July 17, 2019 Vertex Project #: 19E-00575-009

Spill Closure Report: Todd 23A Federal #029 (Section 23, Township 23 South, Range 31 East)
API: 30-015-31881
County: Eddy
Incident Report: 2RP-5401

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

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

Devon Energy retained Vertex Resource Services Inc. (Vertex) to conduct a Spill Assessment for a release of produced water and crude oil caused by equipment failure, which caused fluid to leak onto the well pad at Todd 23A Federal #029, API 30-015-31881, Incident 2RP-5401 (hereafter referred to as "site"). This letter provides a description of the Spill Assessment and includes a request for Spill Closure. The spill area is located at N 32.295166, W -103.7421951.

Background Information

The site is located approximately 40 miles southeast of Carlsbad, New Mexico. The legal location for the site is Section 23, Township 23 South and Range 31 East in Eddy County, New Mexico. The spill area is located on Bureau of Land Management (BLM) property. An aerial photograph and site schematic are included in Attachment 1.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2014 – 2017) indicates the site's surface geology is comprised primarily of Qep ---- Eolian and piedmont deposits (Holocene to middle Pleistocene), with interlayed eolian sand and piedmont deposits. Predominant soil texture on the site is fine sand.

Incident Description

A spill occurred on April 22, 2019, due to equipment failure. The stuffing box leaked, and the spill pot did not kill the well causing fluid to leak from the spill pot. Affected areas 65 feet x 10 feet x ½ inch and 30 feet x 12 feet x ¼ inch. All fluid stayed on-site. The spill was reported April 22, 2019 and involved the release of approximately 9.04 barrels (bbl) of produced water and 1.25 bbl of produced oil on the pad site. Approximately 6.50 bbl of free fluid was removed during initial spill clean-up. The New Mexico Oil Conservation Division (NMOCD) C-141 Report: 2RP-5401 is included in Attachment 2. The Daily Field Reports (DFRs) and site photographs are included in Attachment 3.

Closure Criteria Determination

The depth to groundwater was determined using information from Oil and Gas Drilling records and the New Mexico Office of the State Engineer Water Column/Average Depth to Water report. A 3,000-meter search radius was used to

determine groundwater depth. The closest recorded depth to groundwater was determined to be 430 feet below ground surface (bgs) and 8,133 feet from the site. Documentation used in Closure Criteria Determination research is included in Attachment 4.

Table 1. Closure Criteria Determination			
Site Name: Todd 23A Federal 29			
Spill Coordinates:		**X: 32.2952**	**Y: -103.7422**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**430**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	24078	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	9060	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	23981	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**	9482	feet
	ii) Within 1000 feet of any fresh water well or spring	58713	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	21070	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	500	year
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 2.

Table 2. Closure Criteria for Soils Impacted by a Release		
Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	**Constituent**	**Limit**
> 100 feet	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

Remedial Actions Taken

An initial site inspection of the spill area was completed on April 27, 2019, which identified the area of the spill specified in the initial C-141 Report, estimated the approximate volume of the spill and white lined the area required for the 811 One Call request. The impacted area was determined to be approximately 119 feet long and 139 feet wide; the total affected area was determined to be 6,741 square feet. The DFR associated with the site inspection is included in Attachment 3.

Remediation efforts began on May 18, 2019 and was completed on May 18, 2019. Vertex personnel supervised the excavation of impacted soils. Field screening was completed on a total of four (4) sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and Quantabs (chlorides). Field screening results were used to identify areas requiring further remediation from those areas showing concentrations below determined closure criteria levels. Soils were removed to a depth of 0.5 feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility (Attachment 5). Field screening results are presented in Attachment 6, as well as in the DFRs in Attachment 3.

Notification that confirmatory samples were being collected was provided to the NMOCD on June 11, 2019 and is included in Attachment 7. Confirmatory composite samples were collected from the base of the excavation in 200 square foot increments. A total of four (4) samples, were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Hall Environmental Analysis Laboratory under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), Total Petroleum Hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and Total Chlorides (EPA Method 300.0). Laboratory results are presented in Table 3, Attachment 6 and the laboratory data report can be found in Attachment 8. All confirmatory samples collected and analyzed were below closure criteria for the site.

Closure Request

The spill area was fully delineated, remediated and backfilled with local soils by June 28, 2019 (Attachment 7). Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the New Mexico Administrative Code (NMAC) Closure Criteria for Soils Impacted by a Release locations “greater than 100 feet to groundwater”. Based on these findings, Devon Energy requests that this spill be closed.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575.361.1137 or dwilliams@vertex.ca.

Sincerely,

Dennis Williams
ENVIRONMENTAL EARTHWORKS ADVISOR

Attachments

Attachment 1. Site Schematic
Attachment 2. NMOCD C-141 Report: 2RP-5401
Attachment 3. Daily Field Report(s) with Pictures
Attachment 4. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 5. Table 3 - Laboratory Results Table
Attachment 6. Confirmatory Samples Notification to the NMOCD
Attachment 7. Laboratory Data Reports and COCs

References

Water Column/Average Depth to Water Report. New Mexico Water Rights Reporting System, (2019). Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

Assessed and Impaired Waters of New Mexico. New Mexico Department of Surface Water Quality Bureau, (2019). Retrieved from https://gis.web.env.nm.gov/oem/?map=swqb

Interactive Geologic Map. New Mexico Bureau of Geology and Mineral Resources, (2019). Retrieved from http://geoinfo.nmt.edu

Measured Distance from the Subject Site to Residence. Google Earth Pro, (2019). Retrieved from https://earth.google.com

Point of Diversion Location Report. New Mexico Water Rights Reporting System, (2019). Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html

Measured Distance from the Subject Site to Municipal Boundaries. Google Earth Pro, (2019). Retrieved from https://earth.google.com

National Wetland Inventory Surface Waters and Wetland. United State Fish and Wildlife Service, (2019). Retrieved from https://www.fws.gov/wetlands/data/mapper.html

Coal Mine Resources in New Mexico. NM Mining and Minerals Division, (2019). Retrieved from http://www.emnrd.state.nm.us/MMD/gismapminedata.html

New Mexico Cave/Karsts. United States Department of the Interior, Bureau of Land Management, (2019) Retrieved from https://www.blm.gov/programs/recreation/recreation-programs/caves/new-mexico

Flood Map Number 35015C1875D. United States Department of Homeland Security, FEMA Flood Map Service Center, (2010). Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

Well Log/Meter Information Report. NM Office of the State Engineer, New Mexico Water Rights Reporting System. (2019). Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.html

Natural Resources and Wildlife Oil and Gas Releases. New Mexico Oil Conservation Division, (2019). Santa Fe, New Mexico.

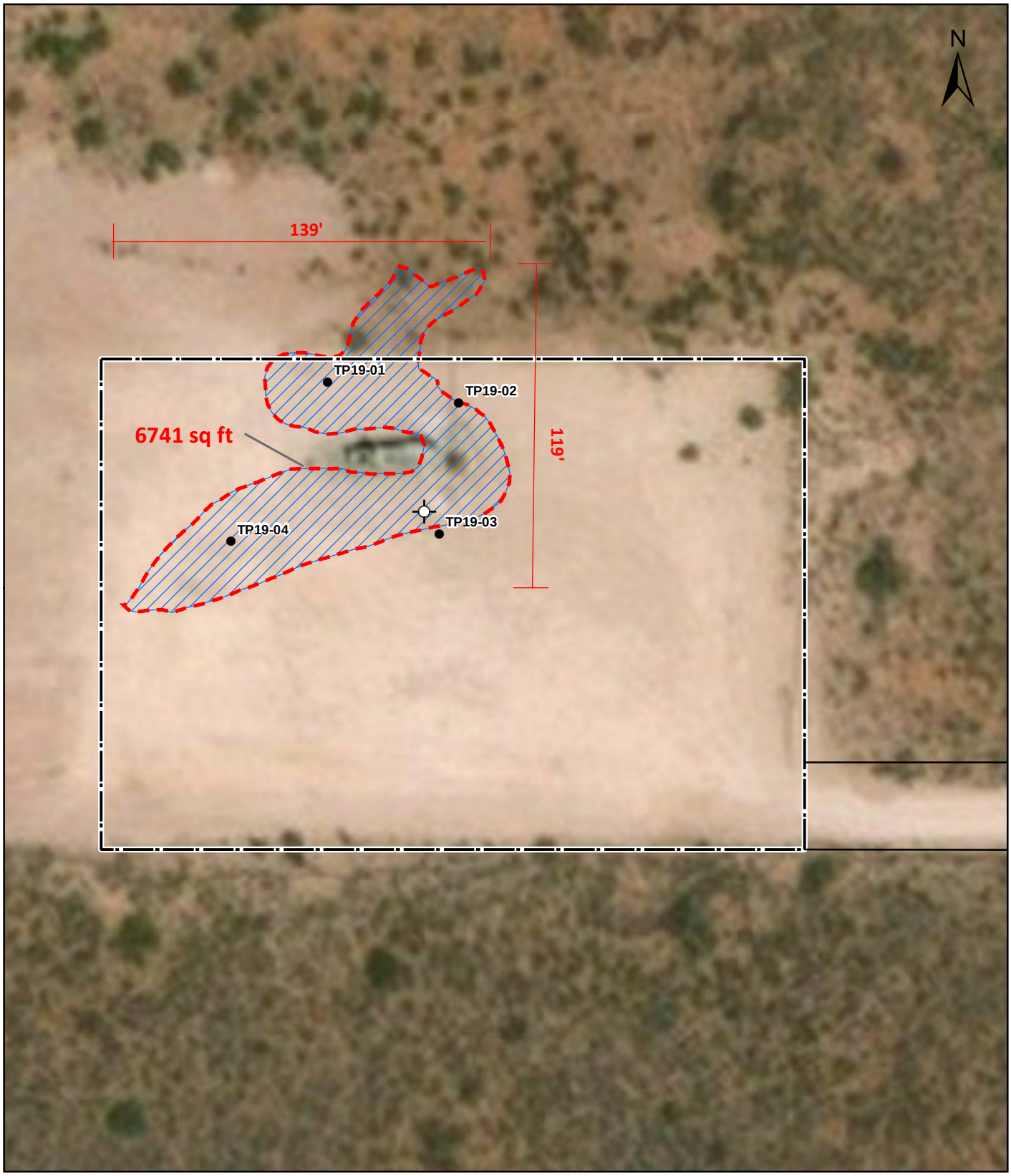
Soil Survey, New Mexico. United States Department of Agriculture, Soil Conservation Service in Cooperation with New Mexico Agricultural Experiment Station. (1971). Retrieved from http://www.wipp.energy.gov/library/Information_Repository_A/Supplemental_Information/Chugg%20et%20al%201971%20w-map.pdf

Limitations

This report has been prepared for the sole benefit of Devon Energy. 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 Energy. 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



LEGEND

- CONFIRMATORY SAMPLE
- WELLHEAD
- ROAD
- WELL PAD
- SPILL AREA
- 1.0' EXCAVATED DEPTH AREA

0 12.5 25 50 Ft

SCALE 1:600

Notes: Aerial Image from ESRI Digital Globe 2016

devon

Site Schematic Excavation Todd 23 A Federal 29 (Wellhead Spill)

VERTEX

DRAWN:	NM
APPROVED:	RF
DATE:	JUL 03/19

FIGURE: 2

VERSATILITY. EXPERTISE.

Document Path: C:\Users\nmocny\Documents\Natasha Mocny\Projects\Deven Energy\Todd 23 A Federal 29 (19E-00575)\Todd 23 Federal 29 (Wellhead Spill)\Figure 2-Todd 23 A Federal 29 (Wellhead Spill) Excavation.mxd

ATTACHMENT 2

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	NAB1913037162
District RP	2RP-5401
Facility ID	
Application ID	pAB1913036896

Release Notification

Responsible Party

Responsible Party Devon Energy Production Company	OGRID 6137
Contact Name Amanda T. Davis	Contact Telephone 575-748-0176
Contact email amanda.davis@dvn.com	Incident # *(assigned by OCD)* NAB1913037162
Contact mailing address 6488 Seven Rivers HWY	

Location of Release Source

Latitude 32.295166 Longitude -103.7421951
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Todd 23A Federal #029	Site Type Oil
Date Release Discovered 4/22/2019	API# *(if applicable)* 30-015-31881

Unit Letter	Section	Township	Range	County
A	23	23S	31E	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) 1.25	Volume Recovered (bbls) .25
■ Produced Water	Volume Released (bbls) 9.04	Volume Recovered (bbls) 6.25
	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: The stuffing box leaked and the spill pot did not kill the well, causing the fluid to leak from the spill pot. Affected areas 65'x10'x1/2" and 30'x12'x1/4". All fluid stayed on location.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913037162
District RP	2RP-5401
Facility ID	
Application ID	pAB1913036896

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:

The spill was not in containment.

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: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 4/23/2019

email: kendra.dehoyos@dvn.com Telephone: 575-748-3371

OCD Only

Received by: Amelia Barrameda Date: 5/10/2019

ATTACHMENT 3

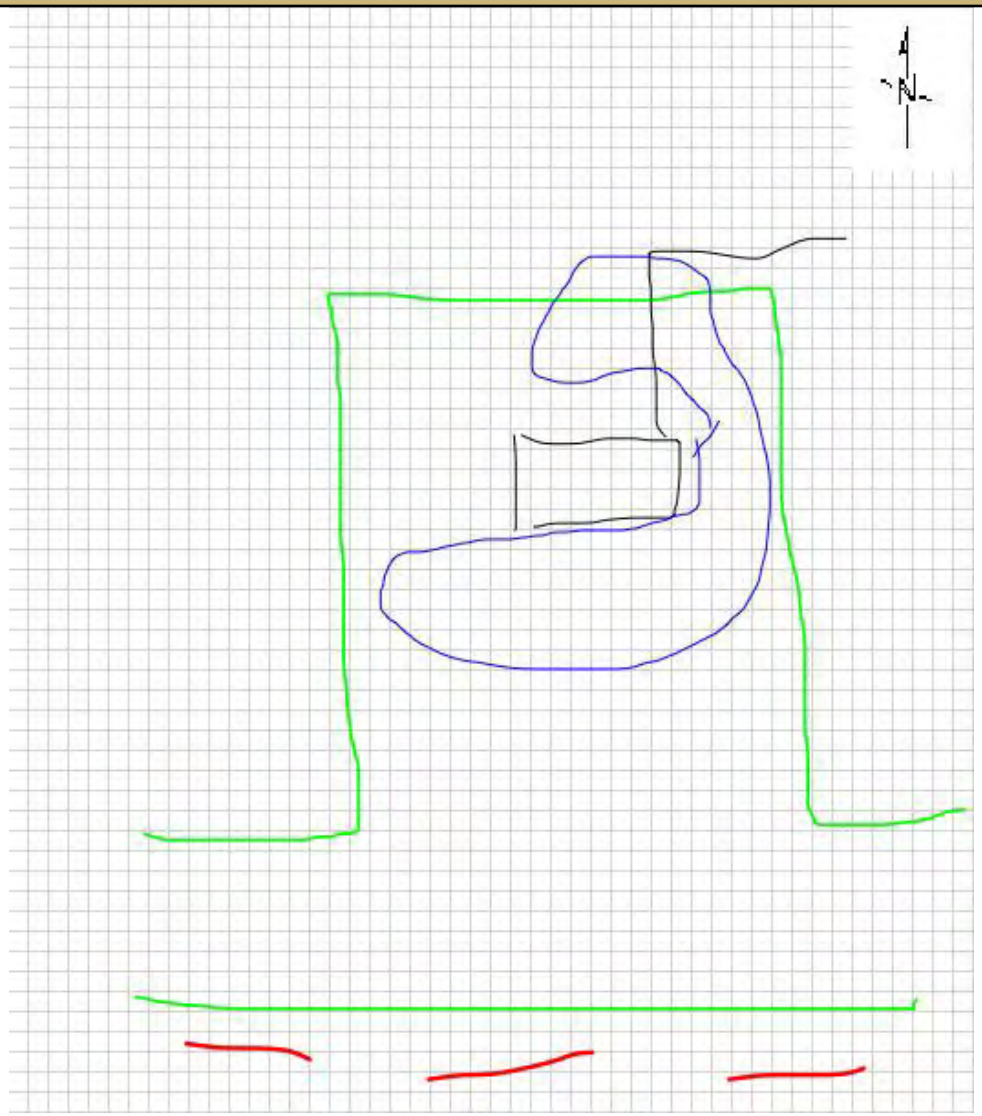
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	4/27/2019
Site Location Name:	Todd 23 A federal #029	Report Run Date:	4/27/2019 7:09 PM
Project Owner:	Amanda Davis	File (Project) #:	19E-00575
Project Manager:	Dennis Williams	API #:	30-015-31881
Client Contact Name:	Amanda Davis	Reference	Stuffing Box
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	4/27/2019 7:40 AM
Arrived at Site	4/27/2019 8:30 AM
Departed Site	4/27/2019 9:34 AM
Returned to Office	4/27/2019 9:34 AM

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

8:55 Arrive onsite and complete safety paperwork and arrival form.

8:55 Inspect site, GPS spill area and take pictures.

Next Steps & Recommendations

1 Create work plan.

2 Line up site clean up and sampling events

3 Send confirmation samples to Laboratory

Daily Site Visit Report

Site Photos

Viewing Direction: West

Overview of spill area

Viewing Direction: Northeast

Overview of spill area

Viewing Direction: Northeast

Overview of spill area off lease

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Robyn Fisher

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	4/29/2019
Site Location Name:	Todd 23 A federal #029	Report Run Date:	4/30/2019 2:18 AM
Project Owner:	Amanda Davis	File (Project) #:	19E-00575
Project Manager:	Dennis Williams	API #:	30-015-31881
Client Contact Name:	Amanda Davis	Reference	Stuffing Box
Client Contact Phone #:	(575) 748-0176		

Summary of Times

Left Office	4/29/2019 12:15 PM
Arrived at Site	4/29/2019 1:05 PM
Departed Site	4/29/2019 1:54 PM
Returned to Office	4/29/2019 1:57 PM

Summary of Daily Operations

13:43 Arrive on site and complete safety paperwork and arrival forms and safety meeting.

13:44 Talk with Devon One Call about how they want their sites located.

13:46 Mark site with Wescom

Next Steps & Recommendations

1 Get one calls resubmitted

Daily Site Visit Report

Site Photos

Viewing Direction: West	**Viewing Direction**: North
	
New lines marked on location	Soil pile area marked

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Robyn Fisher

Signature: 

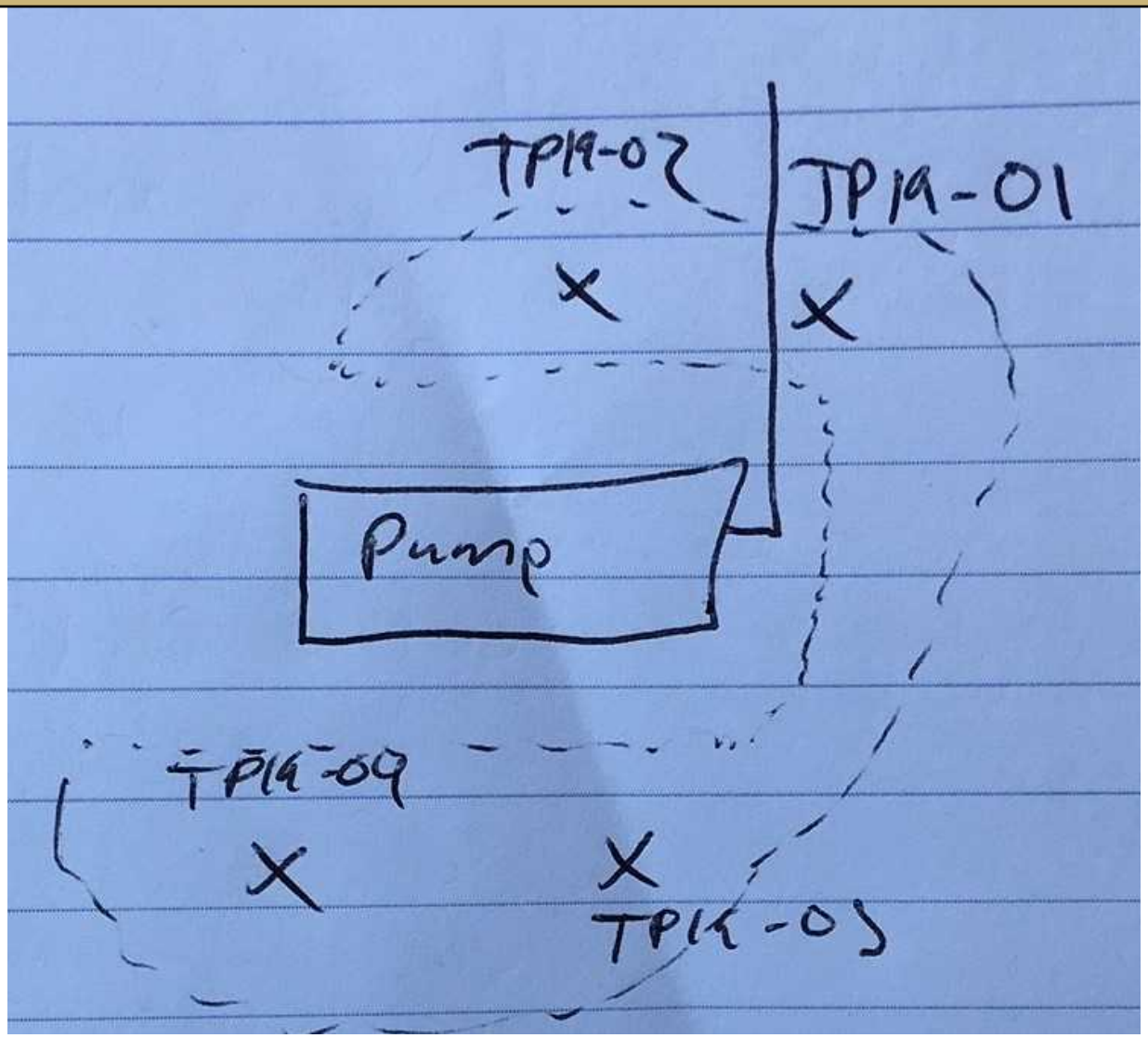
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/18/2019
Site Location Name:	Todd 23 A Federal #029	Report Run Date:	6/25/2019 4:15 PM
Project Owner:	Amanda Davis	File (Project) #:	19E-00575
Project Manager:	Dennis Williams	API #:	30-015-31881
Client Contact Name:	Amanda Davis	Reference	Stuffing Box
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	5/18/2019 7:00 AM
Arrived at Site	5/18/2019 8:00 AM
Departed Site	5/18/2019 5:59 PM
Returned to Office	5/18/2019 6:42 PM

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

8:26 Fill out arrival and safety forms
Tailgate safety meeting
Begin excavation of spill area
Field screen
Take pictures
Fill out DFR
Fence off excavation
Return to office

Next Steps & Recommendations

1

Sampling

TP19-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	1.1 ppm	138 ppm	Low (30-600 ppm)	309 ppm			,	Yes

TP19-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	1.6 ppm	318 ppm	High (300-6000ppm)	383 ppm			,	

Daily Site Visit Report

TP19-03

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0.4 ppm	46 ppm	Low (30-600 ppm)	274 ppm			,	

TP19-04

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0.9 ppm	43 ppm	Low (30-600 ppm)	274 ppm			,	

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: North
	
Spill area	Spill area
Viewing Direction: West	**Viewing Direction**: North
	
Excavation area	Excavation area

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: North
	
Fenced off excavation	Fenced off excavation

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

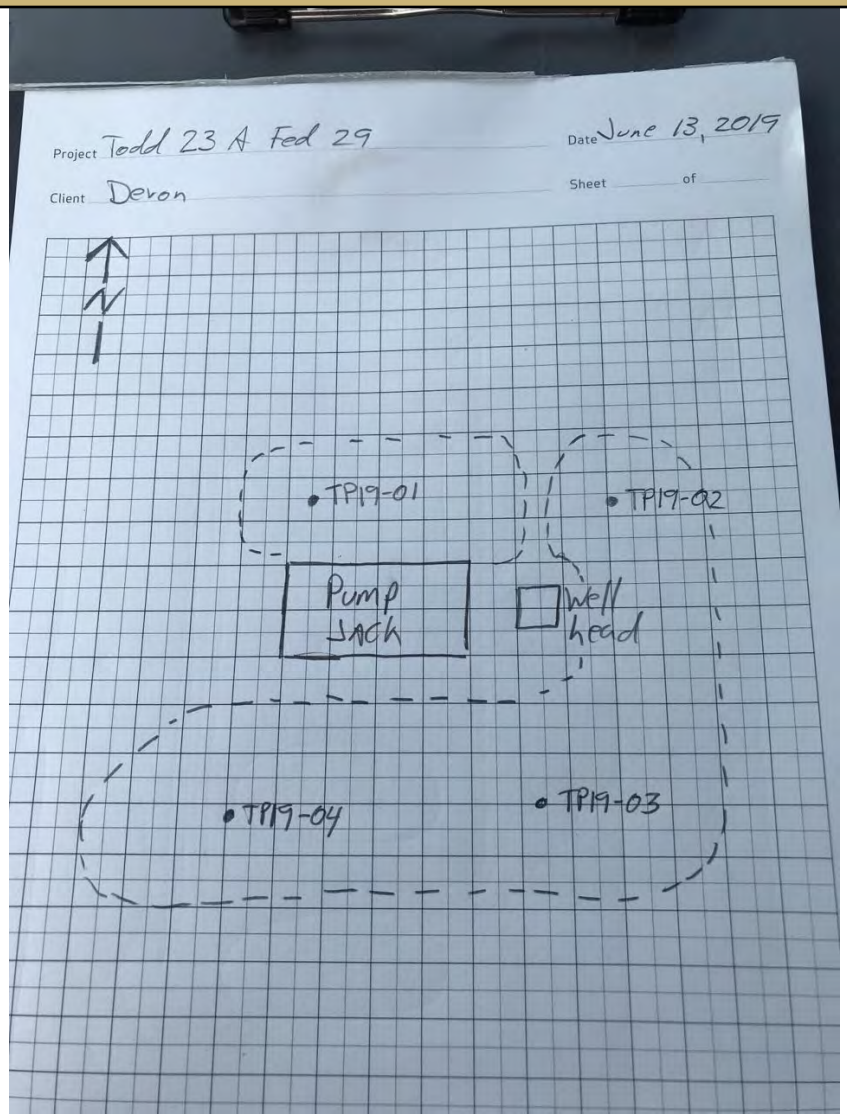
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/13/2019
Site Location Name:	Todd 23 A federal #029	Report Run Date:	6/13/2019 11:13 PM
Project Owner:	Amanda Davis	File (Project) #:	19E-00575
Project Manager:	Dennis Williams	API #:	30-015-31881
Client Contact Name:	Amanda Davis	Reference	Spill 2RP-5365
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	6/13/2019 12:15 PM
Arrived at Site	6/13/2019 12:30 PM
Departed Site	6/13/2019 4:00 PM
Returned to Office	6/13/2019 4:53 PM

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

12:53 Arrive on site.
Complete safety paperwork.
Field screen and take confirmatory samples.
Complete DFR.
Return to office.

Next Steps & Recommendations

1 Send confirmatory samples for lab analysis

2 Confirm lab samples

3 Schedule backfill and spoil pile removal

Sampling

TP19-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0.8 ppm	89 ppm	Low (30-600 ppm)	29 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.29533098, -103.74231225	Yes

TP19-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	1 ppm	105 ppm	Low (30-600 ppm)	0 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.29530842, -103.74215777	Yes

Daily Site Visit Report

TP19-03

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0.8 ppm	955 ppm	Low (30-600 ppm)	0 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.29517756, -103.74218264	Yes

TP19-04

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0.5 ft.	0.2 ppm	64 ppm	Low (30-600 ppm)	0 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.29517271, -103.74242831	Yes

Daily Site Visit Report

Site Photos

Viewing Direction: East	**Viewing Direction**: East
	
Excavated area	Excavated area
Viewing Direction: East	**Viewing Direction**: East
	
Excavated area	Excavated area

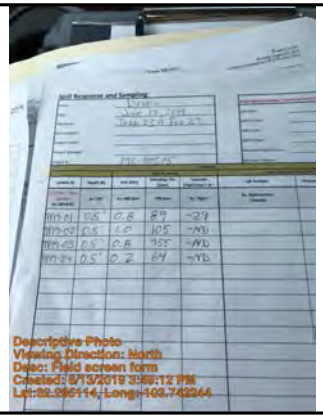
Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: South
	
Excavated area	Excavated area near well head
Viewing Direction: North	**Viewing Direction**: West
	
Excavated area near wellhead	Excavated area

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: Southeast
	
Spoil	Spoil
Viewing Direction: West	**Viewing Direction**: Northwest
	
Spoil	Spoil

Daily Site Visit Report

Viewing Direction: Northeast	**Viewing Direction**: North
	
Spoil	Field screen form

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: TP19-01

Depth: 0.5ft.

Sample Point ID: TP19-02

Depth: 0.5ft.

Sample Point ID: TP19-03

Depth: 0.5ft.

Sample Point ID: TP19-04

Depth: 0.5ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature: 
Signature

ATTACHMENT 4

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 02258	C	ED		3	2	26	23S	31E	618055	3571853*	2033	662		
C 02777	CUB	ED	4	4	4	10	23S	31E	616974	3575662	2321	890		
C 03749 POD1	CUB	LE	3	4	4	07	23S	32E	616974	3575662	2321	865	639	226
C 02348	C	ED	1	4	3	26	23S	31E	617648	3571068	2890	700	430	270

Average Depth to Water: **534 feet**

Minimum Depth: **430 feet**

Maximum Depth: **639 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 618427.8 **Northing (Y):** 3573851.7 **Radius:** 3000

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

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 02258	C	PRO	0	DEVON ENERGY CORP.(NEVADA)	ED	C 02258					3 2	26	23S	31E	618055	3571853*	2033
C 02777	CUB	MON	0	US DEPT OF ENERGY WIPP	ED	C 02777					4 4 4	10	23S	31E	616973	3575662	2321
C 03749	CUB	MON	0	US DEPARTMENT OF ENERGY	LE	C 03749 POD1				Shallow	3 4 4	07	23S	32E	616973	3575662	2321
C 02348	C	STK	3	NGL WATER SOLUTIONS PERMIAN	ED	C 02348				Shallow	1 4 3	26	23S	31E	617647	3571068	2890

Record Count: 4

UTMNAD83 Radius Search (in meters):

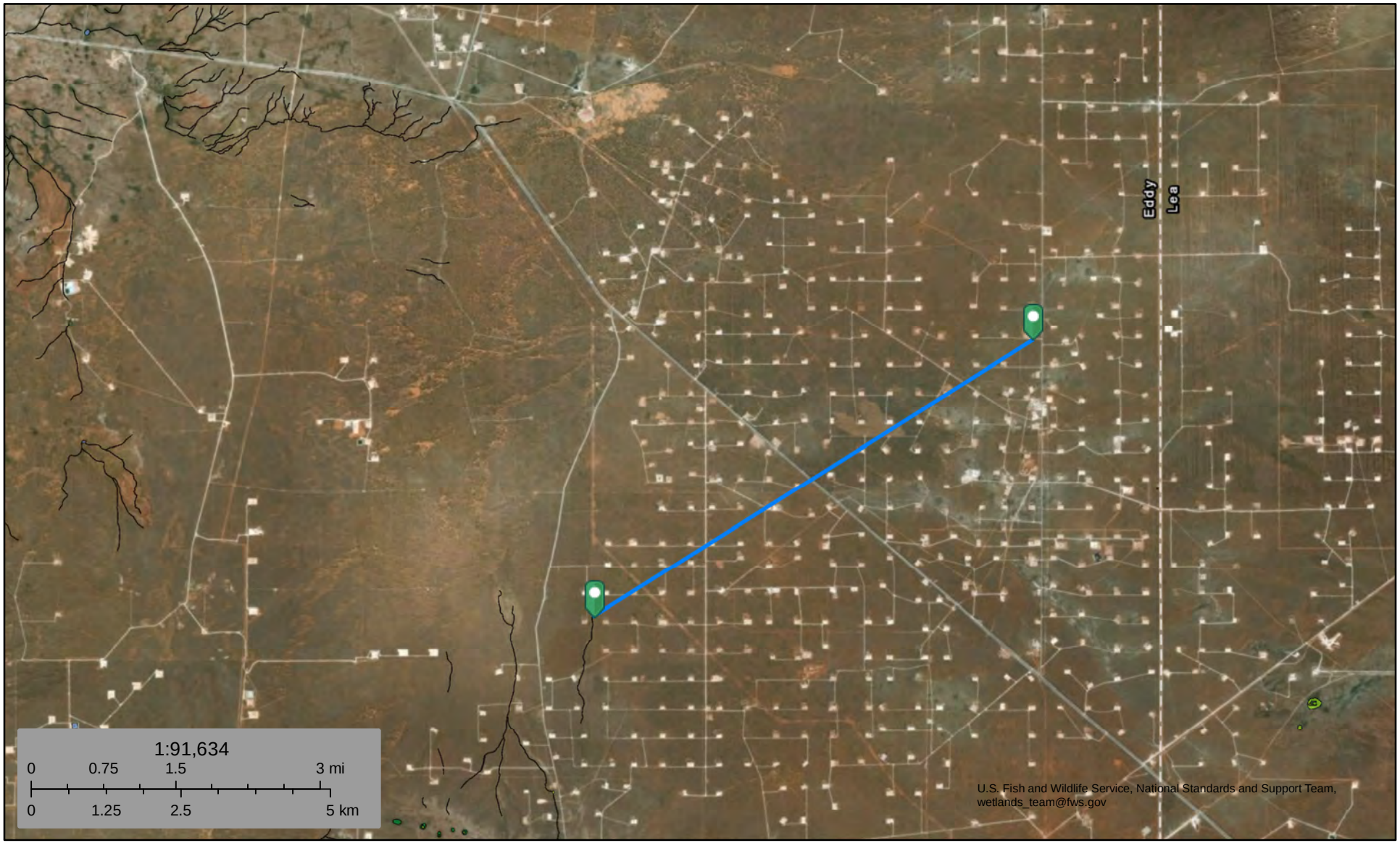
Easting (X): 618427.8 **Northing (Y):** 3573851.7 **Radius:** 3000

Sorted by: Distance

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 23 A Federal 29 Riverine 24078 ft



April 28, 2019

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.

Help Using this Too

Legend | Basemap | Query

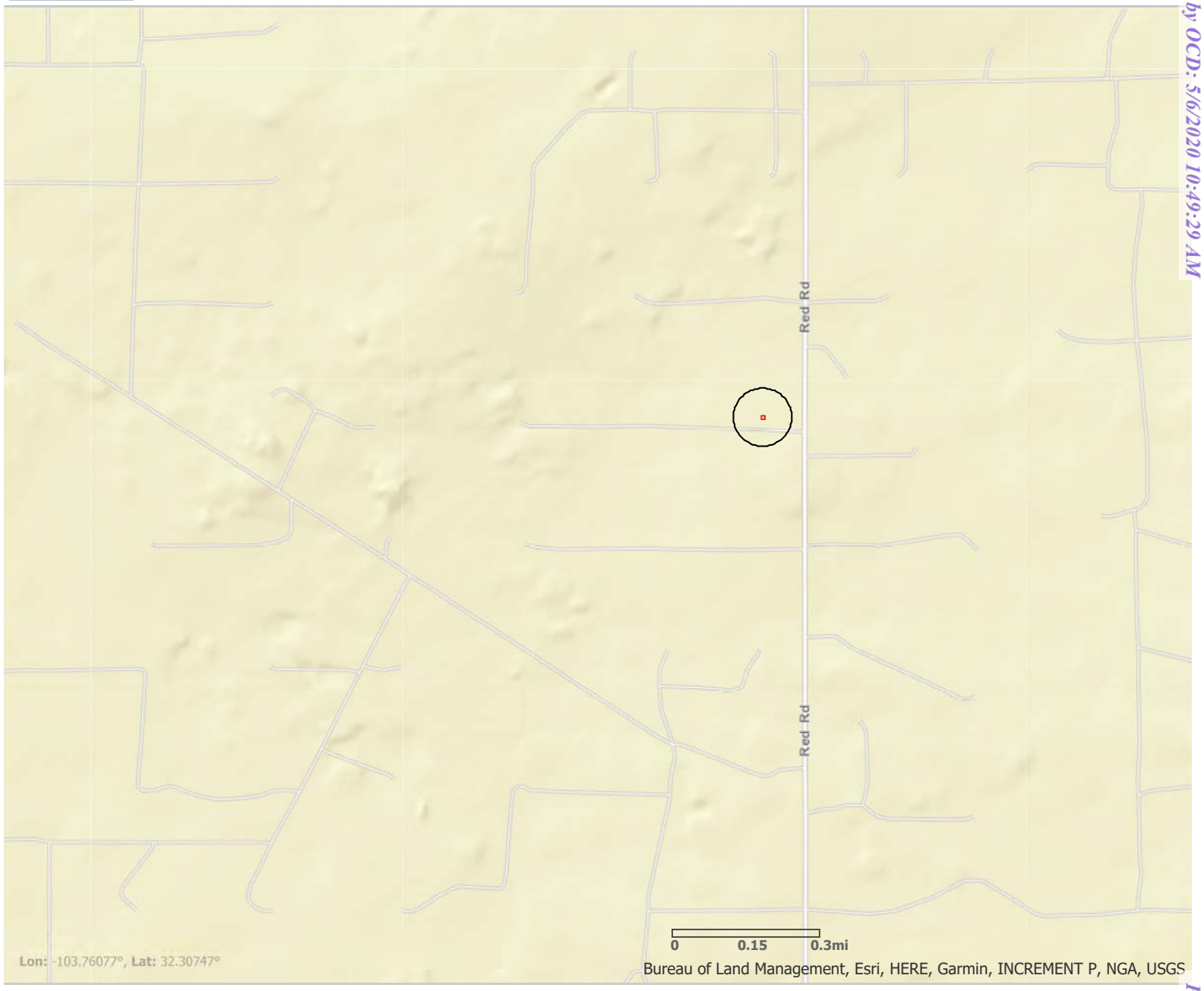
1:18,056

Legend

All Layers On/Off

All Layer Transparency

- Roads
- Counties
- Air Emissions
- Air Facilities
- APS Food Facilities
- Dairies
- Brownfields
- Ground Water Discharge Permits
- State Cleanup Program
- Voluntary Remediation Program
- Superfund Sites
- Drinking Water Sources
- Hazardous Waste Facilities
- Landfills
- Petroleum Storage Tanks
- Leaking Tank Sites
- NPDES Permits
- Water Quality Stations
- Nonpoint Source Program
- Impaired Waters
- Assessed Waters
- National Hydrography Dataset
- Watershed Boundary Dataset
- Aquifer Sensitivity
- National Land Cover Database
- USGS Stream Gages
- Legislative Boundaries
- Places
- Colonias
- Tribal Lands



U.S. Fish and Wildlife Service
National Wetlands Inventory

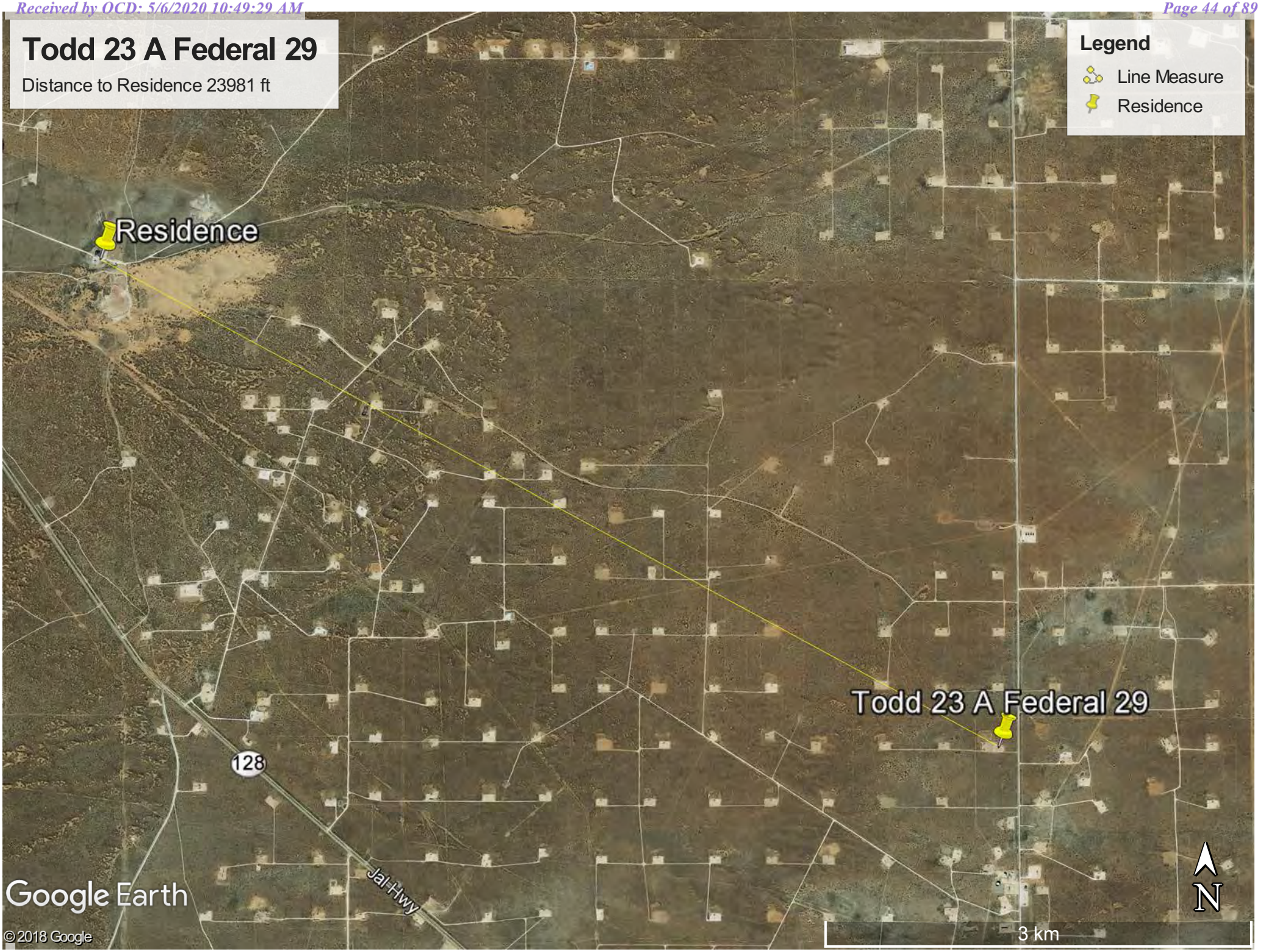
Todd 23 A Federal 29 Lake/ Pond 9060 ft

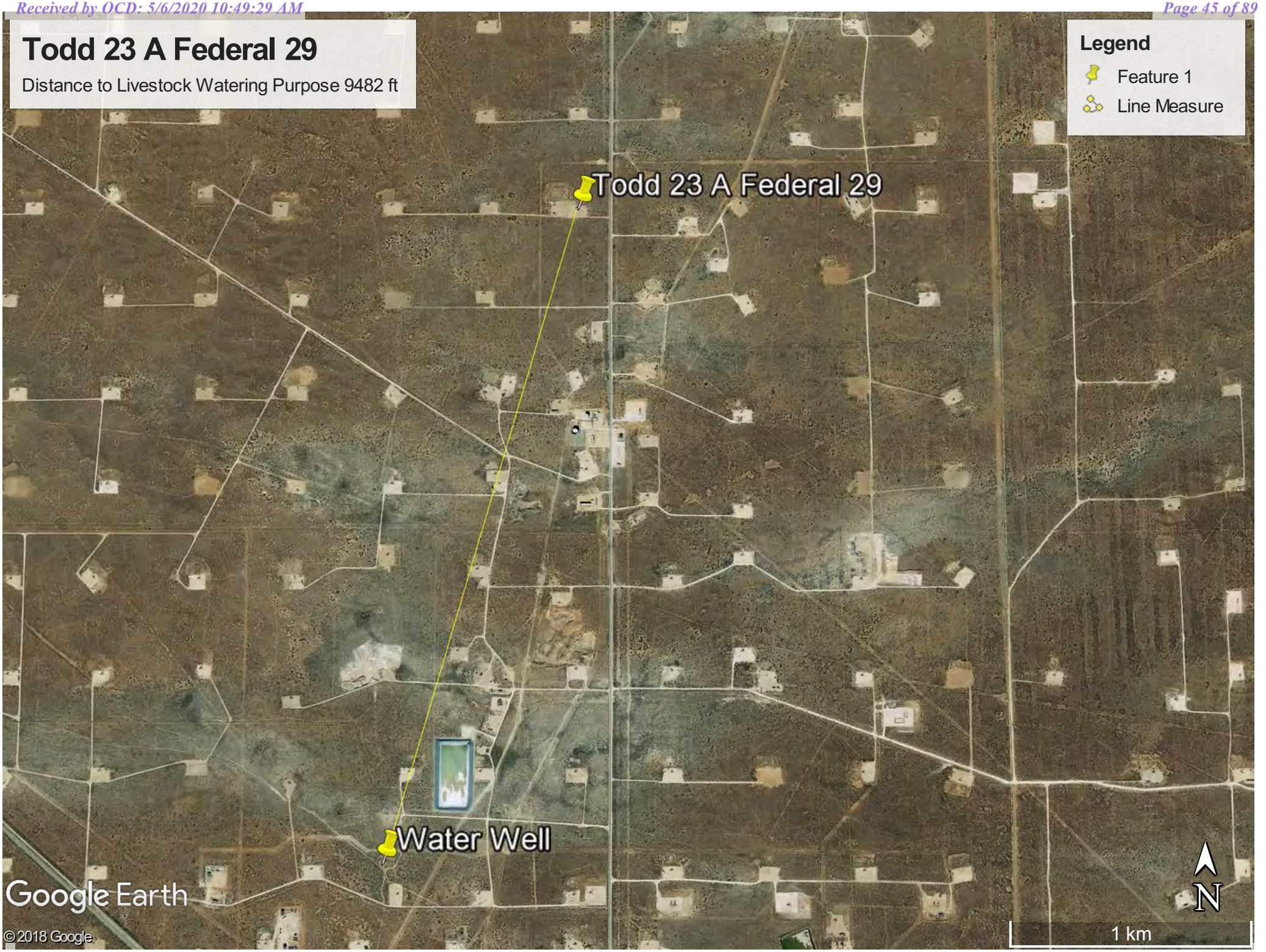
April 28, 2019

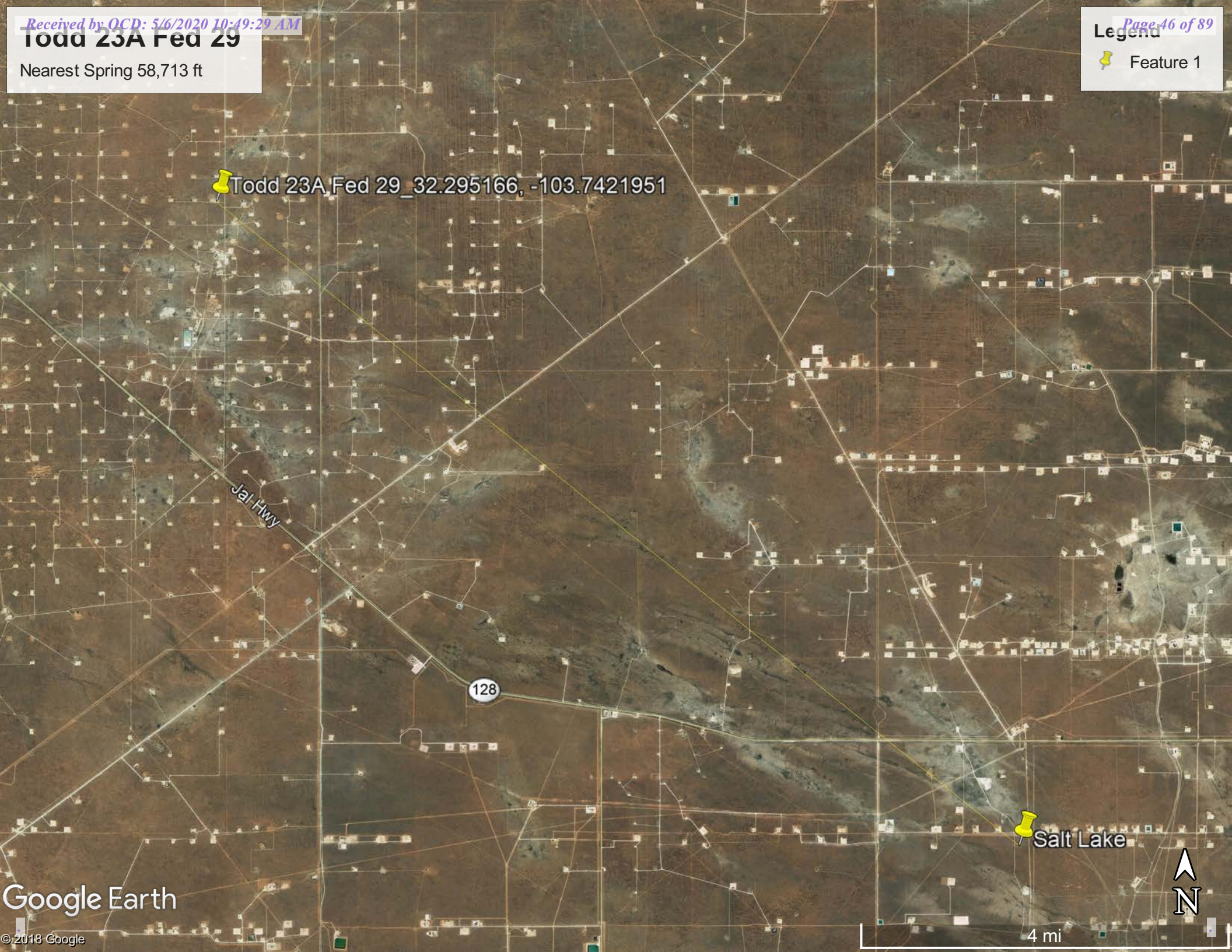
Wetlands

- 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 23 A Federal 29
Distance to Residence 23981 ft
Legend
Line Measure
Residence
Residence
Todd 23 A Federal 29
128
Jal Hwy
Google Earth
© 2018 Google
N
3 km


Todd 23 A Federal 29
Distance to Livestock Watering Purpose 9482 ft
Legend
Feature 1
Line Measure
Todd 23 A Federal 29
Water Well
Google Earth
© 2018 Google
N
1 km


Todd 23A Fed 29
Nearest Spring 58,713 ft
Legend
Feature 1
Todd 23A Fed 29_32.295166, -103.7421951
Jal Hwy
128
Salt Lake
N
4 mi
Google Earth
© 2018 Google

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	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 02258	C	ED		3	2		26	23S	31E	618055	3571853*	2033	09/18/1992	09/18/1992	09/25/1992	662		CORKY GLENN	421
C 03749 POD1	CUB	LE	Shallow	3	4	4	07	23S	32E	616974	3575662	2321	07/10/2014	08/06/2014	09/11/2014	865	639	RANDY STEWART	331
C 02348	C	ED	Shallow	1	4	3	26	23S	31E	617648	3571068	2890	10/31/2013	11/01/2013	11/07/2013	700	430	JOHN SIRMAN	1654

Record Count: 3

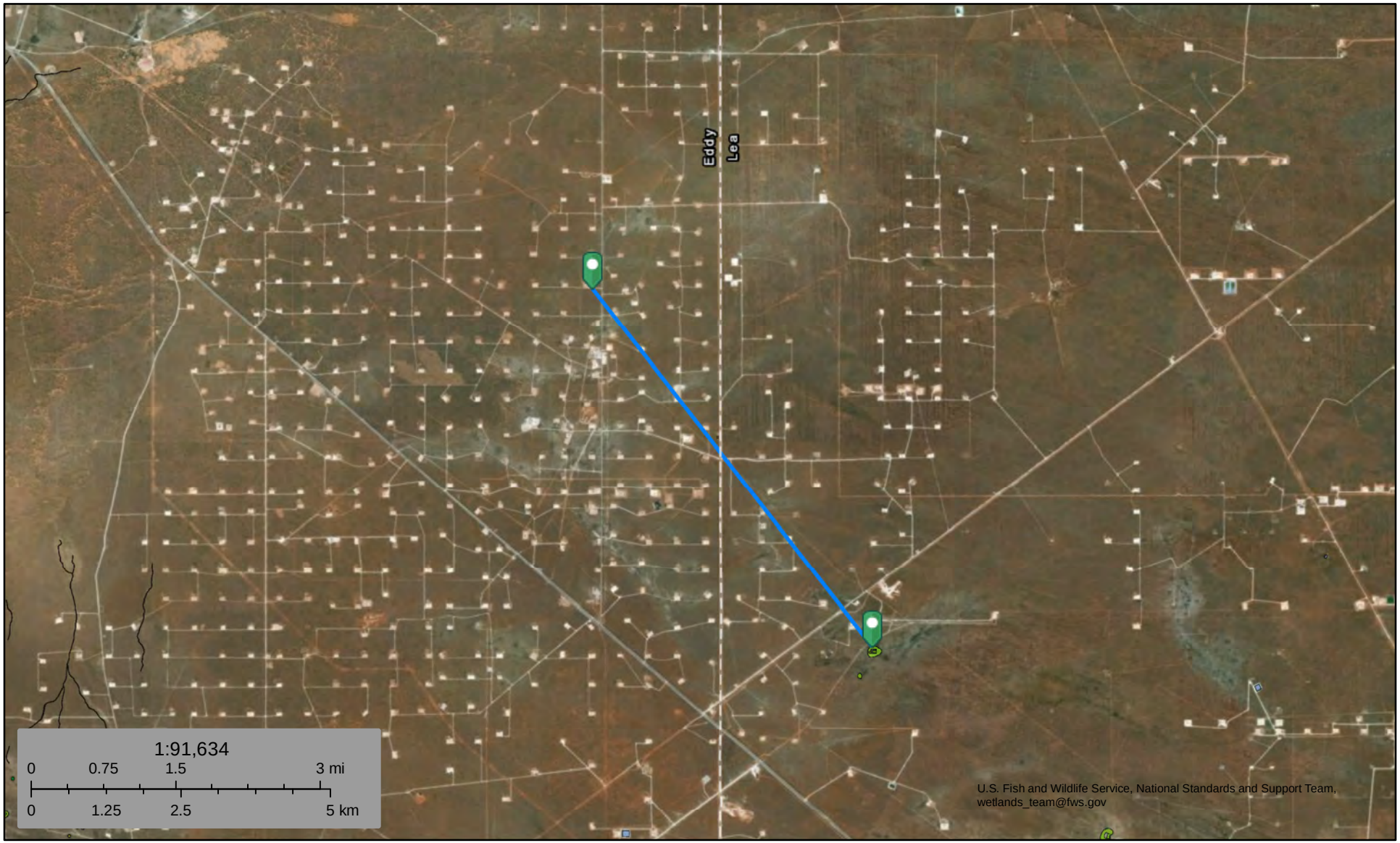
UTMNAD83 Radius Search (in meters):

Easting (X): 618427.8 **Northing (Y):** 3573851.7 **Radius:** 3000

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 23 A Federal 29 Wetland 21070 ft



April 28, 2019

Wetlands

- Estuarine and Marine Deepwater
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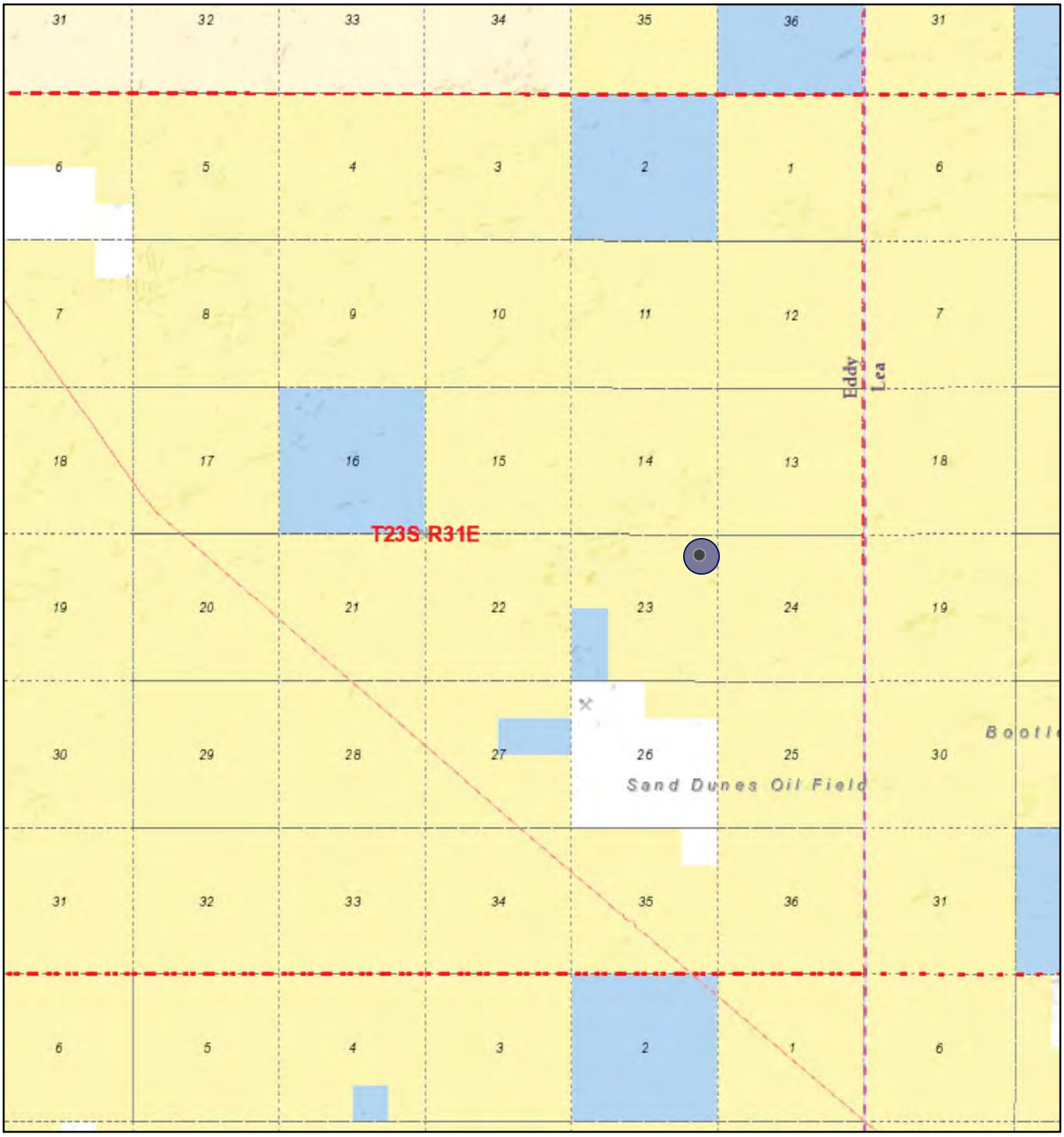
Active Mines in New Mexico



6/25/2019 9:47:45 AM

1:72,224

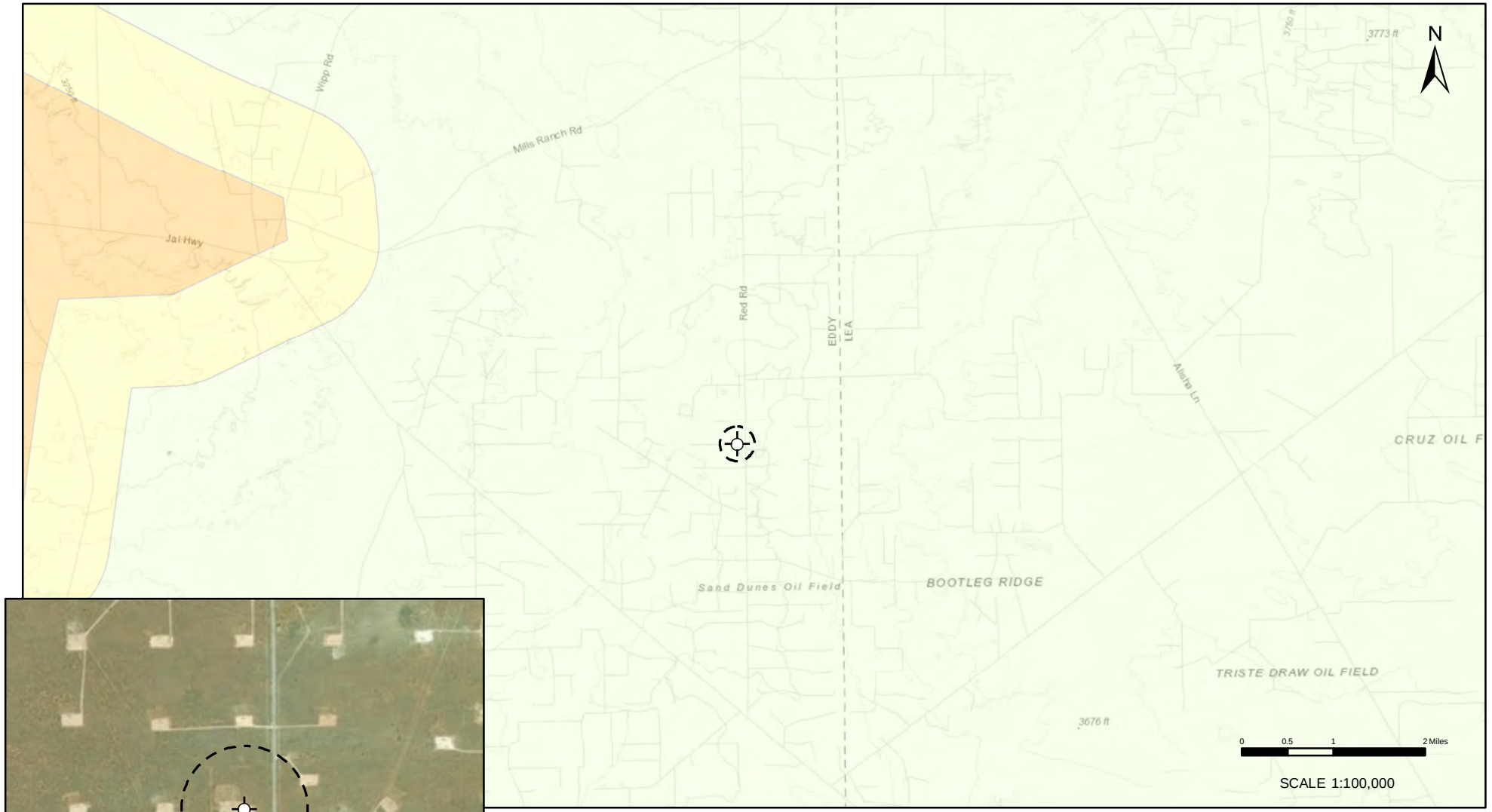
0 0.5 1 2 mi

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



LEGEND

SITE

1000FT BUFFER

KARST POTENTIAL

CRITICAL

HIGH

MEDIUM

LOW

Notes: Aerial Image from ESRI Digital Globe 2017

devon

Karst Potential
Todd 23 Federal 29
(Wellhead Spill)

VERTEX

DRAWN:	NM
APPROVED:	RF
DATE:	APR 29/19

FIGURE: 1

VERSATILITY. EXPERTISE.

National Flood Hazard Layer FIRMette

FEMA

32°17'57.93"N

103°44'50.65"W

103°41'13.19"W

32°17'27.51"N

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

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 4/28/2019 at 11:33:56 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Eddy Area, New Mexico

April 28, 2019

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 14, Sep 12, 2018

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	1.7	100.0%
Totals for Area of Interest		**1.7**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Eddy Area, New Mexico

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

Map Unit Setting

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

Map Unit Composition

Berino and similar soils: 60 percent
Pajarito and similar soils: 25 percent
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, dunes, plains
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:
Ecological site: Sandy (R042XC004NM)
Hydric soil rating: No

Pajarito

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

Wink

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

Kermit

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

Custom Soil Resource Report

References

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ATTACHMENT 5

Table 3. Soil Characterization - Salinity and Petroleum Hydrocarbon Parameters
Client Name: Devon Energy
Site Name: Todd 23A Fed 29 2RP-5401
Project #: 19-00575-009
Lab Report(s): Confirmatory Samples

Table 3. Soil Analysis - June 13, 2019

Sample Description			Field Screening			Petroleum Hydrocarbons												Inorganic
						Volatile							Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFla	Quantab Result (High/Low)	Benzene	Toluene	Ethylbenzene	Xylenes (o&m)	Xylenes (p)	Xylenes (Total)	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
TP19-01	**0.5**	6/13/2019	0.8	89	29	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND
TP19-02	**0.5**	6/13/2019	1	105	0	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND
TP19-03	**0.5**	6/13/2019	0.8	955	0	ND	ND	ND			ND	ND	ND	53	120	53	173	ND
TP19-04	**0.5**	6/13/2019	0.2	64	0	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND

ATTACHMENT 6

Kathlene Meadows

From: Dennis Williams
Sent: June 24, 2019 3:45 PM
To: Kathlene Meadows
Cc: Dhugal Hanton
Subject: FW: Devon Energy Todd 23 A Fed 34 No RP Number Assigned - Correction Devon Energy - Todd 23A Fed 29 - 2RP-5401 & 2RP-5365
Attachments: 2RP-5401 C-141.pdf

From: Dhugal Hanton <DHanton@vertex.ca>
Sent: June 12, 2019 11:26 AM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Dennis Williams <DWilliams@vertex.ca>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Cc: Davis, Amanda <amanda.davis@dvn.com>; Bynum, Tom (Contract) <Tom.Bynum@dvn.com>; Austin Harris <aharris@vertex.ca>
Subject: RE: Devon Energy Todd 23 A Fed 34 No RP Number Assigned - Correction Devon Energy - Todd 23A Fed 29 - 2RP-5401 & 2RP-5365

Good Morning,

Dennis is travelling and unable to respond. There was an error in the location name and RP Number. The correct information is:

Devon Energy

Todd 23A Fed 29

API: 30-015-31881

District RP: 2RP-5401 & 2RP-5365

Cheers,

Dhugal

Dhugal Hanton B.Sc., P.Ag., SR/WA, P.Biol.
Vice President,
US Operations

Vertex Resource Services Inc.
7223 Empire Central Drive,
Houston, TX
77040

O 832-535-1585 Ext. 700
C 832-588-0674

From: Bratcher, Mike, EMNRD [mailto:mike.bratcher@state.nm.us]
Sent: June 12, 2019 11:40 AM

To: Dennis Williams <DWilliams@vertex.ca>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Cc: Davis, Amanda <amanda.davis@dvn.com>; Bynum, Tom (Contract) <Tom.Bynum@dvn.com>; Dhugal Hanton <DHanton@vertex.ca>; Austin Harris <aharris@vertex.ca>
Subject: RE: Devon Energy Todd 23 A Fed 34 No RP Number Assigned

Do you have an API number for this well? There should be an RP number assigned if we got a C-141.

Thanks,

Mike Bratcher
NMOCD District 2
811 South First Street
Artesia, NM 88210
575-748-1283 Ext 108

From: Dennis Williams <DWilliams@vertex.ca>
Sent: Tuesday, June 11, 2019 3:00 PM
To: Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>; Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>; Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>
Cc: Davis, Amanda <amanda.davis@dvn.com>; Bynum, Tom (Contract) <Tom.Bynum@dvn.com>; Dhugal Hanton <DHanton@vertex.ca>; Austin Harris <aharris@vertex.ca>
Subject: Devon Energy Todd 23 A Fed 34 No RP Number Assigned

Afternoon All,

Please accept this email as 48hr notification that Vertex Resource Services Inc. has scheduled final confirmatory sampling at the above named location on June 13th 2019 at 3:00 pm. Austin Harris from Vertex will be on site performing the sampling and can be reached at (432)-250-5003 If you need assistance with directions to site please do not hesitate to contact them.

If you have any other questions or concerns, please do not hesitate to contact me.

Dennis WIlliams

Dennis Williams
Environmental Earthworks Advisor

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

P 575.645.3111 Ext. 701
C 575.361.1137
F

www.vertex.ca

ATTACHMENT 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 24, 2019

Dennis Williams

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 888210
TEL: (575) 748-0176
FAX

RE: Todd 23 A Fed 29 OrderNo.: 1906854

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 4 sample(s) on 6/15/2019 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1906854**
Date Reported: **6/24/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 23 A Fed 29
Lab ID: 1906854-001 **Matrix:** SOIL

Client Sample ID: TP19-01 0.5'
Collection Date: 6/13/2019 3:00:00 PM
Received Date: 6/15/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/19/2019 10:08:38 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/19/2019 10:08:38 PM
Surr: DNOP	109	70-130		%Rec	1	6/19/2019 10:08:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/19/2019 11:46:38 AM
Surr: BFB	103	73.8-119		%Rec	1	6/19/2019 11:46:38 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/19/2019 11:46:38 AM
Toluene	ND	0.049		mg/Kg	1	6/19/2019 11:46:38 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/19/2019 11:46:38 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/19/2019 11:46:38 AM
Surr: 4-Bromofluorobenzene	103	80-120		%Rec	1	6/19/2019 11:46:38 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	59		mg/Kg	20	6/21/2019 3:28:09 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1906854**
Date Reported: **6/24/2019**

CLIENT: Devon Energy
Project: Todd 23 A Fed 29
Lab ID: 1906854-002 **Matrix:** SOIL

Client Sample ID: TP19-02 0.5'
Collection Date: 6/13/2019 3:00:00 PM
Received Date: 6/15/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/19/2019 10:30:58 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/19/2019 10:30:58 PM
Surr: DNOP	114	70-130		%Rec	1	6/19/2019 10:30:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/19/2019 12:54:43 PM
Surr: BFB	101	73.8-119		%Rec	1	6/19/2019 12:54:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.025		mg/Kg	1	6/19/2019 12:54:43 PM
Toluene	ND	0.049		mg/Kg	1	6/19/2019 12:54:43 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/19/2019 12:54:43 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/19/2019 12:54:43 PM
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	6/19/2019 12:54:43 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	59		mg/Kg	20	6/21/2019 4:05:23 PM

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **1906854**
Date Reported: **6/24/2019**

CLIENT: Devon Energy
Project: Todd 23 A Fed 29
Lab ID: 1906854-003 **Matrix:** SOIL

Client Sample ID: TP19-03 0.5'
Collection Date: 6/13/2019 3:00:00 PM
Received Date: 6/15/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	53	9.6		mg/Kg	1	6/19/2019 10:53:13 PM
Motor Oil Range Organics (MRO)	120	48		mg/Kg	1	6/19/2019 10:53:13 PM
Surr: DNOP	115	70-130		%Rec	1	6/19/2019 10:53:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/19/2019 1:17:22 PM
Surr: BFB	104	73.8-119		%Rec	1	6/19/2019 1:17:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/19/2019 1:17:22 PM
Toluene	ND	0.049		mg/Kg	1	6/19/2019 1:17:22 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/19/2019 1:17:22 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/19/2019 1:17:22 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/19/2019 1:17:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/21/2019 4:17:48 PM

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

Qualifiers:

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

Analytical Report
Lab Order **1906854**
Date Reported: **6/24/2019**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 23 A Fed 29
Lab ID: 1906854-004 **Matrix:** SOIL

Client Sample ID: TP19-04 0.5'
Collection Date: 6/13/2019 3:00:00 PM
Received Date: 6/15/2019 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/19/2019 11:15:32 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/19/2019 11:15:32 PM
Surr: DNOP	91.8	70-130		%Rec	1	6/19/2019 11:15:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/19/2019 1:40:04 PM
Surr: BFB	103	73.8-119		%Rec	1	6/19/2019 1:40:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	6/19/2019 1:40:04 PM
Toluene	ND	0.049		mg/Kg	1	6/19/2019 1:40:04 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/19/2019 1:40:04 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/19/2019 1:40:04 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/19/2019 1:40:04 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/21/2019 4:30:13 PM

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1906854**
24-Jun-19

Client: Devon Energy
Project: Todd 23 A Fed 29

Sample ID: **MB-45735**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **45735**	RunNo: **60840**							
Prep Date: **6/21/2019**	Analysis Date: **6/21/2019**	SeqNo: **2059612**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906854**

24-Jun-19

Client: Devon Energy

Project: Todd 23 A Fed 29

Sample ID: **LCS-45657** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **45657** RunNo: **60748**

Prep Date: **6/18/2019** Analysis Date: **6/19/2019** SeqNo: **2056813** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.4	63.9	124			
Surr: DNOP	4.8		5.000		96.0	70	130			

Sample ID: **MB-45657** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **45657** RunNo: **60748**

Prep Date: **6/18/2019** Analysis Date: **6/19/2019** SeqNo: **2056814** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	15		10.00		146	70	130			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906854**

24-Jun-19

Client: Devon Energy

Project: Todd 23 A Fed 29

Sample ID: **MB-45636**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **45636**	RunNo: **60770**
Prep Date: **6/17/2019**	Analysis Date: **6/19/2019**	SeqNo: **2056901** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		104	73.8	119			

Sample ID: **LCS-45636**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **45636**	RunNo: **60770**
Prep Date: **6/17/2019**	Analysis Date: **6/19/2019**	SeqNo: **2056902** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.1	80.1	123			
Surr: BFB	1100		1000		114	73.8	119			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1906854**

24-Jun-19

Client: Devon Energy

Project: Todd 23 A Fed 29

Sample ID: **MB-45636**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **45636**	RunNo: **60770**
Prep Date: **6/17/2019**	Analysis Date: **6/19/2019**	SeqNo: **2056931** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: **LCS-45636**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **45636**	RunNo: **60770**
Prep Date: **6/17/2019**	Analysis Date: **6/19/2019**	SeqNo: **2056932** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	80	120			
Toluene	1.0	0.050	1.000	0	103	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.9	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	80	120			

Sample ID: **1906854-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **TP19-01 0.5'**	Batch ID: **45636**	RunNo: **60770**
Prep Date: **6/17/2019**	Analysis Date: **6/19/2019**	SeqNo: **2056935** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9690	0	110	63.9	127			
Toluene	1.1	0.048	0.9690	0	110	69.9	131			
Ethylbenzene	1.1	0.048	0.9690	0	112	71	132			
Xylenes, Total	3.2	0.097	2.907	0	110	71.8	131			
Surr: 4-Bromofluorobenzene	1.0		0.9690		106	80	120			

Sample ID: **1906854-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **TP19-01 0.5'**	Batch ID: **45636**	RunNo: **60770**
Prep Date: **6/17/2019**	Analysis Date: **6/19/2019**	SeqNo: **2056936** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9911	0	108	63.9	127	0.858	20	
Toluene	1.1	0.050	0.9911	0	109	69.9	131	0.972	20	
Ethylbenzene	1.1	0.050	0.9911	0	110	71	132	0.925	20	
Xylenes, Total	3.2	0.099	2.973	0	108	71.8	131	0.219	20	
Surr: 4-Bromofluorobenzene	1.1		0.9911		110	80	120	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: DEVON ENERGY Work Order Number: 1906854 RcptNo: 1

Received By: **Thom Maybee** 6/15/2019 10:15:00 AM

Completed By: **Erin Melendrez** 6/17/2019 8:44:54 AM

Reviewed By: ENM 6/17/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑

6/17/19

# of preserved bottles checked for pH: 10 (<2 or >12 unless noted)

Adjusted?

11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

Checked by:

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy

Mailing Address: 6488 Seven Rivers Hwy
Artesia, NM 88210

Phone #: 575-748-0176

email or Fax#: Amanda.davis@dvn.com

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: Todd 23 A Fed 29

Project #: 19E-00575

Project Manager: Dennis Williams
Permian@vertex.ca ~~jcastro@morningstar.com~~

Sampler: AUSTIN HARRIS

On Ice: ☒ Yes ☐ No

# of Coolers: 4.3 + 0.3 = 4.6°C

Cooler Temp(including CF): 1 cooler

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1906854	BTEX / ~~MTBE~~ / ~~TMB's~~ (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6-13-19	3:00 pm	Soil	TP19-01 0.5'	1 Jar		-001	X	X					X			
6-13-19	3:00 pm	Soil	TP19-02 0.5'	1 Jar		-002	X	X					X			
6-13-19	3:00 pm	Soil	TP19-03 0.5'	1 Jar		-003	X	X					X			
6-13-19	3:00 pm	Soil	TP19-04 0.5'	1 Jar		-004	X	X					X			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6-14-19	0900				6/14/19	0900
6/14/19	1900			Courier	6-15-19	10:15

Remarks:

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

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913037162
District RP	2RP-5401
Facility ID	
Application ID	pAB1913036896

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

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913037162
District RP	2RP-5401
Facility ID	
Application ID	pAB1913036896

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

Printed Name: Wesley Mathews Title: Environmental Representative

Signature: Wesley Mathews Date:

email: wesley.davis@dvn.com Telephone: 575-578-6195

OCD Only

Received by: Cristina Eads Date: 05/06/2020

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913037162
District RP	2RP-5401
Facility ID	
Application ID	pAB1913036896

Remediation Plan

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

- [x] Detailed description of proposed remediation technique
- [x] Scaled sitemap with GPS coordinates showing delineation points
- [x] Estimated volume of material to be remediated
- [x] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [x] 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: Wesley Mathews Title: Environmental Representative

Signature: Wesley Mathews Date: _____

email: wesley.mathews@dvn.com Telephone: 575-578-6195

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NAB1913037162
District RP	2RP-5401
Facility ID	
Application ID	pAB1913036896

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)

[X] 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: Wesley Mathews Title: Environmental Representative

Signature: Wesley Mathews Date: 1/27/2020

email: wesley.mathews@dvn.com Telephone: 575-578-6195

OCD Only

Received by: Cristina Eads Date: 05/06/2020

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: D e n i e d Date: 07/07/2020

Printed Name: Cristina Eads Title: Environmental Specialist