March 12, 2020 Vertex Project #: 20E-00141-016

Spill Closure Report: Todd 27 K Fed 11
Unit K, Section 27, Township 23 South, Range 31 East
County: Eddy
API: 30-015-27913
Tracking Number: TBD

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

New Mexico Oil Conservation Division – District 2 – Artesia
8 South First Street
Artesia, New Mexico 88210

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for an oil release that occurred at Todd 27 K Fed 11, API 30-015-27913 (hereafter referred to as "Todd 27"). Devon provided immediate email notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 2 and the Bureau of Land Management (BLM) on November 2, 2019, and followed up with the submission of an initial C-141 Release Notification (Attachment 1) on November 11, 2019. The NM OCD tracking number for this incident has not yet been assigned.

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

Incident Description

On November 2, 2019, a release occurred at Devon's Todd 27 site when a high-level alarm failed causing the produced water tanks to overflow. This incident resulted in the release of 120 barrels (bbls) of produced water into the lined secondary containment. Upon discovery of the release, the overflow of water was stopped and a hydrovac truck was dispatched to the site to recover free liquids. All fluids were contained within the lined Spill Prevention Control and Countermeasures (SPCC) containment. All 120 bbls of produced water were recovered from the secondary containment and removed for disposal off-site.

Site Characterization

The release at Todd 27 occurred on federally-owned land, N 32.27320, W 103.76780, approximately 25 miles east-southeast of Carlsbad, New Mexico. The legal description for the site is Unit K, Section 27, Township 23 South, Range 31 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.

Todd 27 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 release area on the western portion of the constructed wellpad where the storage tanks are located.

The surrounding landscape has historically been associated with upland plains and is not prime farmland. The climate is semiarid, with average annual precipitation ranging between 10 and 14 inches. The plant community has the aspect of a grassland dominated by black grama, dropseeds and bluestems and sparsely dotted with shrubs, especially creosotebush, mesquite and shinnery oak. Grass cover is uniform, but bare ground and litter can make up a significant portion of the ground cover where heavy grazing or drought persists (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted wellpad.

The Geological Map of New Mexico indicates the surface geology at Todd 27 is comprised primarily of Qep-Eolian and piedmont deposits (Holocene to middle Pleistecene) characterized by interlayed eolian sand and piedmont deposits (New Mexico Bureau of Geology and Mineral Resources, 2020). The National Resource Conservation Service (NRCS) Web Soil Survey characterizes the soil at the site as a mix of Simona and Wink fine sandy loams and Berino complex – fine sand and fine sandy loams which are associated with fan piedmonts and alluvial fans. This type of soil, typically found at elevations of 3,000 to 4,200 feet above sea level, tends to be well-drained with variable runoff, depending on specific locations, and low 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 Todd 27 (United States Department of the Interior, Bureau of Land Management, 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 a pond located approximately 2 miles east of the site (United States Fish and Wildlife, 2020). At Todd 27, 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 well is one used for livestock watering located approximately 1 mile east of the site (New Mexico Office of the State Engineer, Interstate Stream Commission, 2020). Data for that well show a depth to groundwater at greater than 100 feet bgs (United States Department of the Interior, United States Geological Survey, 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 Todd 27 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.

Table 1. Closure Criteria for Soils Impacted by a Release		
Depth to Groundwater	**Constituent**	**Limit**
>100 feet	Chloride	20,000 mg/kg
	TPH[1] (GRO + DRO + MRO)	2,500 mg/kg
	GRO + DRO	1,000 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

[1]Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)
[2]Benzene, toluene, ethylbenzene and xylenes (BTEX)

Remedial Actions

On February 3, 2020, after the secondary containment liner was cleaned, Vertex provided 48-hour notification of the liner inspection to NM OCD, as required by Subparagraph (a) of Paragraph (5) of Subsection A 19.15.29.11 NMAC (Attachment 4). On February 7, 2020, Vertex conducted a visual inspection of the 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. Though some degradation in the topmost layer of the containment liner was identified as needing minor repairs, the inspection did not reveal damage significant enough to impair the liner's ability to contain the release in question. The Daily Field Report (DFR) associated with the inspection is included as Attachment 5.

Closure Request

Vertex recommends no additional remediation action to address the release at Todd 27. The secondary containment liner appeared to be intact and had the ability to contain the release in question. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident be closed as all closure requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. Devon certifies that all information in this report and the attachments is correct, and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NM OCD requirements to obtain closure on the November 2, 2019, release at Todd 27.

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

Sincerely,

Natalie Gordon
PROJECT MANAGER

Attachments

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

References

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

New Mexico Office of the State Engineer, Interstate Stream Commission. (2020). *OSE POD Locations*. Retrieved from https://gis.ose.state.nm.us/gisapps/ose_pod_locations/.

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

United States Department of Agriculture, Natural Resources Conservation Service. (2020). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

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

United States Department of the Interior, United States Geological Survey. (2020). *Groundwater for New Mexico: Water Levels*. Retrieved from https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?.

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

Limitations

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

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

ATTACHMENT 1

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

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

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

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) 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		

State of New Mexico
Oil Conservation Division

Incident ID	
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?
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: _____ Title: _____

Signature: Kendra DeHoyos Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

ATTACHMENT 2

Infrastructure (Existing)

Approximate Site Boundary

Containment

VERTEX

0 25 50 Feet

Map Center:
Lat/Long: 32.273337, -103.767910

NAD 1983 UTM Zone 13N

Date: Mar 03/20

N

Site Schematic
Todd 27 K Fed 11

FIGURE:
1

devon

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

Note: Imagery from ESRI, 2018.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\016 - Todd 27 K Fed 11\Figure 1 Site Schematic Todd 27 K Fed 11.mxd

ATTACHMENT 3

Table 1. Closure Criteria Determination			
Site Name: Todd 27 K Fed 11			
Spill Coordinates:		**X: 32.27320**	**Y: -103.76780**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**105**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	14393	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11097	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	22649	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**	5357	feet
	ii) Within 1000 feet of any fresh water well or spring		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	22758	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)		Critical High Medium Low
10	Within a 100-year Floodplain	undetermined	year
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

National Flood Hazard Layer FIRMette

FEMA

32°16'38.73"N

103°46'22.81"W

103°45'45.35"W

32°16'8.31"N

Feet

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

1:6,000

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/5/2020 at 5:21:05 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.

Active Mines near Todd 27 K Fed 11

2/5/2020, 3:27:16 PM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Registered Mines

Aggregate, Stone etc.

Aggregate, Stone etc.

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

Column1
Critical
High
Medium
Low

Column1
Yes
No

<50'
51-100'
>100'

OSE PUBLIC PRINT

3/2/2020, 4:06:24 PM

OSE District Boundary

GIS WATERS PODs

Active

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q q q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 02348	C	STK	3	NGL WATER SOLUTIONS PERMIAN	ED	C 02348				Shallow	1 4 3	26	23S	31E	617647	3571068	1633
C 02258	C	PRO	0	DEVON ENERGY CORP.(NEVADA)	ED	C 02258					3 2	26	23S	31E	618055	3571853*	2063
C 02602	C	SAN	0	POGO PRODUCING COMPANY	ED	C 02602					2 2	35	23S	31E	618471	3570650*	2534
C 00225 A	CUB	IRR	8.4	GREGORY ROCKHOUSE RANCH	ED	C 02405				Shallow	4 1	02	24S	31E	617690	3568631*	3207
C 01246 AO	CUB	IRR	47.82	CATHLEEN MC INTIRE	ED	C 02405				Shallow	4 1	02	24S	31E	617690	3568631*	3207
C 02405	C	PRO	0	TEXACO EXPLORATION & PROD. IND	ED	C 02405				Shallow	4 1	02	24S	31E	617690	3568631*	3207
C 02452	C	PRO	0	TEXACO EXPLORATION & PROD INC.	ED	C 02405				Shallow	4 1	02	24S	31E	617690	3568631*	3207
					ED	C 02452					4 1	02	24S	31E	617690	3568631*	3207
C 02576	C	PRO	0	SONAT EXPLORATION COMPANY	ED	C 02405				Shallow	4 1	02	24S	31E	617690	3568631*	3207
C 02464	C	PRO	0	COMMISSIONER OF PUBLIC LANDS	ED	C 02464				Shallow	3 4 1	02	24S	31E	617589	3568530*	3245
C 02901	C	PUB	0	B & H MAINTENANCE & CONST.	ED	C 02901					3 4 1	02	24S	31E	617589	3568530*	3245
C 02954	CUB	EXP	0	U.S. DEPARTMENT OF ENERGY CARLSBAD FIELD OFFICE, WIPP	ED	C 02954 EXPL				Shallow	3 1 4	20	23S	31E	613114	3572906*	3302
C 02661	CUB	MON	0	SANDIA NATIONAL LABORATORIES	ED	C 02661					3 3 1	04	24S	31E	613969	3568485*	3566
C 02785	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02785					3 3 1	04	24S	31E	613969	3568485*	3566
C 02783	CUB	OBS	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02783				Shallow	3 3 1	04	24S	31E	613911	3568461	3619
					ED	C 02783 POD2				Shallow	3 3 1	04	24S	31E	613911	3568461	3619
C 02784	C	SAN	0	US DEPARTMENT OF ENERGY WASTE ISOLATION PILOT PLANT	ED	C 02784				Shallow	4 2 4	04	24S	31E	613911	3568461	3619

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

(acre ft per annum)

(R=POD has been replaced and no longer serves this file, C=the file is closed)

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code Grant	Source	q 6416 4	Sec	Tws	Rng	X	Y	Distance
C 03470	C	PUB	0	U.S. DEPT. OF ENERGY (WIPP)	ED	C 02783 POD2			Shallow	3 3 1	04	24S	31E	613911	3568461	3619
C 02460	C	PRO	0	SONAT EXPLORATION	ED	C 02460			Shallow	3	02	24S	31E	617496	3568022*	3662
					ED	C 02460 POD2			Shallow	3	02	24S	31E	617496	3568022*	3662
C 02958	C	STK	3	RICHARDSON CATTLE COMPANY	ED	C 02958				3 3 4	04	24S	31E	614781	3567690*	3905
C 02777	CUB	MON	0	US DEPT OF ENERGY WIPP	ED	C 02777				4 4 4	10	23S	31E	616973	3575662	4376
C 03749	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 03749 POD1			Shallow	2 2	15	23S	31E	616973	3575662	4376
C 02440	C	PRO	0	SONAT EXPLORATION	ED	C 02440				2 3	10	24S	31E	616103	3566599*	4786
C 03389	C	STK	3	BUREAU OF LAND MANAGEMENT	ED	C 03389				1 1 3	17	23S	31E	612316	3574683	4978
C 03394	C	PUB	0	JAMES HAMILTON CONSTRUCTION CO	ED	C 03389				1 1 3	17	23S	31E	612316	3574683	4978

Record Count: 26

UTMNAD83 Radius Search (in meters):

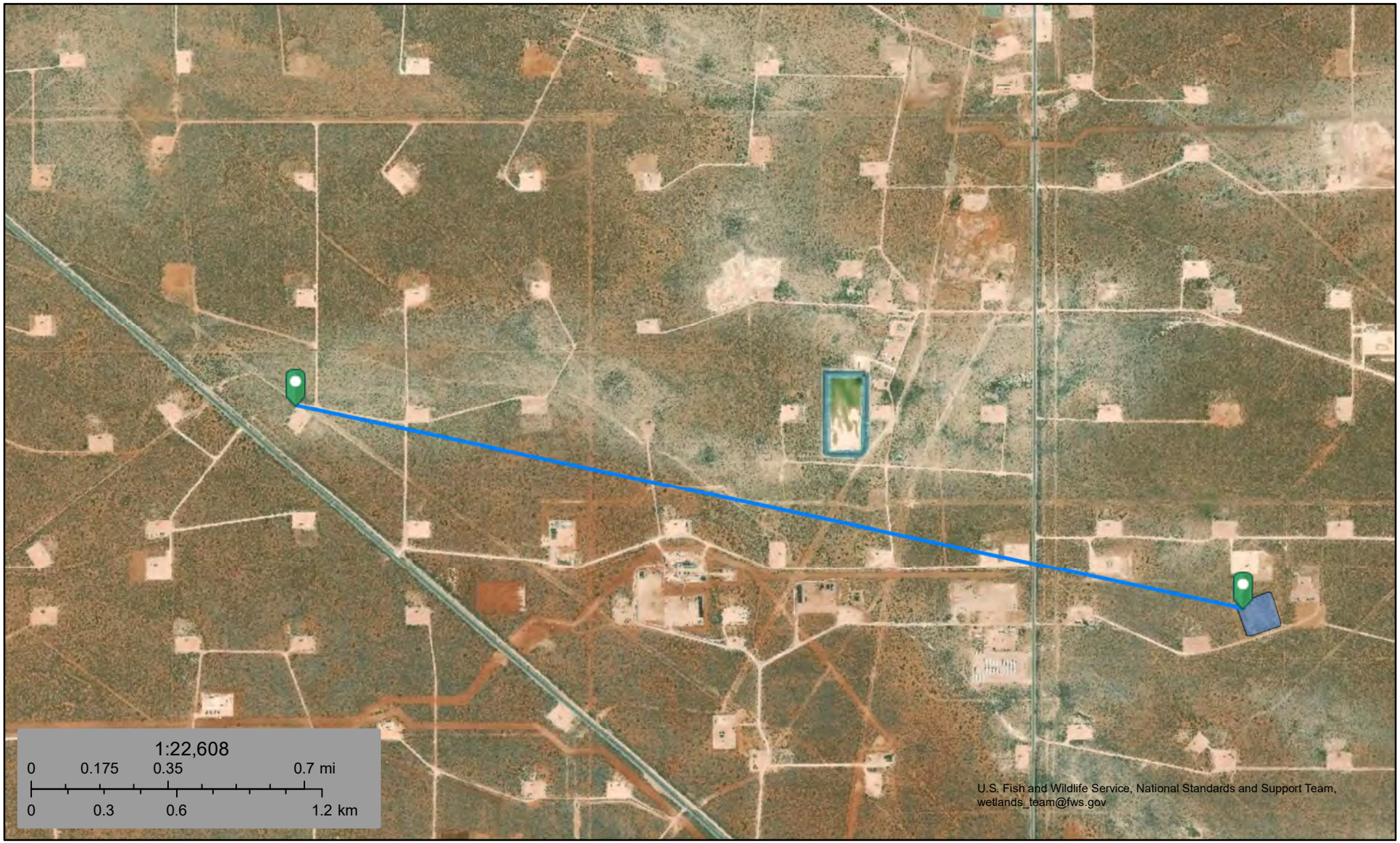
Easting (X): 616045.31 **Northing (Y):** 3571384.85 **Radius:** 5000

Sorted by: Distance

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 27 K Fed 11: Pond 11,097 ft

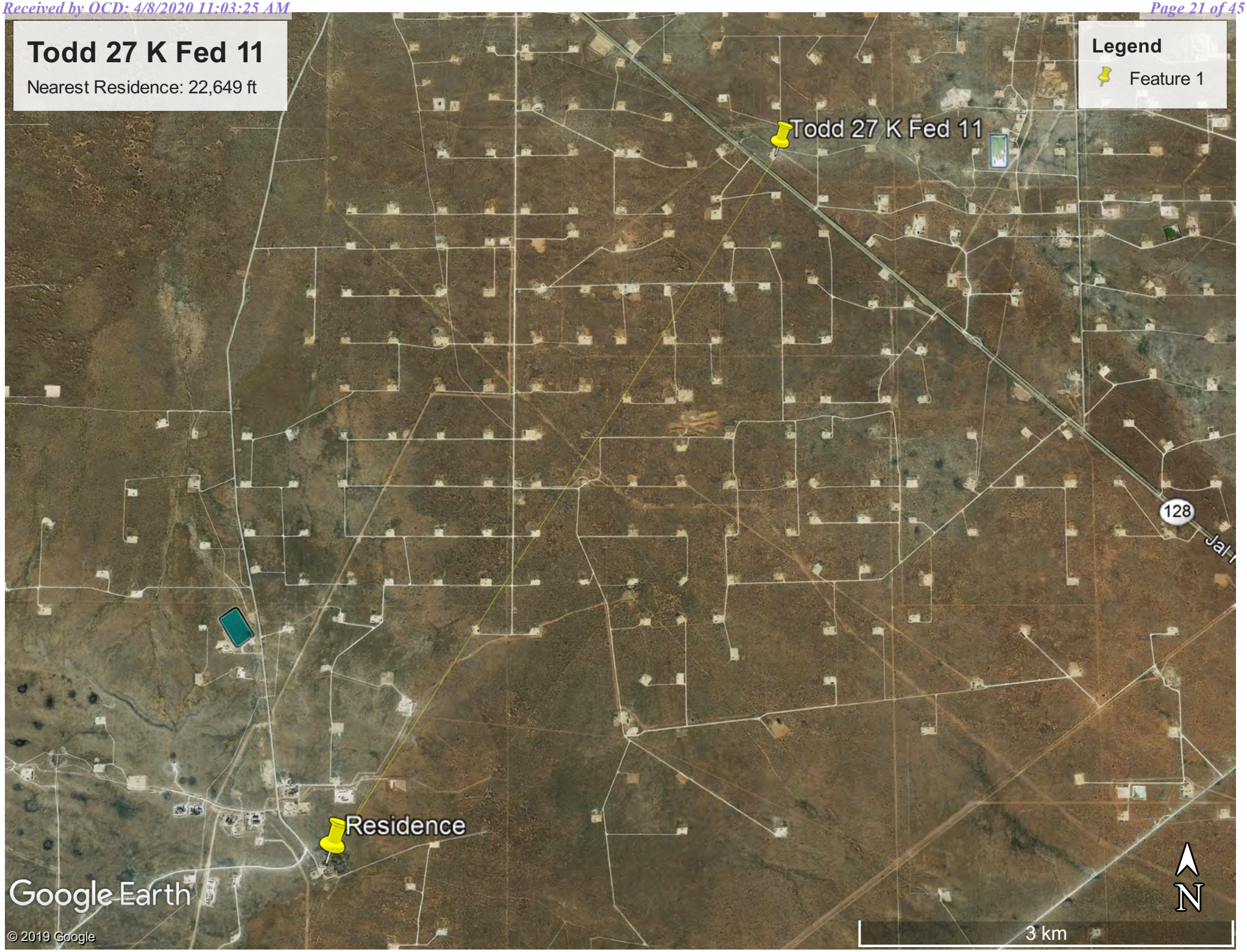


February 5, 2020

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.


Todd 27 K Fed 11
Nearest Residence: 22,649 ft
Legend
Feature 1
Todd 27 K Fed 11
128
Residence
Google Earth
© 2019 Google
N
3 km

Soil Map—Eddy Area, New Mexico
(Todd 27 K Fed 11 Soil Map)

Map Scale: 1:825 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 40 80 160 240

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

Soil Map—Eddy Area, New Mexico
(Todd 27 K Fed 11 Soil Map)

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	0.3	18.7%
SN	Simona and Wink fine sandy loams, 0 to 3 percent slopes, eroded	1.3	81.3%
Totals for Area of Interest		**1.5**	**100.0%**

Eddy Area, New Mexico

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

Map Unit Setting

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

Map Unit Composition

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

Description of Berino

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

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

Description of Pajarito

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Cacique

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

Wink

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

Pajarito

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

Kermit

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

Data Source Information

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

Eddy Area, New Mexico

SN—Simona and Wink fine sandy loams, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w5y
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 45 percent
Wink and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

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

Typical profile

H1 - 0 to 19 inches: fine sandy loam
H2 - 19 to 23 inches: indurated

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very 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 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: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Description of Wink

Setting

Landform: Depressions, swales
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mixed alluvium and/or eolian sands

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 38 inches: fine sandy loam
H3 - 38 to 60 inches: stratified gravelly variable

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: 30 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: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

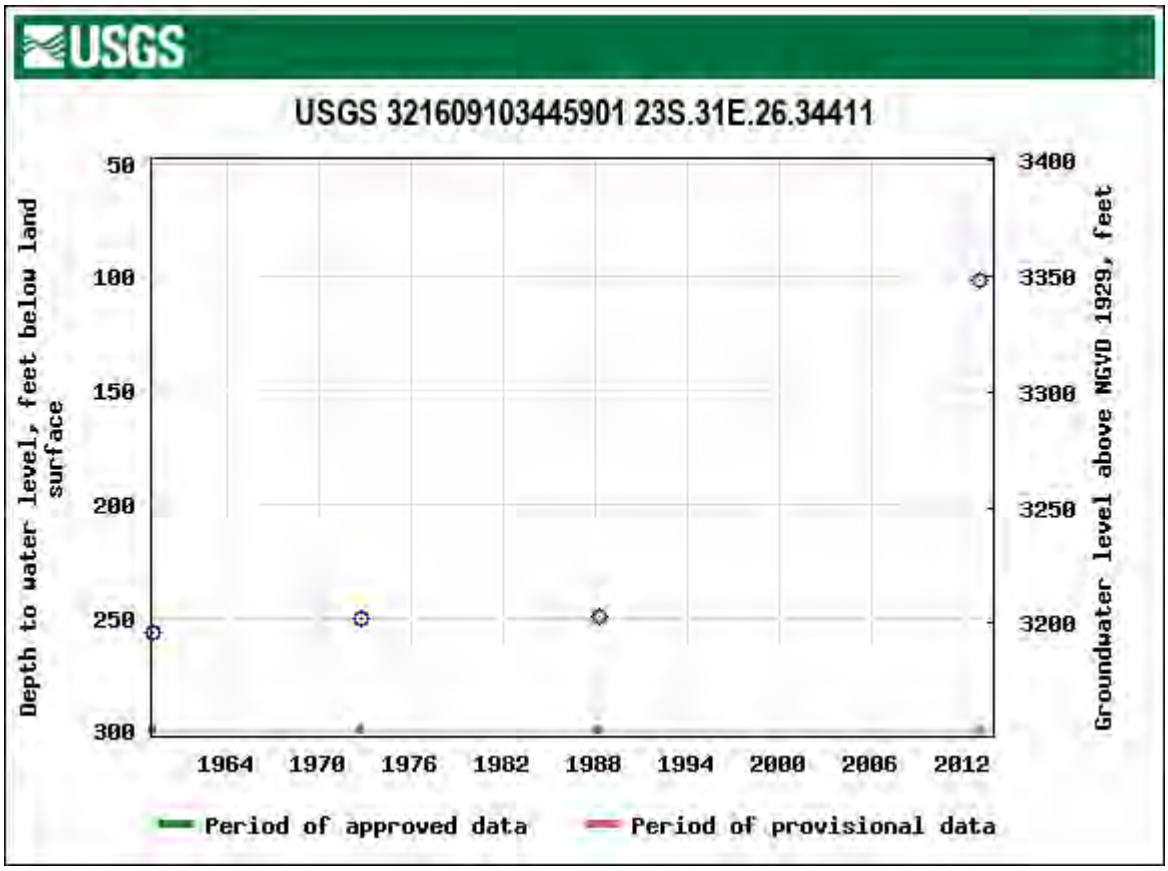
Minor Components

Dune land

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

Data Source Information

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


USGS
USGS 321609103445901 23S.31E.26.34411
Depth to water level, feet below land surface
50
100
150
200
250
300
Groundwater level above NGVD 1929, feet
3400
3350
3300
3250
3200
1964
1970
1976
1982
1988
1994
2000
2006
2012
Period of approved data
Period of provisional data

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02348	C	ED	1	4	3	26	23S	31E	617648	3571068	1633	700	430	270
C 02258	C	ED		3	2	26	23S	31E	618055	3571853*	2063	662		
C 02405	CUB	ED		4	1	02	24S	31E	617690	3568631*	3207	275	160	115
C 02464	C	ED	3	4	1	02	24S	31E	617589	3568530*	3245	320	205	115
C 02954 EXPL	CUB	ED	3	1	4	20	23S	31E	613114	3572906*	3302	905		
C 02661	CUB	ED	3	3	1	04	24S	31E	613969	3568485*	3566	708		
C 02785	CUB	ED	3	3	1	04	24S	31E	613969	3568485*	3566	692		
C 02783	CUB	ED	3	3	1	04	24S	31E	613911	3568461	3619	708		
C 02783 POD2	CUB	ED	3	3	1	04	24S	31E	613911	3568461	3619	672		
C 02784	C	ED	4	2	4	04	24S	31E	613911	3568461	3619	584		
C 02460	C	ED			3	02	24S	31E	617496	3568022*	3662	320		
C 02460 POD2	C	ED			3	02	24S	31E	617496	3568022*	3662	320		
C 02777	CUB	ED	4	4	4	10	23S	31E	616974	3575662	4376	890		
C 03749 POD1	CUB	ED		2	2	15	23S	31E	616974	3575662	4376	865	639	226
C 02440	C	ED		2	3	10	24S	31E	616103	3566599*	4786	350		

Average Depth to Water: **358 feet**
Minimum Depth: **160 feet**
Maximum Depth: **639 feet**

Record Count: 15

UTMNAD83 Radius Search (in meters):

Easting (X): 616045.31 **Northing (Y):** 3571384.85 **Radius:** 5000

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 27 K Fed 11: Watercourse 14,393 ft

February 5, 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.

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

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD Number	POD Sub-basin Code	County	Source	q 6416	q 4	q 3	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 02348	C	ED	Shallow	1	4	3	26	23S	31E	617648	3571068	1633	10/31/2013	11/01/2013	11/07/2013	700	430	JOHN SIRMAN	1654
C 02258	C	ED			3	2	26	23S	31E	618055	3571853*	2063	09/18/1992	09/18/1992	09/25/1992	662		CORKY GLENN	421
C 02405	CUB	ED	Shallow		4	1	02	24S	31E	617690	3568631*	3207	09/29/1994	09/30/1994	12/05/1994	275	160	COLLIS, ROBERT E.	1184
C 02464	C	ED	Shallow	3	4	1	02	24S	31E	617589	3568530*	3245	08/24/1995	08/24/1995	09/07/1995	320	205	GLENN, CLARK A."CORKY" (LD)	421
C 02954 EXPL	CUB	ED	Shallow	3	1	4	20	23S	31E	613114	3572906*	3302	06/25/2003	07/29/2003	08/07/2003	905		BROCKMAN, BERNARD J.	1184
C 02783	CUB	ED	Shallow	3	3	1	04	24S	31E	613911	3568461	3619		12/31/1979	10/18/2010	708		SANDIA NATIONAL LABS/USGS	
C 02783 POD2	CUB	ED	Shallow	3	3	1	04	24S	31E	613911	3568461	3619	09/09/2010	09/29/2010	10/18/2010	672		BRUNSON, WILLIAM	331
C 02784	C	ED	Shallow	4	2	4	04	24S	31E	613911	3568461	3619	10/06/2010	10/08/2010	10/18/2010	584		BRUNSON, WILLIAM	331
C 02460	C	ED	Shallow			3	02	24S	31E	617496	3568022*	3662	08/21/1995	08/21/1995	09/07/1995	320		GLENN, CLARK A."CORKY" (LD)	421
C 02460 POD2	C	ED	Shallow			3	02	24S	31E	617496	3568022*	3662	08/25/1995	08/25/1995	09/07/1995	320		GLENN, CLARK A."CORKY" (LD)	421
C 03749 POD1	CUB	ED	Shallow		2	2	15	23S	31E	616974	3575662	4376	07/10/2014	08/06/2014	09/11/2014	865	639	RANDY STEWART	331
C 02440	C	ED			2	3	10	24S	31E	616103	3566599*	4786	03/20/1995	03/21/1995	04/25/1995	350		COLLIS, ROBERT E. (LD)	1184

Record Count: 12

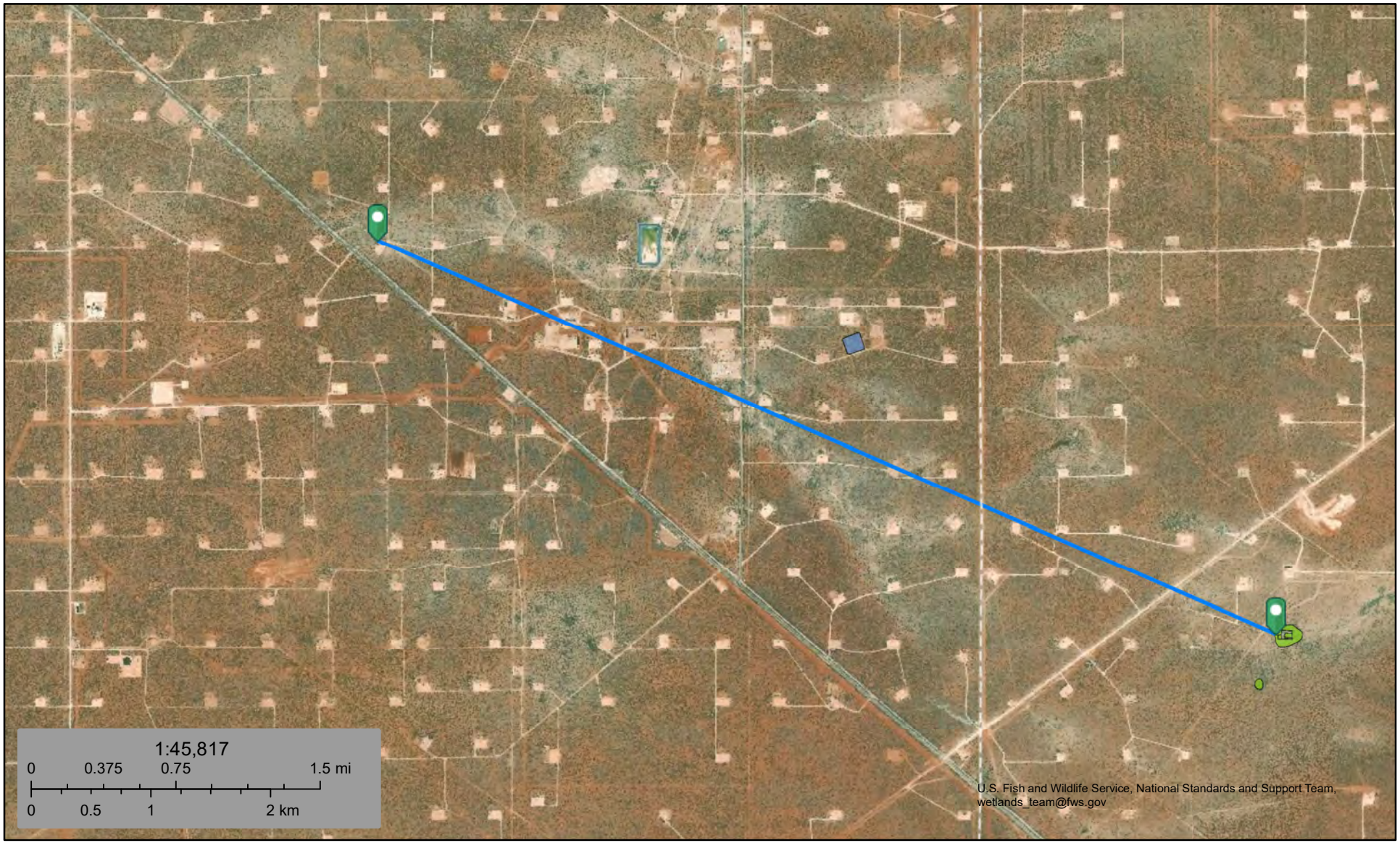
UTMNAD83 Radius Search (in meters):

Easting (X): 616045.31 **Northing (Y):** 3571384.85 **Radius:** 5000

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 27 K Fed 11: Wetland 22,758 ft



February 5, 2020

Wetlands

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

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ATTACHMENT 4

Natalie Gordon

From: Natalie Gordon
Sent: Monday, February 3, 2020 3:47 PM
To: Mike Bratcher (mike.bratcher@state.nm.us); Victoria Venegas (Victoria.Venegas@state.nm.us); Robert Hamlet (Robert.Hamlet@state.nm.us); blm_nm_cfo_spill@blm.gov; Wade , Kelsey; jamos@blm.gov
Cc: Dennis Williams (DWilliams@vertex.ca); Wesley. Mathews@dvn. com (Wesley.Mathews@dvn.com); Bynum, Tom (Contract)
Subject: Todd 27 K Federal #011 48-hr Liner Inspection Notification - Devon Energy

All:

Please accept this email as 48-hr notification that Vertex Resource Services Inc. has scheduled a liner inspection to be conducted at Todd 27 K Fed 11 for the release that occurred on November 2, 2019. No incident number has been assigned at this time.

On Thursday, February 6, 2020 at approximately 10:00 a.m., Austin Harris of Vertex will be onsite to perform the liner inspection. He can be reached at (432)250-5003. If you need directions to the site, please do not hesitate to contact him. If you have any questions regarding this notification, please call me at (505)506-0040.

Thank you,
Natalie

ATTACHMENT 5

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/7/2020
Site Location Name:	Todd 27 K Fed 11	Report Run Date:	2/7/2020 7:58 PM
Project Owner:	Tom Bynum	File (Project) #:	20E-00412
Project Manager:	Natalie Gordon	API #:	30-015-27913
Client Contact Name:	Amanda Davis	Reference	
Client Contact Phone #:	(575) 748-0176		

Summary of Times

Left Office	2/7/2020 7:15 AM
Arrived at Site	2/7/2020 8:12 AM
Departed Site	2/7/2020 8:36 AM
Returned to Office	2/7/2020 8:39 AM

Summary of Daily Operations

8:13 Arrive on site.
Complete safety paperwork.
Perform liner inspection.
Complete DFR.
Return to office.

Next Steps & Recommendations

1 Serious degradation on edges all around containment.
Some side paneling tears were degraded to large tears.

Daily Site Visit Report

Site Photos

Viewing Direction: North

NE corner.
Edge degradation.

Viewing Direction: North

North panel degradation

Viewing Direction: Northwest

NW corner tear

Viewing Direction: Northwest

NW corner panel tear

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: South
	
NW corner panel tears and edge degradation	West side of containment edge degradation
Viewing Direction: Southwest	**Viewing Direction**: South
	
SW corner	South panel tear

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: East
	
SE corner edge degradation	East panel edge degradation

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature: 

Signature

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	105 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- NA Field data
- NA 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
- NA Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- NA 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	
District RP	
Facility ID	
Application ID	

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

Printed Name: Wes Mathews . Title: EnvironmentalRepresentative

Signature: Wes Mathews Date: 3/13/2020

email: Wesley.mathews@dvn.com . Telephone: 575-746-5549 .

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

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.***

[X] 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)

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

[X] 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: Wes Mathews Title: Environmental Representative

Signature: Wes Mathews Date: 3/13/2020

email: wesley.mathews@dvn.com . Telephone: 575-746-5549 .

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: _____