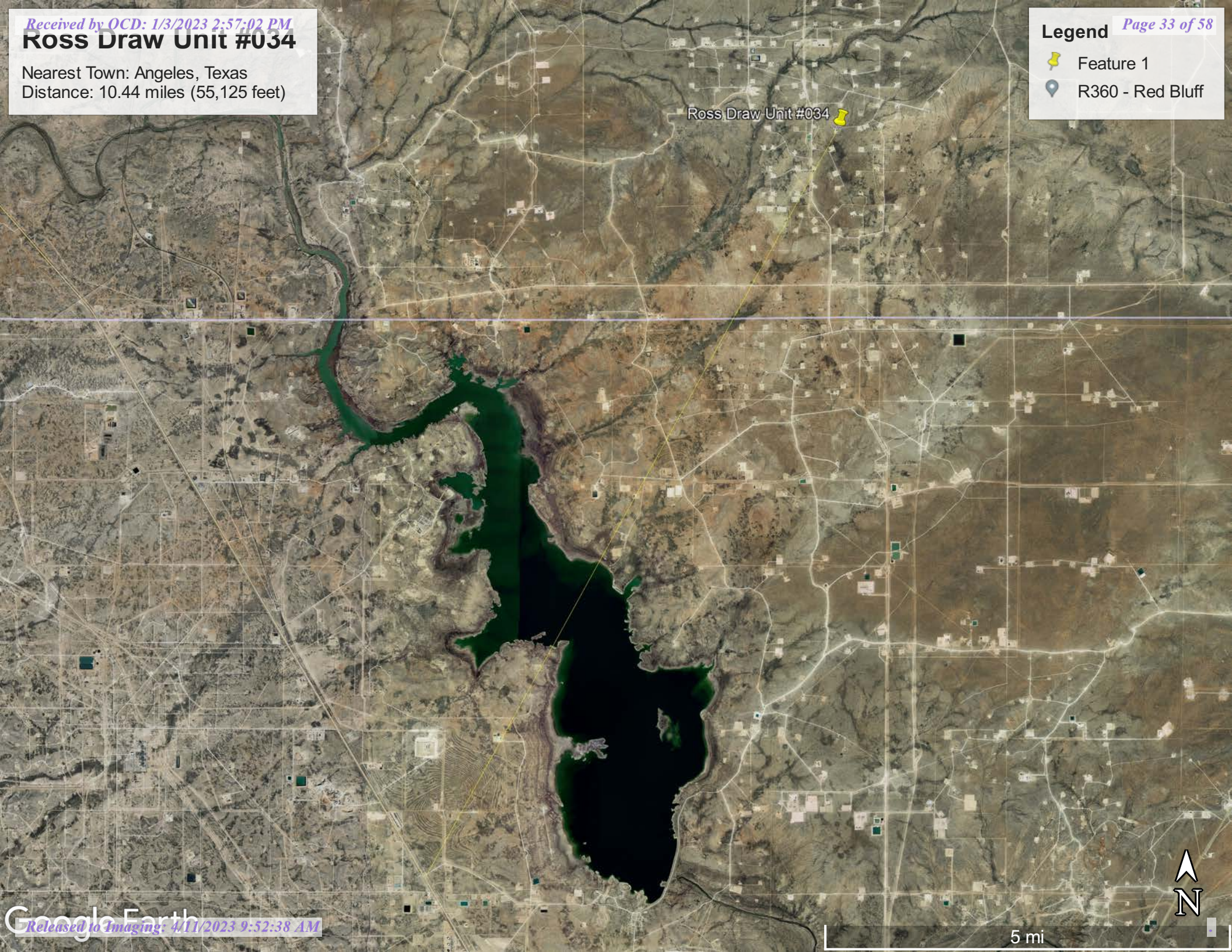
Q 256	Q 64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
	1	2	1	19	26S	31E	11	22.7		PLS	12/31/1906	DCL	

Source

Acres	Diversion	CU	Use	Priority	Source	Description
11	22.7		PLS	12/31/1906	SW	

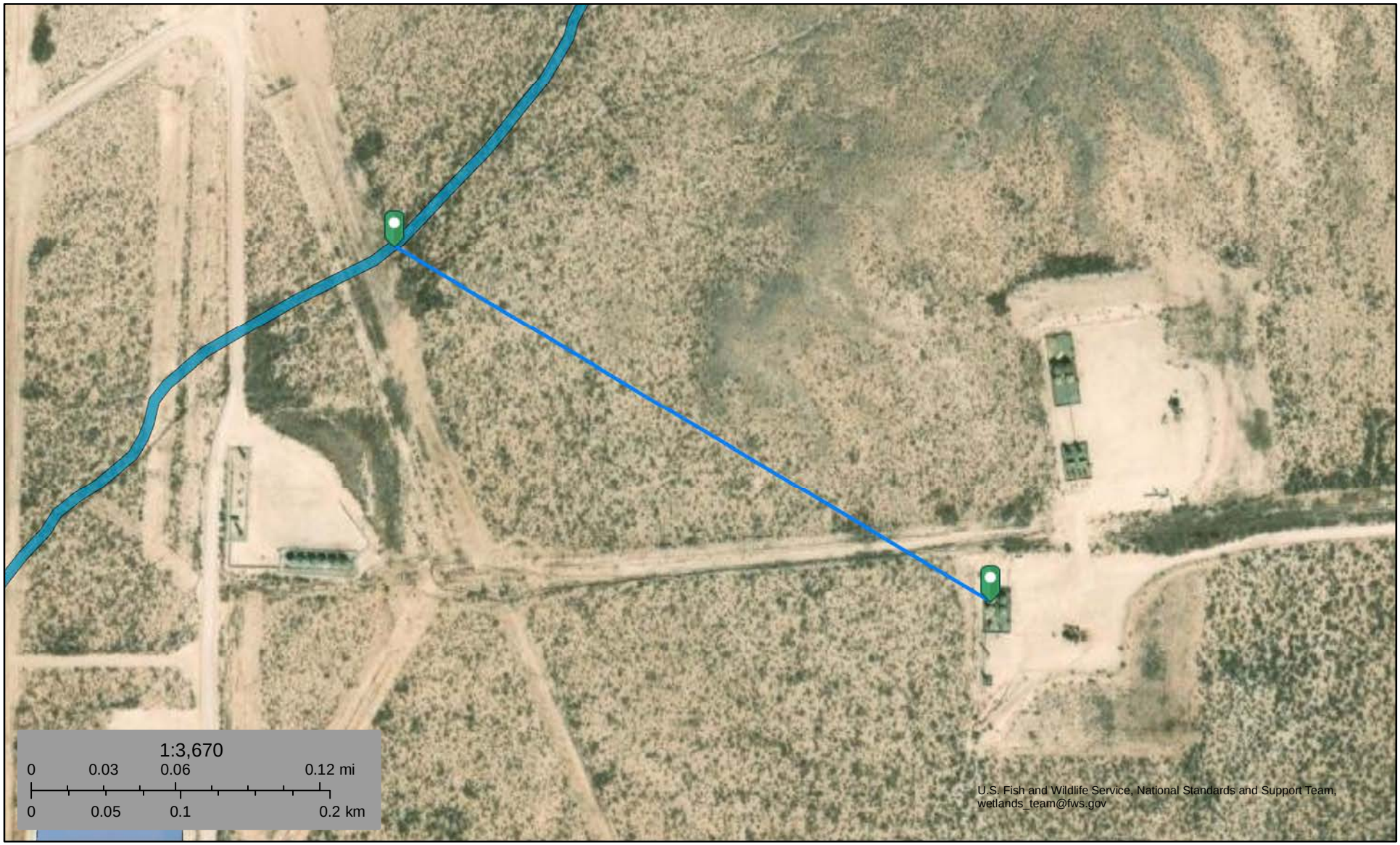
Ross Draw Unit #034

Nearest Town: Angeles, Texas
Distance: 10.44 miles (55,125 feet)



U.S. Fish and Wildlife Service
National Wetlands Inventory

Ross Draw Unit #034



December 6, 2022

Wetlands

- Estuarine and Marine Deepwater
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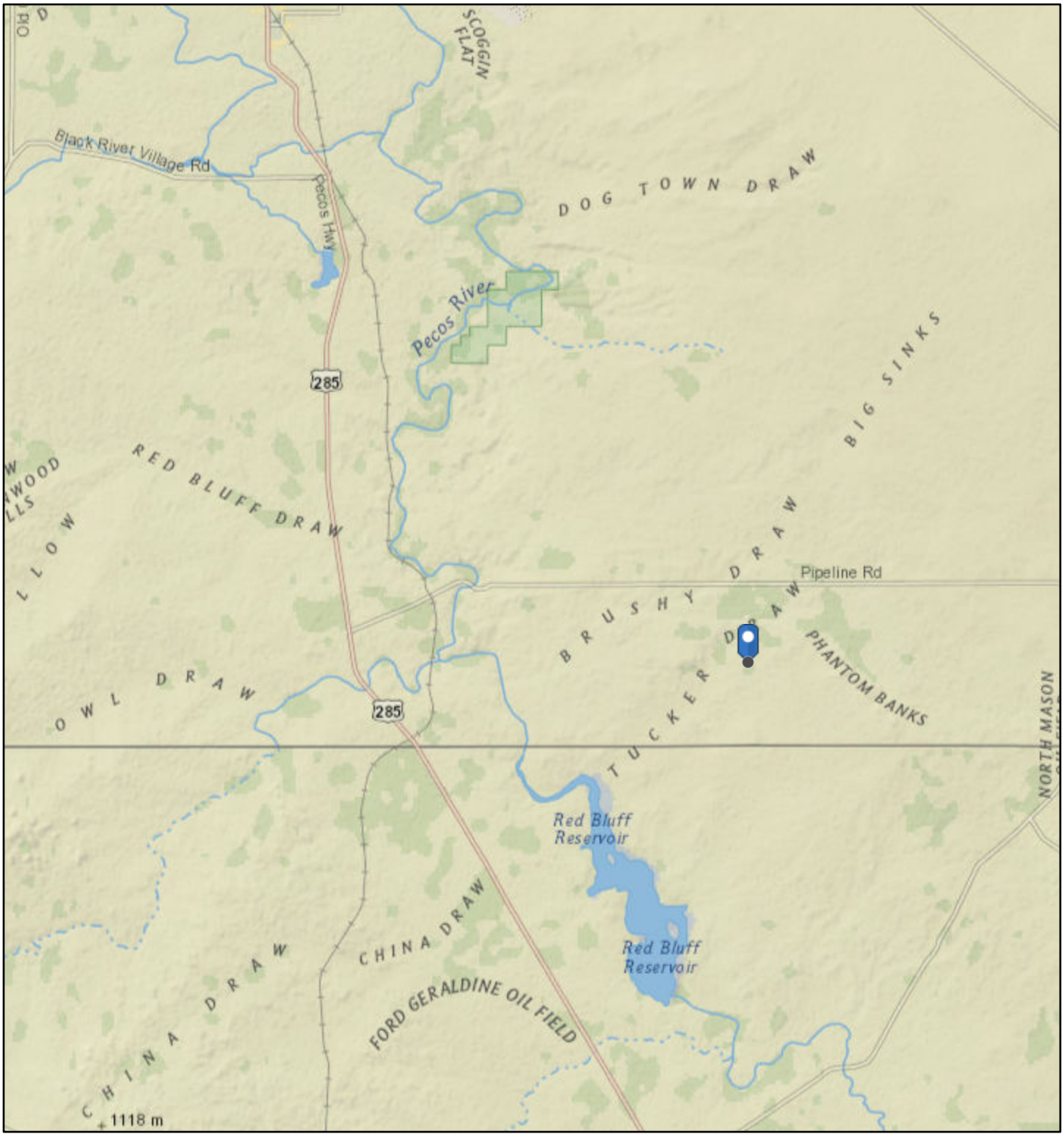
Ross Draw Unit #034



12/6/2022, 4:37:34 PM

1:288,895

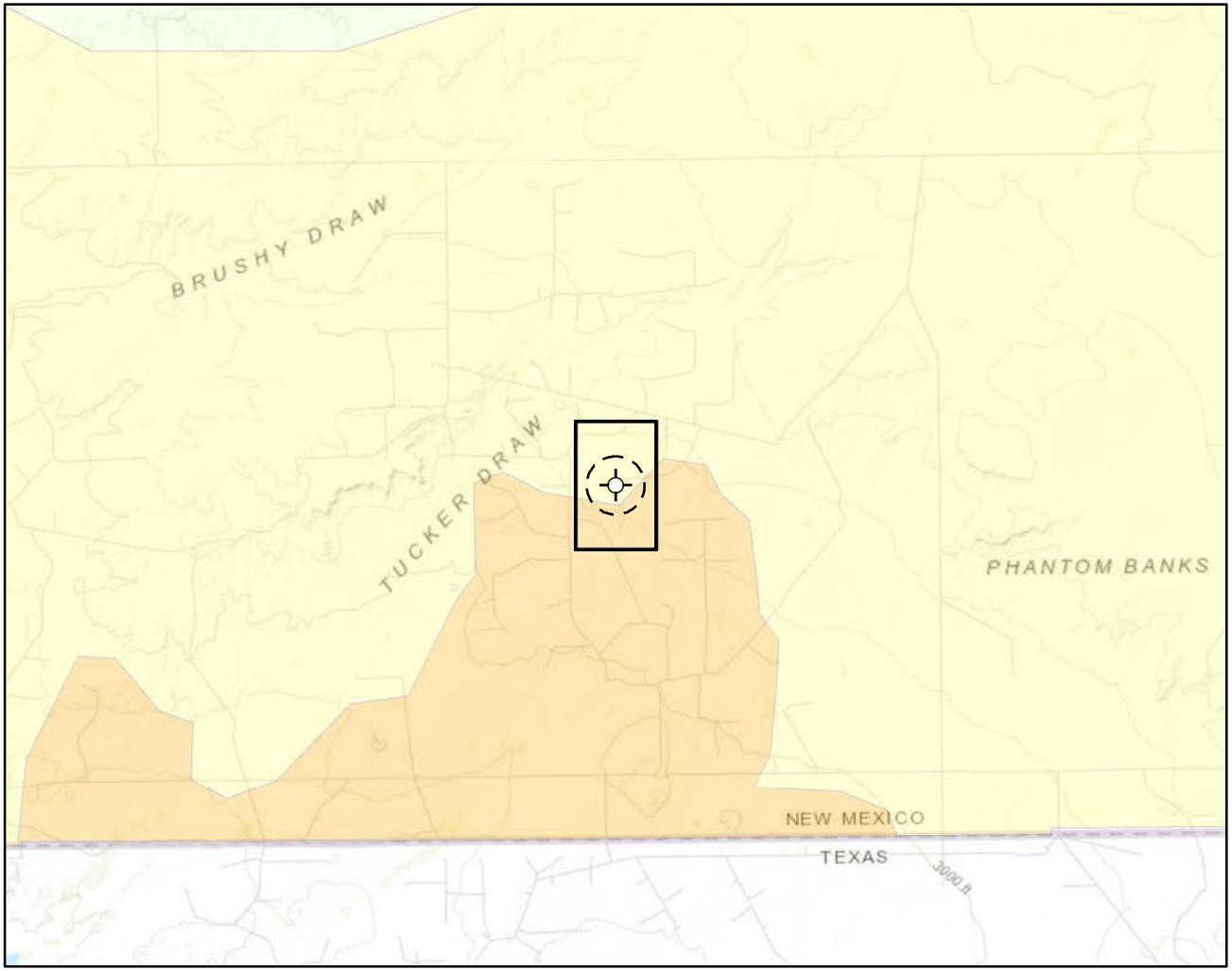
0 2 4 8 mi

0 3.25 6.5 13 km

National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

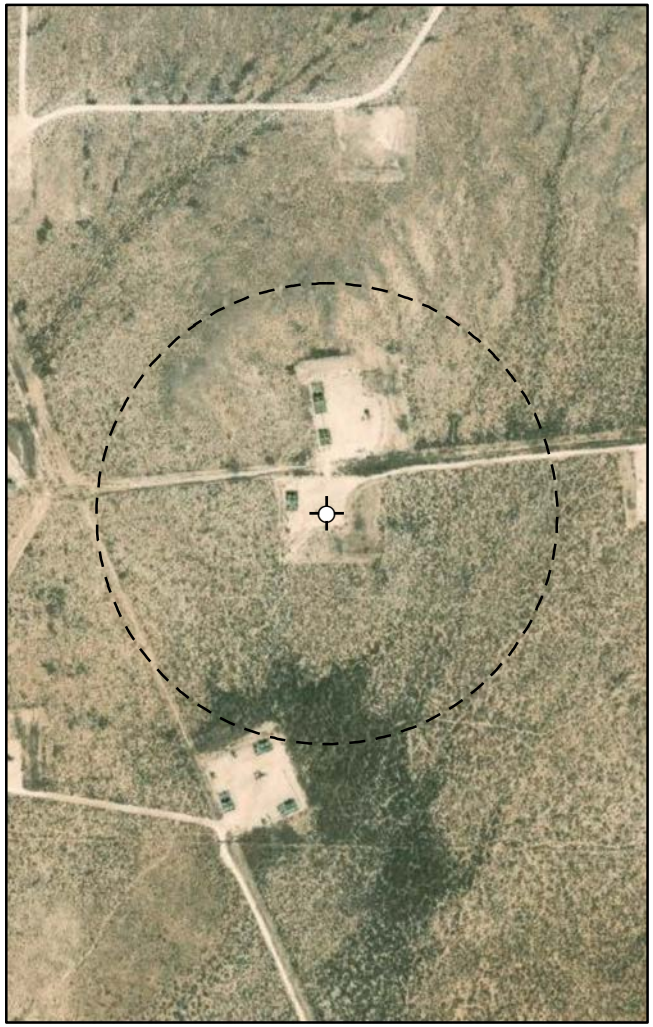
EMNRD MMD GIS Coordinator

New Mexico Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappbuilder/index.html?id=7ebfa3c432db42978d66c99a9cc8311a)



Overview Map

0 0.25 0.5 1 mi



Detail Map

0 150 300 600 ft.

Karst Potential

- Critical
- High
- Medium
- Low

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

VERTEX

Map Center:
Lat/Long: 32.033642, -103.876343

NAD 1983 UTM Zone 13N
Date: Dec 29/22

N

Karst Potential Schematic
Ross Draw Unit #034

FIGURE:
X

devon

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

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

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2022\22E-04169 - Ross Draw Unit #034\Figure X - Karst Potential Schematic (Ross Draw Unit #034).mxd

National Flood Hazard Layer FIRMette

FEMA

103°52'54"W 32°2'16"N

103°52'16"W 32°1'46"N

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

1:6,000

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

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/6/2022 at 6:26 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.

Soil Map—Eddy Area, New Mexico

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
US	Upton-Simona complex, 1 to 15 percent slopes, eroded	5.2	100.0%
Totals for Area of Interest		**5.2**	**100.0%**

Eddy Area, New Mexico

US—Upton-Simona complex, 1 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w66
Elevation: 2,000 to 5,700 feet
Mean annual precipitation: 6 to 14 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

Upton and similar soils: 40 percent
Simona and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Upton

Setting

Landform: Ridges, fans
Landform position (three-dimensional): Side slope, rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 13 inches: gravelly loam
H3 - 13 to 21 inches: cemented
H4 - 21 to 60 inches: very gravelly loam

Properties and qualities

Slope: 1 to 15 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R070BC025NM - Shallow
Hydric soil rating: No

Description of Simona

Setting

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

Typical profile

H1 - 0 to 6 inches: gravelly fine sandy loam
H2 - 6 to 20 inches: gravelly fine sandy loam
H3 - 20 to 24 inches: indurated

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 9 percent
Hydric soil rating: No

Dune land

Percent of map unit: 8 percent
Hydric soil rating: No

Pajarito

Percent of map unit: 8 percent
Ecological site: R070BD003NM - Loamy Sand

Map Unit Description: Upton-Simona complex, 1 to 15 percent slopes, eroded---Eddy Area, New Mexico

Hydric soil rating: No

Data Source Information

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

USDA Natural Resources Conservation Service

Ecological site R070BC025NM
Shallow

Accessed: 12/06/2022

General information

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

Figure 1. Mapped extent

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

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on knolls, ridges, hillslopes alluvial fans and escarpments. Slopes range fro 0 to 25 percent and average about 7 percent. Direction of slope varies and is usually not significant. Elevations range from 2,842 to 4,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge (3) Fan piedmont
Flooding frequency	None
Ponding frequency	None
Elevation	2,842–4,500 ft
Slope	0–25%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

The average frost-free season is 180 to 220 days. The last killing frost is late March or early April, and the first killing frost is in late October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Because of the shallow soil depth, the vegetation on this site can take advantage of moisture almost anytime it falls. Strong winds that blow from the west and southwest blow from January through June, which accelerates soil drying at a critical time for cool season plant growth.

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

Table 3. Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

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

Soil features

The soils of this site are shallow to very shallow. Soils are derived from mixed calcareous eolian deposits derived from sedimentary rock. Surface layers are very cobbly loam, very gravelly loam, gravelly loam, cobbly loam, gravelly fine sandy loam or gravelly sandy loam.

There is an indurated caliche layer or limestone bedrock that occurs within 20 inches and averages less than 10 inches. Limestone or caliche layer may be the restrictive layer.

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

Characteristic soils:

Lozier
Potter
Tencee
Upton
Ector
Kimbrough

Table 4. Representative soil features

Surface texture	(1) Gravelly loam (2) Extremely gravelly loam (3) Extremely cobbly loam
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Very slow to moderately slow
Soil depth	4–20 in
Surface fragment cover <=3"	15–40%
Available water capacity (0-40in)	1 in
Calcium carbonate equivalent (0-40in)	15–60%

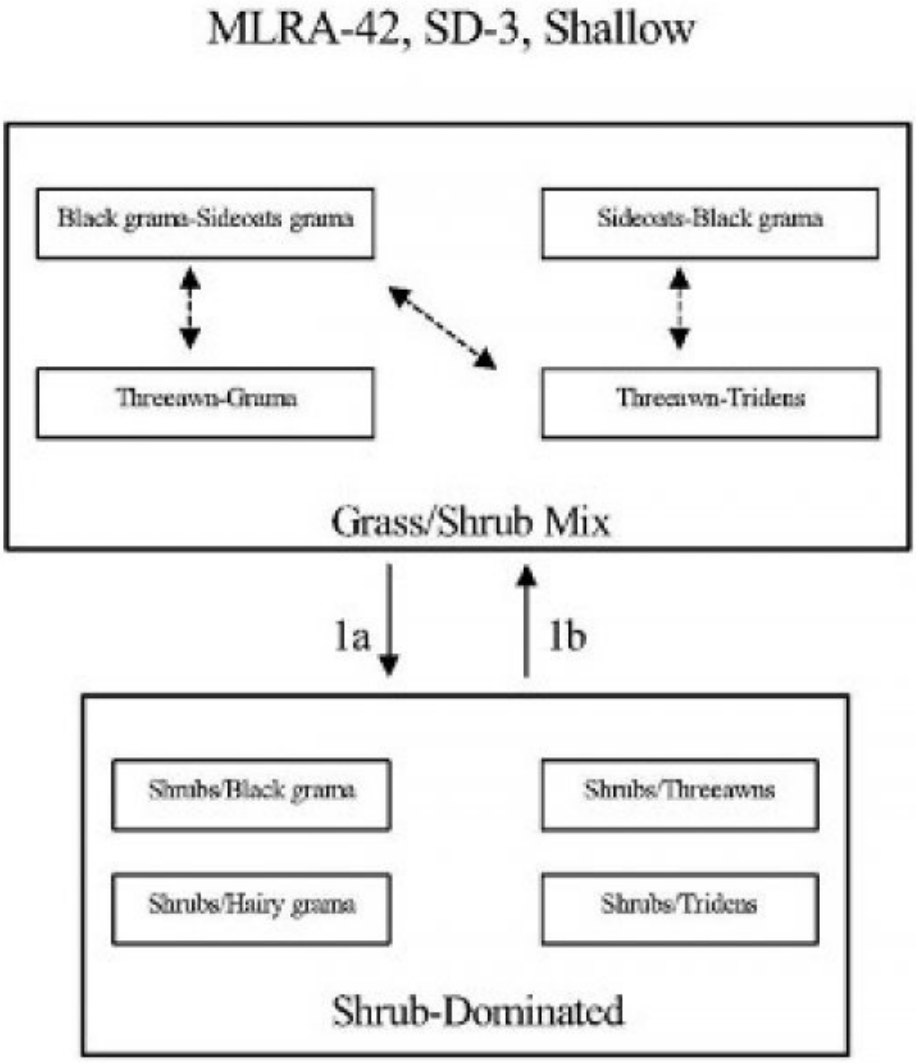
Electrical conductivity (0-40in)	0–2 mmhos/cm
Sodium adsorption ratio (0-40in)	0–1
Soil reaction (1:1 water) (0-40in)	7.4–8.4
Subsurface fragment volume <=3" (Depth not specified)	13–42%
Subsurface fragment volume >3" (Depth not specified)	0–1%

Ecological dynamics

Overview:
The Shallow site is associated with and Limestone Hills, Loamy, and Shallow Sandy sites. When associated with Limestone Hills, the Shallow site occurs on the summits, foot slopes and toeslopes of hills. Loamy sites often occur as areas between low elongated hills with rounded crests (Shallow site). When the Shallow Sandy site and Shallow site occur in association, the Shallow Sandy soils occupy the tops of low ridges and the Shallow site soils occur on the steeper sideslopes of the ridge. The historic plant community of the Shallow site has the aspect of a grassland/shrub mix, dominated by grasses, but with shrubs common throughout the site. Black grama is the dominant grass species; creosotebush, mesquite, and catclaw mimosa are common shrubs. Overgrazing and or extended drought can reduce grass cover, effect a change in grass species dominance, and may result in a shrub-dominated state. 1

State and transition model

Plant Communities and Transitional Pathways (diagram)



1a. Extended drought, overgrazing, no fire

1b. Brush control, Prescribed grazing

State 1
Grass/Shrub Mix

Community 1.1
Grass/Shrub Mix

Grassland/Shrub Mix: The historic plant community is dominated by black grama with sideoats grama as the sub-dominant. Blue grama, hairy grama, bush muhly, and sand dropseed also occur in significant amounts. Sideoats grama can occur as the dominant grass with black grama as sub-dominant on the western side of the Land Resource Unit SD-3. This may be due to higher average elevation on the west side. Retrogression within this state due to extended drought or overgrazing will cause a decrease in species such as black grama, sideoats grama, blue grama, and bush muhly. Threeawns may become the dominant grass species due to a decline in more palatable grasses or because of its ability to quickly recover following drought. Continued loss of grass cover and associated increase in amount of bare ground may result in a shrub-dominated state. Decreased fire frequencies may also be

an important component in the cause of this transition. Diagnosis: Grass cover is fairly uniform, however, surface gravel, cobble, and bare ground make up a large percent of total ground cover, and grass production during unfavorable years may only average 150-175 pounds per acre. Shrubs are common with canopy cover averaging five to ten percent. Evidence of erosion such as rills and gullies are rare, but may occur on slopes greater than eight percent.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	168	352	536
Shrub/Vine	63	131	200
Forb	20	42	64
Total	**251**	**525**	**800**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	5-10%
Grass/grasslike foliar cover	10-15%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	5-8%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	40-60%

Figure 5. Plant community growth curve (percent production by month). NM2825, R042XC025NM Shallow HCPC. R042XC025NM Shallow HCPC Warm Season Plant Community.

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

State 2
Shrub-Dominated

Community 2.1
Shrub-Dominated

Shrub-Dominated: This state is characterized by an increase in shrubs and a decrease in grass cover relative to grassland/shrub mix. As grass cover decreases shrubs increase, especially creosotebush, catclaw mimosa, whitethorn acacia, and mesquite. Each of these shrub species may become dominant in localized areas or across the site, depending on the spatial variability in soil characteristics and landscape position. Black grama, threeawns, hairy grama, or hairy tridens may be the dominant grass species. Fluffgrass, burrograss and broom snakeweed increase in representation. The Shallow site is resistant to state change, due to the natural rock armor of the soil and a shallow impermeable layer. The amount of rock fragments on the soil surface assist in retarding erosion. On Shallow sites with low slope, the shallow depth to either a petrocalcic layer or limestone bedrock helps to keep water perched and available to shallow rooted grasses for extended periods. 2 Diagnosis: Shrubs are the dominant species, especially creosotebush, catclaw mimosa, whitethorn acacia, or mesquite. Grass cover is variable ranging

from patchy with large connected bare areas present to sparse with only a limited amount in shrub inter-spaces. Transition to Shrub-Dominated (1a) Overgrazing and or extended periods of drought, and suppression of natural fire regimes are thought to cause this transition. As grass cover is lost, soil fertility and available soil moisture decline, due to the reduction of organic matter and decreased infiltration.3 Shrubs have the ability to extract nutrients and water from a greater area of soil than grasses and are better able to utilize limited water. Competition by shrubs for water and nutrients limits grass recruitment and establishment. Fire historically may have played a part in suppressing shrub expansion; fire suppression may therefore facilitate shrub expansion. Key indicators of approach to transition: *Decrease or change in composition or distribution of grass cover. *Increase in size and frequency of bare patches. *Increase in amount of shrub seedlings. Transition back to Grassland/Shrub Mix (1b) Brush control is necessary to re-establish grasses. Prescribed grazing will help to ensure proper forage utilization and sustain grass cover. Once the transition is reversed and grass cover is re-established, periodic use of prescribed fire may assist in maintaining the Grassland/Shrub state.

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				105–158	
	black grama	BOER4	*Bouteloua eriopoda*	105–158	–
2				79–105	
	sideoats grama	BOCU	*Bouteloua curtipendula*	79–105	–
3				79–105	
	blue grama	BOGR2	*Bouteloua gracilis*	79–105	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	79–105	–
4				26–53	
	bush muhly	MUPO2	*Muhlenbergia porteri*	26–53	–
5				16–26	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	16–26	–
6				26–53	
	sand dropseed	SPCR	*Sporobolus cryptandrus*	26–53	–
7				16–26	
	hairy woollygrass	ERPI5	*Erioneuron pilosum*	16–26	–
8				5–16	
	ear muhly	MUAR	*Muhlenbergia arenacea*	5–16	–
9				5–16	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	5–16	–
10				5–16	
	low woollygrass	DAPU7	*Dasyochloa pulchella*	5–16	–
11				16–26	
	Grass, perennial	2GP	*Grass, perennial*	16–26	–
Forb					
12				11–26	
	stemless four-nerve daisy	TEACE	*Tetraneuris acaulis var. epunctata*	11–26	–
13				5–16	
	woolly groundsel	PACA15	*Packera cana*	5–16	–
14				5–16	

14				5–16	
	globemallow	SPHAE	*Sphaeralcea*	5–16	–
15				5–16	
	bladderpod	LESQU	*Lesquerella*	5–16	–
16				5–16	
	cassia	CASSI	*Cassia*	5–16	–
17				11–26	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	11–26	–
Shrub/Vine					
18				5–16	
	littleleaf sumac	RHMI3	*Rhus microphylla*	5–16	–
19				5–16	
	creosote bush	LATR2	*Larrea tridentata*	5–16	–
20				5–16	
	littleleaf ratany	KRER	*Krameria erecta*	5–16	–
21				5–16	
	javelina bush	COER5	*Condalia ericoides*	5–16	–
22				5–16	
	American tarwort	FLCE	*Flourensia cernua*	5–16	–
23				5–16	
	crown of thorns	KOSP	*Koeberlinia spinosa*	5–16	–
24				11–26	
	honey mesquite	PRGL2	*Prosopis glandulosa*	11–26	–
	honey mesquite	PRGL2	*Prosopis glandulosa*	11–26	–
25				5–16	
	catclaw mimosa	MIACB	*Mimosa aculeaticarpa var. biuncifera*	5–16	–
26				5–16	
	pricklypear	OPUNT	*Opuntia*	5–16	–
27				11–26	
	mariola	PAIN2	*Parthenium incanum*	11–26	–
	mariola	PAIN2	*Parthenium incanum*	11–26	–
28				5–16	
	broom snakeweed	GUSA2	*Gutierrezia sarothrae*	5–16	–
29				16–26	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	16–26	–

Animal community

This site provides habitats which support a resident animal community that is characterized by desert cottontail, spotted ground squirrel, Merriam's kangaroo rat, cactus mouse, white-throated woodrat, gray fox, spotted skunk, roadrunner, Swainson's hawk, white-necked raven, cactus wren, pyrrhuloxia, lark sparrow, mourning dove, scaled quail, leopard lizard, round-tailed horned lizard, prairie rattlesnake, marbled whiptail, and greater earless lizard. Where associated with limestone hills, mule deer utilize this site.

Where large woody shrubs occur, most resident birds and scissor-tailed flycatcher, morning dove, lark sparrow and

Swainson's hawk nest.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations
Soil Series-------- Hydrologic Group
Lozier---------- D
Potter---------- C
Tencee---------- D
Upton---------- C
Kimbrough---------- D
Upton---------- D
Ector---------- D

Recreational uses

This site offers recreation potential for hiking, horseback riding, rock hunting, nature photography and bird hunting and birding. During years of abundant spring moisture, a colorful array of wild flowers is displayed during May and June. A few summer and fall flowers also occur.

Wood products

This site has no potential for wood production.

Other products

This site is suited for grazing by all kinds and classes of livestock during all seasons of the year. Missmanagement will cause a decrease in black grama, sideoats grama, and blue grama, bush muhly and New Mexico feathergrass. A corresponding increase in bare ground will occur. There will also be an increase in muhlys, fluffgrass, creosotebush, javalinabush, catclaw, and mesquite. This site will respond best to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index-------- Ac/AUM
100 - 76---------- 3.7 – 4.5
75 – 51---------- 4.3 – 5.5
50 – 26---------- 5.3 – 10.0
25 – 0---------- 10.1 +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico (SD-3). This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.

Other references

Literature Cited:

1. Humphrey, R.R. 1974. Fire in the deserts and desert grassland of North America. In: Kozlowski, T. T.; Ahlgren, C. E., eds. Fire and ecosystems. New York: Academic Press: 365-400.

2. Hennessy, J.T., R.P. Gibbens, J.M. Tromble, and M. Cardenas. 1983. Water properties of caliche. J. Range Manage. 36: 723-726.

3. U.S. Department of Agriculture, Natural Resources Conservation Service. 2001. Soil Quality Information Sheets. Rangeland Soil Quality—Infiltration, Organic Matter, Rangeland Sheets 5,6. [Online]. Available: http://www.statlab.iastate.edu/survey/SQI/range.html

Contributors

David Trujillo
Don Sylvester

Rangeland health reference sheet

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

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

Indicators

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

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

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

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

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

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

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

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

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

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

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

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

    Dominant:

    Sub-dominant:

    Other:

    Additional:

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

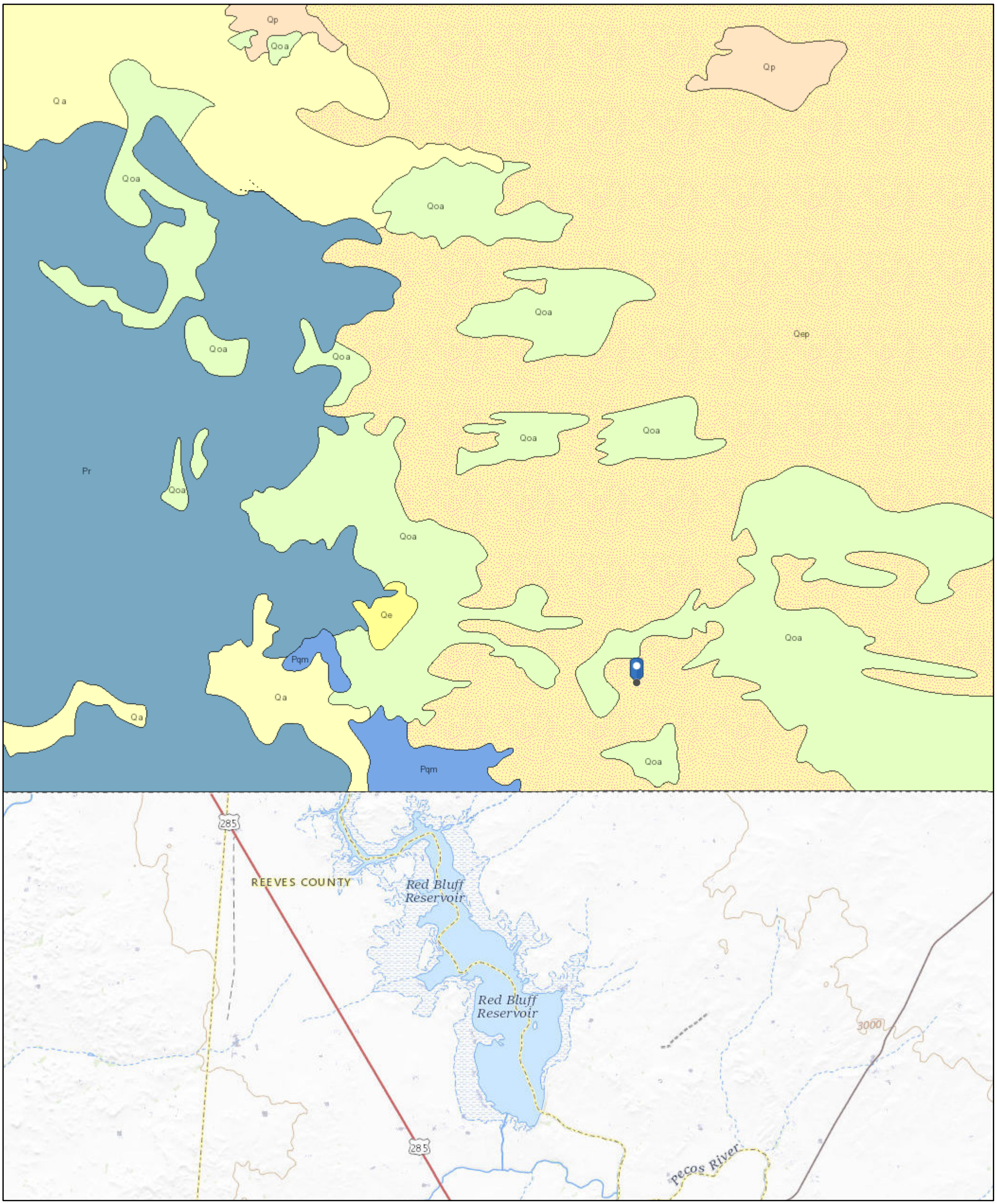
14. **Average percent litter cover (%) and depth (in):**

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

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

17. **Perennial plant reproductive capability:**

Ross Draw Unit #034



12/6/2022, 4:35:51 PM

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perenial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)

1:144,448

0 1.25 2.5 5 mi

0 2.25 4.5 9 km

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

ArcGIS Web AppBuilder

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset,

ATTACHMENT 4

Monica Peppin

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: December 6, 2022 4:18 PM
To: Enviro, OCD, EMNRD; spills@slo.state.nm.us; CFO_Spill, BLM_NM
Cc: Monica Peppin; Raley, Jim
Subject: 48 HR Notification Liner Inspections Ross Draw Unit 34 and RDX Fed Com 17-45

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled liner inspections to be conducted for the following releases:

nAPP2234031246 DOR: 11/30/2022 Site Name: Ross Draw Unit #034

nAPP2233351431 DOR: 11/18/2022 Site Name: RDX Federal Com 17 #045H

This work will be completed on behalf of WPX Energy Permian, LLC

On Saturday, December 10, 2022 at approximately 9:00 a.m., Zachary Englebert will be on site to conduct the liner inspections. He can be reached at 575-689-7007. 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 575-361-9880.

Thank you,

Monica Peppin
Project Manager

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

CONDITIONS

Action 171928

CONDITIONS

Operator: WPX Energy Permian, LLC Devon Energy - Regulatory Oklahoma City, OK 73102	OGRID: 246289
	Action Number: 171928
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your closure report and final C-141 for Incident #NAPP2234031246 ROSS DRAW UNIT #034, thank you. This closure is approved.	4/11/2023