August 5, 2020 Vertex Project #: 20E-00141-013

Spill Closure Report: Todd 13 Battery
Unit P, Section 17, Township 23 South, Range 32 East
County: Lea
API: N/A
Tracking Number: NRM2003154559

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

New Mexico Oil Conservation Division – District 1 – Hobbs
1625 North French Drive
Hobbs, New Mexico 88240

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation following a produced water release on November 5, 2019, at Todd 13 Battery (hereafter referred to as "Todd"). Devon provided notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 1 and the Bureau of Land Management (BLM), who owns the property, on December 6, 2019, via submission of an initial C-141 Release Notification (Attachment 1). The NM OCD tracking number assigned to this incident is NRM2003154559.

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 5, 2019, a release occurred at Devon's Todd site when a water line developed a leak. This incident resulted in the release of approximately six barrels (bbls) of produced water onto the wellpad. No free liquids were recovered. The spill was contained on-lease and no produced water was released into undisturbed areas or waterways.

Site Characterization

The release at Todd occurred on federally owned land, N 32.297371, W 103.689202, approximately 30 miles east of Carlsbad, New Mexico. The legal description for the site is Unit P, Section 17, Township 23 South, Range 32 East, Lea 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 is typical of oil and gas exploration and production sites in the western portion of the Permian Basin, and is currently used for oil and gas production, and storage. The following sections specifically describe the area where Todd is located.

The surrounding landscape is associated with sandy dunes and plains typical of elevations between 3,000 and 4,400 feet above sea level. The climate is semi-arid, with average annual precipitation ranging between 10 and 12 inches. Historically, the plant community has been dominated by grasses, with scattered shinnery oak and sand sage; perennial and annual forb abundance are dependent on precipitation. The dominant grass species are black grama, dropseeds and bluestems. Litter and, to a lesser extent, bare ground are a significant proportion of ground cover (United States Department of Agriculture, Natural Resources Conservation Service, 2020).

The Geological Map of New Mexico indicates the surface geology at Todd is comprised of Qep – eolian and piedmont deposits, that include eolian sands interlaid with piedmont-slope deposits (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service *Web Soil Survey* characterizes the soil at the site as on the cusp of Pyote and maljamar fine sands and Kermit-Palomas fine sands. These types of soils typically consist of deep layers of fine sand and sandy clay loam over cemented material. It tends to be well-drained with very low runoff and moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is low potential for karst geology to be present near Todd, though some erosional karst is possible (United States Department of the Interior, United States Geological Survey, 2020a).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately 12 miles southwest of Todd (United States Department of the Interior, United States Geological Survey, 2020b). A freshwater stock pond is located approximately 5.5 miles west-northwest of the release site (United States Fish and Wildlife Service, 2020). At Todd, there are no continuously flowing 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 groundwater well to the site is a New Mexico Office of the State Engineer-identified well, located approximately one mile south of Todd, with a depth to groundwater of 713 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 3.

Closure Criteria Determination

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

Based on data included in the closure criteria determination worksheet, the release at Todd is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC. As the nearest groundwater well is farther than a ½ mile from the release site, the depth to groundwater at Todd cannot be accurately determined and the closure criteria for the site are 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**
< 50 feet	Chloride	600 mg/kg
	TPH[1] (GRO + DRO + MRO)	100 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

An initial spill inspection, completed on January 30, 2020, identified and mapped the boundaries of the release using field screening methods, including a photoionization detector (PID) to determine the presence of volatile organics, the Petroflag system to estimate the level of hydrocarbons and an electroconductivity (EC) meter to approximate chloride levels in the soil. The release area was determined to be approximately 42 feet long and 20 feet wide; the total affected area was determined to be 476 square feet, including the heater treater and existing infrastructure. The Daily Field Report associated with the initial spill inspection and release characterization is included in Attachment 4.

On February 18, 2020, Vertex provided 48-hour notification of confirmation sampling to NM OCD, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 5). Remediation via excavation of contaminated materials was conducted between February 21 and 24, 2020, to a depth of approximately 1 foot bgs. Following completion of remediation activities on February 24, 2020, one five-point confirmatory sample was collected from the base of the excavation. The composite sample was placed into a laboratory-provided container, preserved on ice and submitted to a National Environmental Laboratory Accreditation Program (NELAP)-approved laboratory for chemical analysis.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Confirmatory sample analytical data are summarized in Attachment 6. Laboratory data reports and chain of custody forms are included in Attachment 7.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of the five-point composite sample. The confirmatory sample location is presented on Figure 2 (Attachment 2).

The laboratory results for the initial confirmatory sample failed to meet NM OCD closure criteria as shown in Table 1. Vertex returned to Todd to conduct additional remediation and re-collect the confirmatory sample. At that time, an additional two confirmatory samples were collected from the base and sidewall of the excavation to meet the requirements of the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which states that each composite sample can be representative of no more than 200 square feet. The samples were placed into laboratory-provided containers, preserved on ice and submitted to a NELAP laboratory for analysis.

The additional confirmatory sample locations were marked using GPS and are shown on Figure 2 (Attachment 2). The final laboratory results for the confirmatory samples are presented in Table 2 (Attachment 6). Laboratory data reports and chain of custody forms are included in Attachment 7.

Closure Request

Vertex recommends no additional remediation action necessary to address the release at Todd. Laboratory analyses of the final confirmatory samples showed constituent of concern concentration levels below NM OCD closure criteria as shown in Table 1. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident (NRM2003154559) 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 5, 2019, release at Todd.

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. Figures
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. Required 48-hr Notification of Confirmation Sampling to Regulatory Agencies
Attachment 6. Laboratory Data Tables
Attachment 7. Laboratory Data Reports/Chain of Custody Forms

References

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

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

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

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

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

United States Department of the Interior, United States Geological Survey. (2020b). *The National Map: National Hydrography Dataset*. Retrieved from https://www.arcgis.com/home/webmap/viewer.html?url=https%3A%2F%2Fbasemap.nationalmap.gov%2Farcgis%2Frest%2Fservices%2FUSGSHydroCached%2FMapServer&source=sd.

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	NRM2003154559
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party X95D8-191206-C-1410

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)*
Contact mailing address 6488 Seven Rivers HWY	

Location of Release Source

Latitude 32.297371 Longitude -103.689202
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Todd 13 Battery	Site Type Oil
Date Release Discovered 11/5/2019	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
P	17	23S	32E	Lea

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) 5.8	Volume Recovered (bbls) 0
	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 Water line leak causing fluid release. Spill calculations 3'x54'x12".

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003154559
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:

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: 11/18/2019

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

OCD Only

Received by: Ramona Marcus Date: 1/31/2020

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003154559
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?	<50 (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
- ☒ NA Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

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

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003154559
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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: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 8/5/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

Received by: Cristina Eads Date: 08/06/2020

State of New Mexico
Oil Conservation Division

Incident ID	NRM2003154559
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)

[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: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 8/5/2020

email: tom.bynum@dvn.com Telephone: 575-748-0176

OCD Only

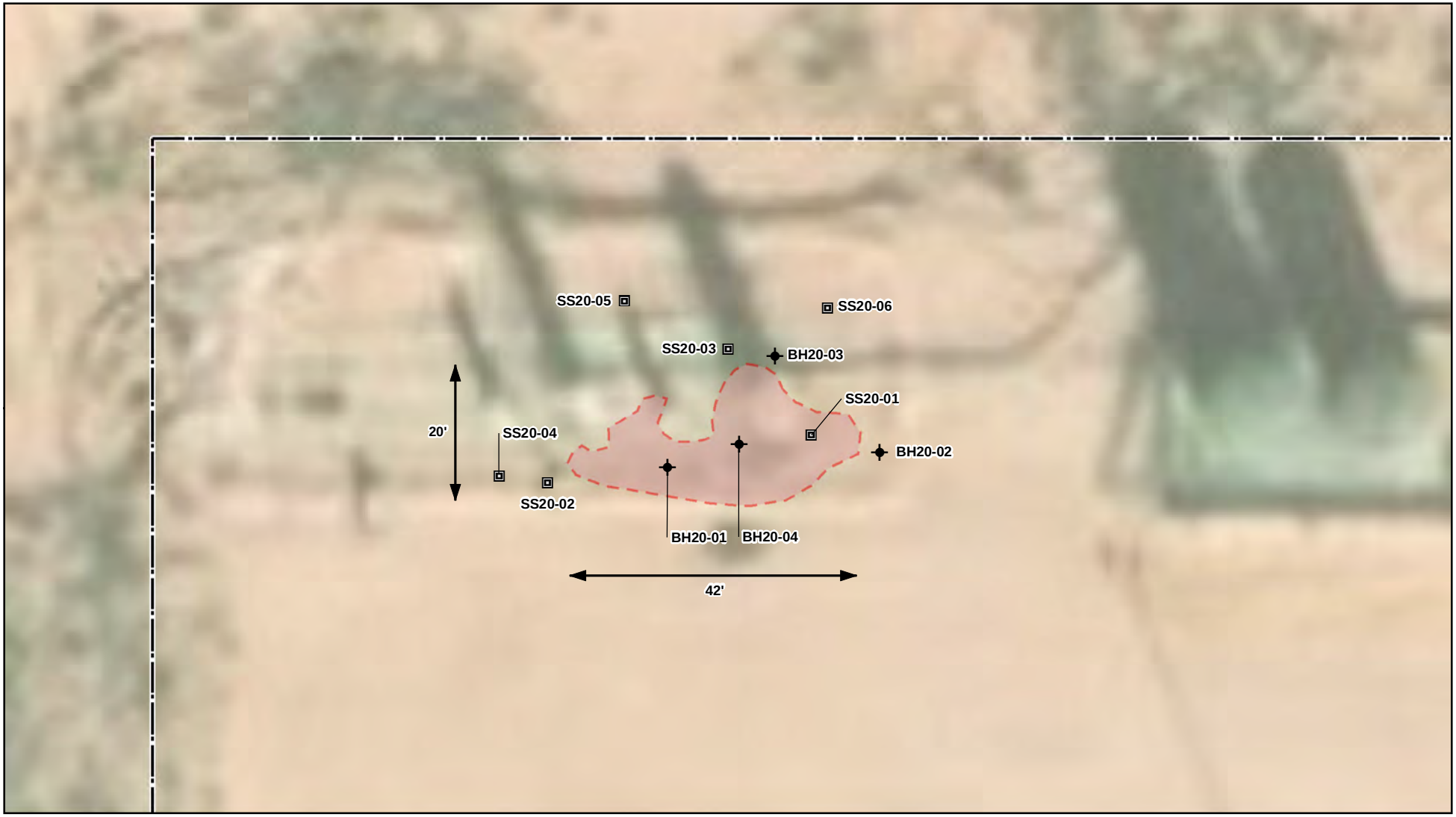
Received by: Cristina Eads Date: 08/06/2020

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: 10/15/2020

Printed Name: Cristina Eads Title: Environmental Specialist

ATTACHMENT 2



Borehole
Surface Sample
Approximate Lease Boundary
Approximate Spill Area (~ 476 sq. ft.)

VERTEX

0 10 20 ft

Map Center:
Lat/Long: 32.305780, -103.733874

NAD 1983 UTM Zone 13N
Date: Feb 26/20

N

Site Schematic and Initial Spill Characterization
Todd 13 Battery

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: Background image from ESRI, 2019

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Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\013 - Todd 13 Battery\Todd 13 Battery Site Schematic (20E-00141).mxd

● Base Sample

▲ Wall Sample

Approximate Spill Area (~ 476 sq. ft.)

Excavated Area

Heater Treater Area (Not Excavated)

VERTEX

0 5 10 ft

Map Center:
Lat/Long: 32.305776, -103.733878

NAD 1983 UTM Zone 13N
Date: Jul 10/20

N

Confirmatory Sampling Locations
Todd 13 Battery Site

FIGURE:
2

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: Background image from ESRI, 2019

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Client Name: Devon Energy Production Company
Site Name: Todd 13 Battery
NM OCD Tracking #: NRM2003154559
Project #: 20E-00141-013
Lab Report: 2002001

Table 2. Release Characterization Sampling Field Screening and Laboratory Data - Depth to Groundwater < 50 feet

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (Electrical Conductivity)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor 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)
SS20-01	0	January 30, 2020	0.6	**>2,500**	415	<0.024	<0.213	<4.7	2,900	4,200	**2,900**	**4,200**	**720**
SS20-02	0	January 30, 2020	0.6	**>2,500**	218	-	-	-	-	-	-	-	-
SS20-03	0	January 30, 2020	0.5	**>2,500**	120	-	-	-	-	-	-	-	-
SS20-04	0	January 30, 2020	0.1	**617**	135	-	-	-	-	-	-	-	-
SS20-05	0	January 30, 2020	0.0	55	103	-	-	-	-	-	-	-	-
SS20-06	0	January 30, 2020	0.2	7	**1,698**	-	-	-	-	-	-	-	-
BH20-01	0	January 30, 2020	12.5	**1,148**	90	-	-	-	-	-	-	-	-
BH20-01	1	January 30, 2020	20.1	-	105	-	-	-	-	-	-	-	-
BH20-01	2	January 30, 2020	3.1	-	202	-	-	-	-	-	-	-	-
BH20-01	3	January 30, 2020	1.1	62	75	-	-	-	-	-	-	-	-
BH20-01	4	January 30, 2020	1.4	-	85	-	-	-	-	-	-	-	-
BH20-02	0	January 30, 2020	0.5	**1,115**	130	-	-	-	-	-	-	-	-
BH20-02	1	January 30, 2020	0.7	**1,028**	183	-	-	-	-	-	-	-	-
BH20-02	2	January 30, 2020	0.8	-	65	-	-	-	-	-	-	-	-
BH20-02	3	January 30, 2020	0.8	-	153	-	-	-	-	-	-	-	-
BH20-02	4	January 30, 2020	0.4	-	515	-	-	-	-	-	-	-	-
BH20-02	5	January 30, 2020	0.4	-	585	-	-	-	-	-	-	-	-
BH20-03	0	January 30, 2020	1.2	**1,057**	**2,680**	-	-	-	-	-	-	-	-
BH20-03	1	January 30, 2020	0.9	-	**2,035**	-	-	-	-	-	-	-	-
BH20-03	2	January 30, 2020	0.7	**926**	318	-	-	-	-	-	-	-	-
BH20-03	3	January 30, 2020	0.6	**786**	340	-	-	-	-	-	-	-	-
BH20-03	4	January 30, 2020	0.6	**977**	358	-	-	-	-	-	-	-	-
BH20-03	5	January 30, 2020	0.2	**562**	553	<0.024	<0.215	<4.8	170	240	170	410	590
BH20-04	0	January 30, 2020	0.5	-	90	-	-	-	-	-	-	-	-
BH20-04	1	January 30, 2020	0.5	-	120	-	-	-	-	-	-	-	-
BH20-04	2	January 30, 2020	0.5	-	75	-	-	-	-	-	-	-	-

"-" indicates not analyzed/assessed
Bold and shaded indicates exceedance outside of applied action level

Client Name: Devon Energy Production Company
Site Name: Todd 13 Battery
NM OCD Tracking #: NRM2003154559
Project #: 20E-00141-013
Lab Report: 2002A66, 2006A28

Table 3. Confirmatory Sampling Laboratory Results -Depth to Groundwater < 50 feet

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BS 20-01	0.5	February 24, 2020	<0.023	<0.208	<4.6	<9.0	<45	<13.6	<58.6	**2,100**
BS 20-01	1	June 17, 2020	<0.025	<0.224	<5.0	<9.2	<46	<14.2	<60.2	**<60**
BS 20-02	1	June 17, 2020	<0.025	<0.221	<4.9	<9.6	<48	<14.5	<62.5	<60
WS 20-01	0-1	June 17, 2020	<0.025	<0.221	<4.9	<9.2	<46	<14.1	<60.1	<60

"-" - Not applicable/Not assessed

Bold and grey shaded indicates exceedance outside of NM OCD Closure Criteria
Bold and green shaded indicates a re-sample of areas previously exceeding closure criteria

ATTACHMENT 3

Closure Criteria Worksheet			
Site Name: Todd 13 Battery			
Spill Coordinates:		X: 32.297371	Y: -103.689202
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**713**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	95,383	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	29,706	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	27,424	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**	5,200	feet
	ii) Within 1000 feet of any fresh water well or spring	5,200	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	17,914	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'

Todd 13 Battery - 1 mile to OSE Well

7/29/2020, 3:48:27 PM

OSE District Boundary

GIS WATERS PODs

Active

Conveyances

Acequia

Acequia Tunnel

Canal

Channel

Closed Drain

Community Ditch

Connector

Culvert

Ditch

Diversion Weir

Drain

Feeder

Interior Drain

Lateral

Pipe

Wasteway

Other

Unknown

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user

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 03851 POD1	CUB	LE	3	3	4	20	23S	32E	622880	3572660	1585	1392	713	679

Average Depth to Water: **713 feet**

Minimum Depth: **713 feet**

Maximum Depth: **713 feet**

Record Count: 1

UTMNAD83 Radius Search (in meters):

Easting (X): 623415.26 **Northing (Y):** 3574152.19 **Radius:** 1610

New Mexico Office of the State Engineer
Point of Diversion Summary

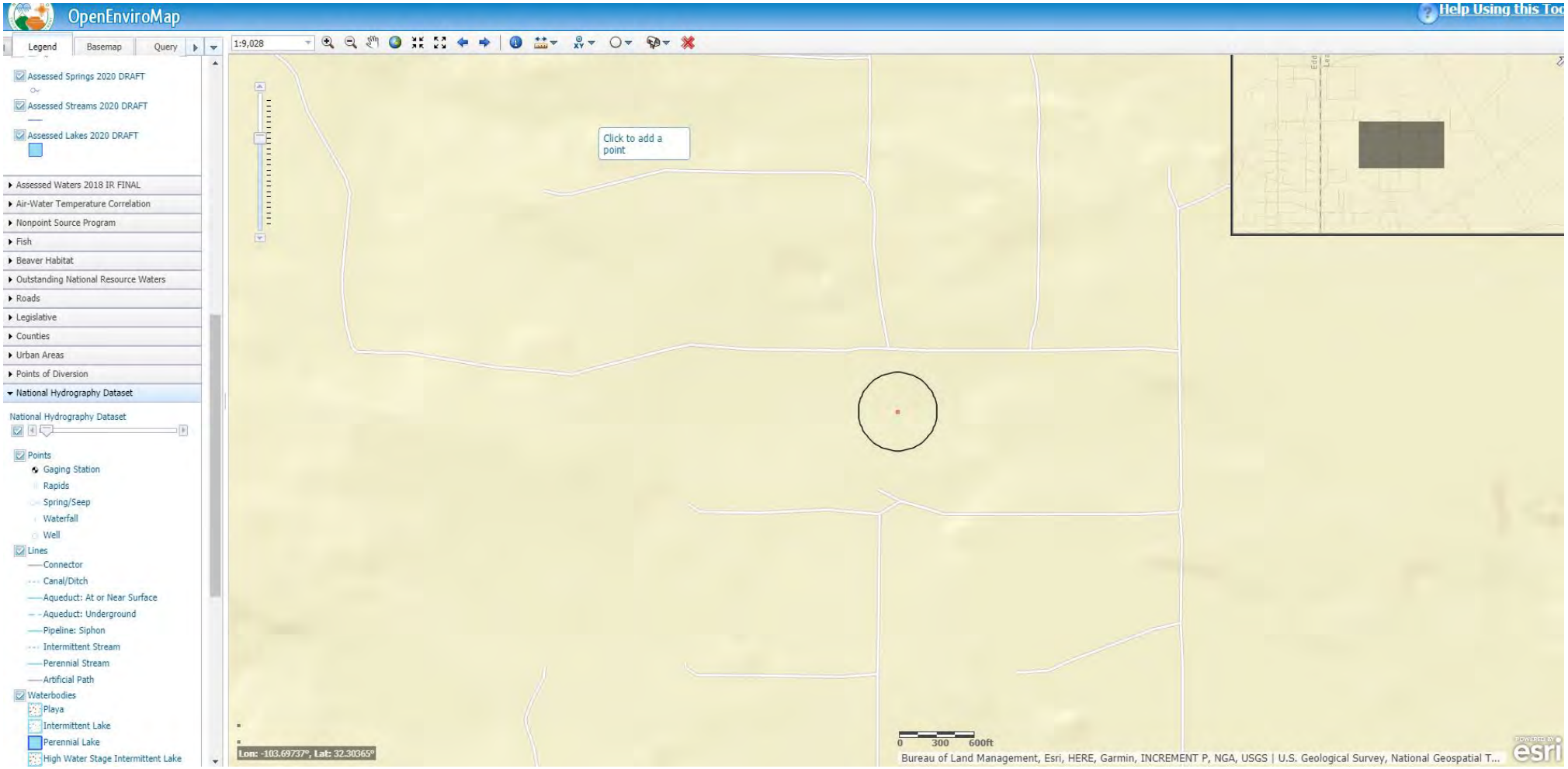
Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	C 03851 POD1	3	3	4	20	23S	32E	622880	3572660

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

Driller License:	1723	**Driller Company:**	SBQ2, LLC DBA STEWART BROTHERS DRILLING CO.		
Driller Name:	STEWART, RANDAL P.				
Drill Start Date:	08/19/2015	**Drill Finish Date:**	10/02/2015	**Plug Date:**	
Log File Date:	11/10/2015	**PCW Rcv Date:**		**Source:**	Artesian
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	3 GPM
Casing Size:	5.00	**Depth Well:**	1392 feet	**Depth Water:**	713 feet

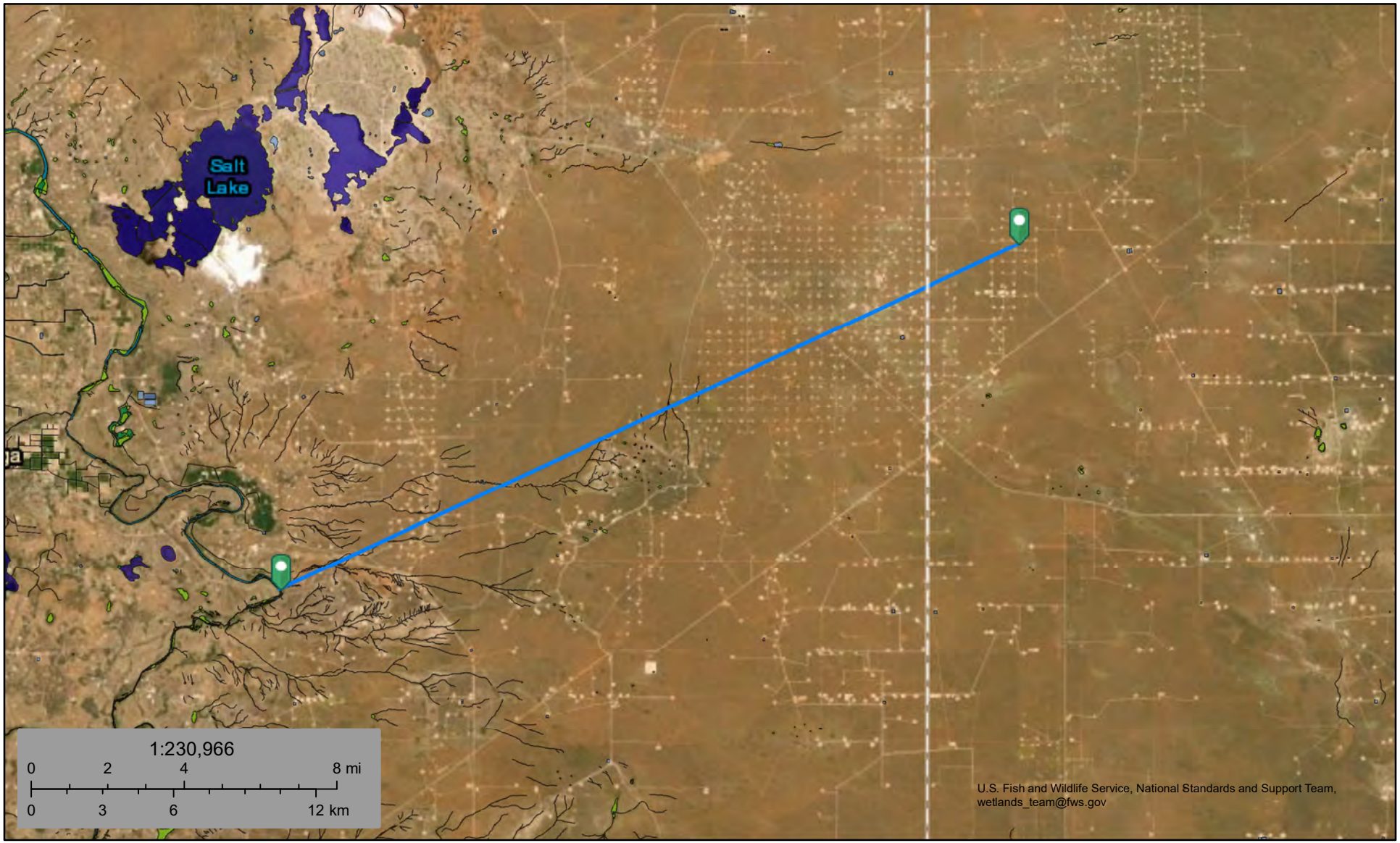
Water Bearing Stratifications:	Top	Bottom	Description
	1354	1380	Limestone/Dolomite/Chalk

Casing Perforations:	Top	Bottom
	1354	1383


OpenEnviroMap
Help Using this Too
Legend
Basemap
Query
1:9,028
Assessed Springs 2020 DRAFT
Assessed Streams 2020 DRAFT
Assessed Lakes 2020 DRAFT
Assessed Waters 2018 IR FINAL
Air-Water Temperature Correlation
Nonpoint Source Program
Fish
Beaver Habitat
Outstanding National Resource Waters
Roads
Legislative
Counties
Urban Areas
Points of Diversion
National Hydrography Dataset
National Hydrography Dataset
Points
Gaging Station
Rapids
Spring/Seep
Waterfall
Well
Lines
Connector
Canal/Ditch
Aqueduct: At or Near Surface
Aqueduct: Underground
Pipeline: Siphon
Intermittent Stream
Perennial Stream
Artificial Path
Waterbodies
Playa
Intermittent Lake
Perennial Lake
High Water Stage Intermittent Lake
Click to add a point
Lon: -103.69737°, Lat: 32.30365°
0 300 600ft
Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, NGA, USGS | U.S. Geological Survey, National Geospatial T...
esri

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 13 Watercourse 95,383 ft.



January 28, 2020

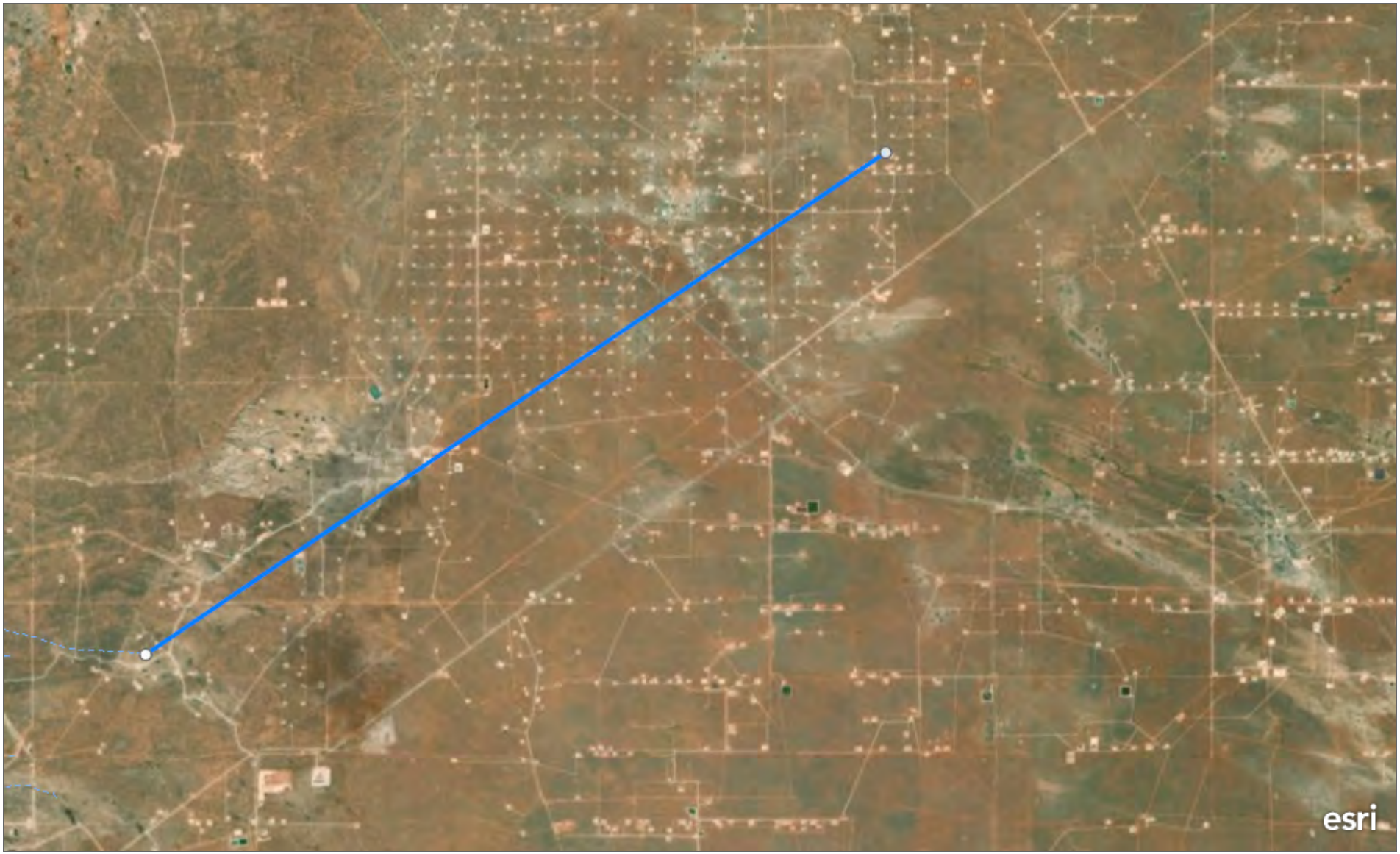
Wetlands

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

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

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

My Map



USGS The National Map: National Hydrography Dataset. Data refreshed March, 2020. | USDA FSA, GeoEye, Earthstar Geographics

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 13 Lake 29,706 ft.

January 28, 2020

Wetlands

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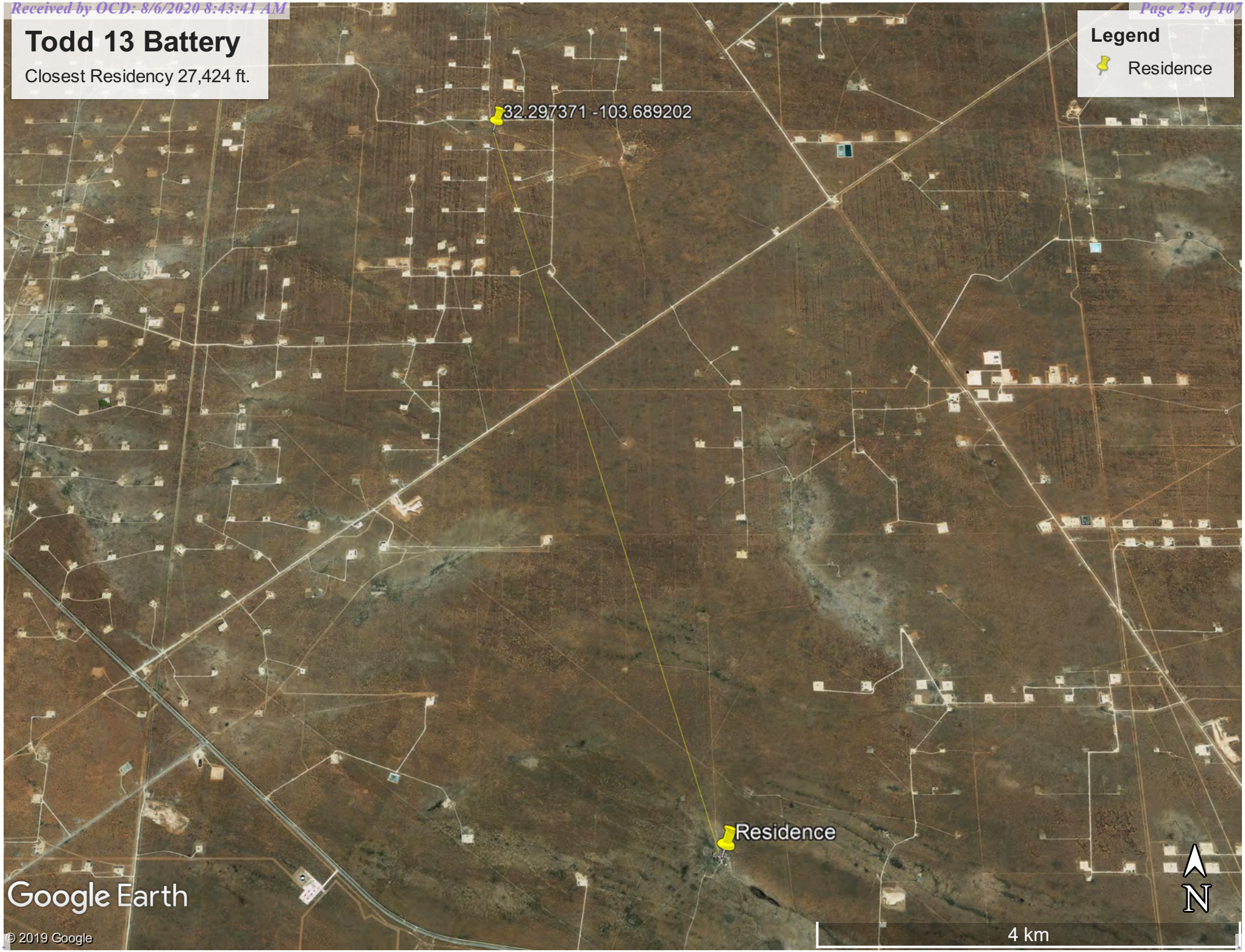

Todd 13 Battery
Closest Residency 27,424 ft.
Legend
Residence
32.297371 -103.689202
Residence
Google Earth
© 2019 Google
4 km
N

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 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance
C 03851	CUB	MON	0	US DEPARTMENT OF ENERGY	LE	C 03851 POD1			NON	Artesian	3	3	4	20	23S	32E	622879	3572660	1585
C 02216	CUB	PLS	11.3	BRININSTOOL XL RANCH LLC	LE	C 02216					2	2	4	21	23S	32E	625035	3573261*	1848
C 02520	C	PRO	0	PENWELL ENERGY	LE	C 02520						1	4	15	23S	32E	626122	3574791*	2781
C 03529	C	STK	0	MARK MCCLOY	LE	C 03529 POD1					2	4	3	29	23S	32E	622651	3571212	3037
C 02349	CUB	STK	3	CHARLES F. JAMES	ED	C 02349						2	3	03	23S	32E	625678	3578004*	4467
C 03555	C	STK	3	NGL WATER SOLUTIONS PERMIAN	LE	C 03555 POD1				Shallow	2	2	1	05	24S	32E	622709	3569231	4971

Record Count: 6

UTMNAD83 Radius Search (in meters):

Easting (X): 623415.26 **Northing (Y):** 3574152.19 **Radius:** 5000

Sorted by: Distance

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

New Mexico Office of the State Engineer

Water Right Summary

get image list

WR File Number: C 03851 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 0 **Cause/Case:** -

Owner: US DEPARTMENT OF ENERGY

Contact: GEORGE BASABILVAZO

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	564731	EXPL	2015-07-09	PMT	LOG	C 03851 POD1	T	0	0	

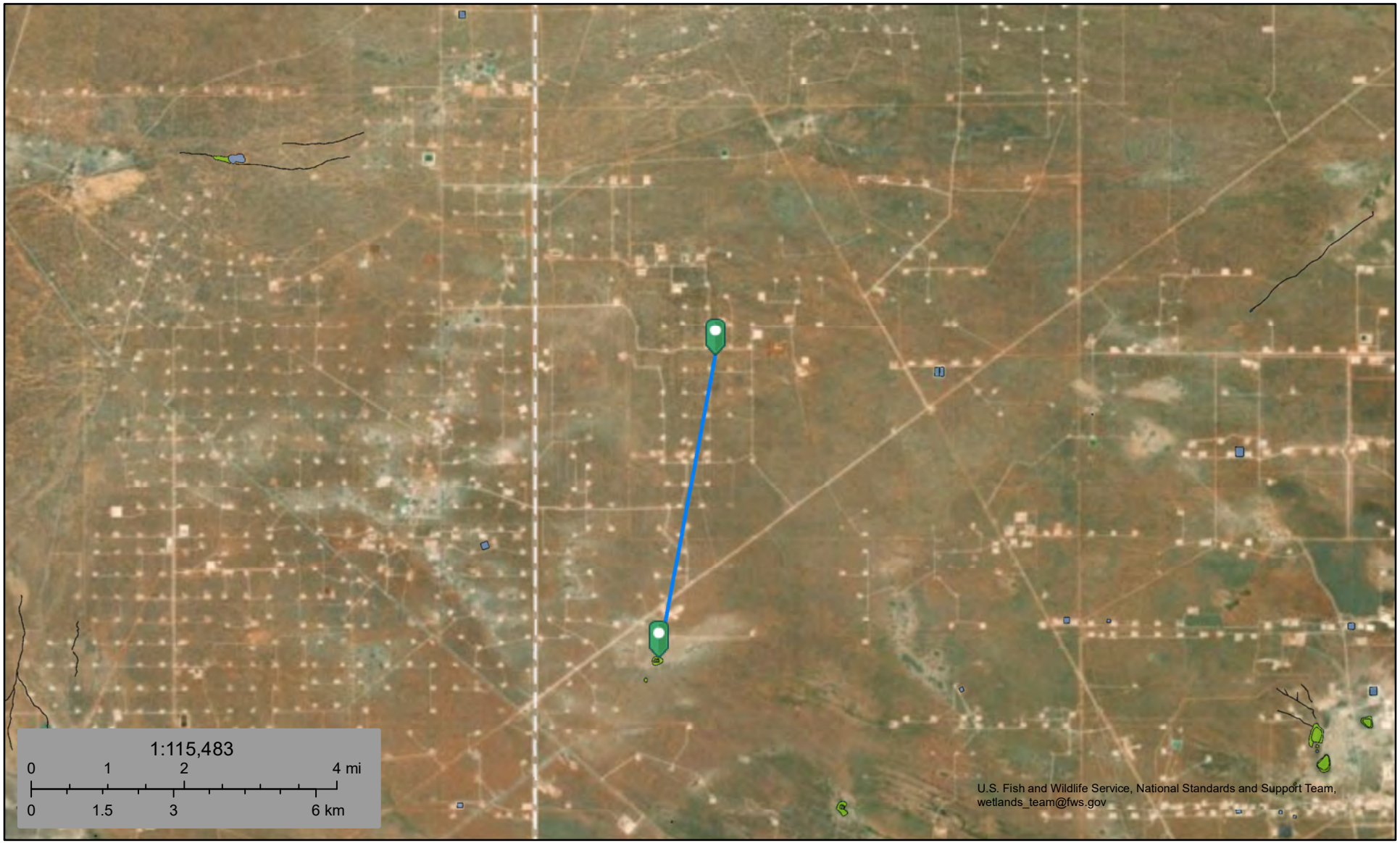
Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 03851 POD1		Artesian	3	3	4	20	23S	32E	622880	3572660	H-10CR (C-2695)

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 13 Wetland 17,914 ft.



January 28, 2020

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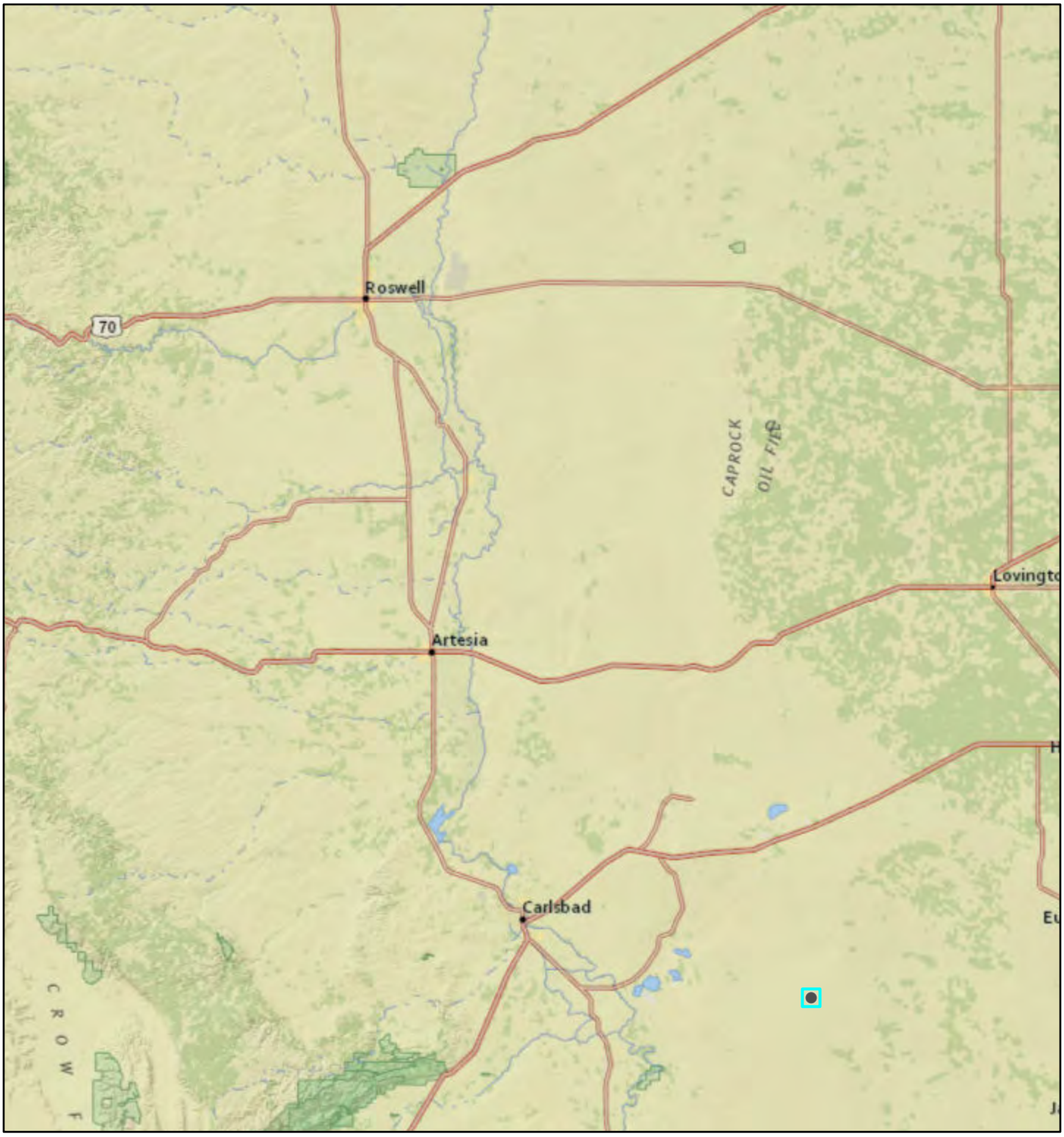
Coal Mines in New Mexico



1/28/2020, 5:02:29 PM

1:1,155,581

0 5 10 20 mi

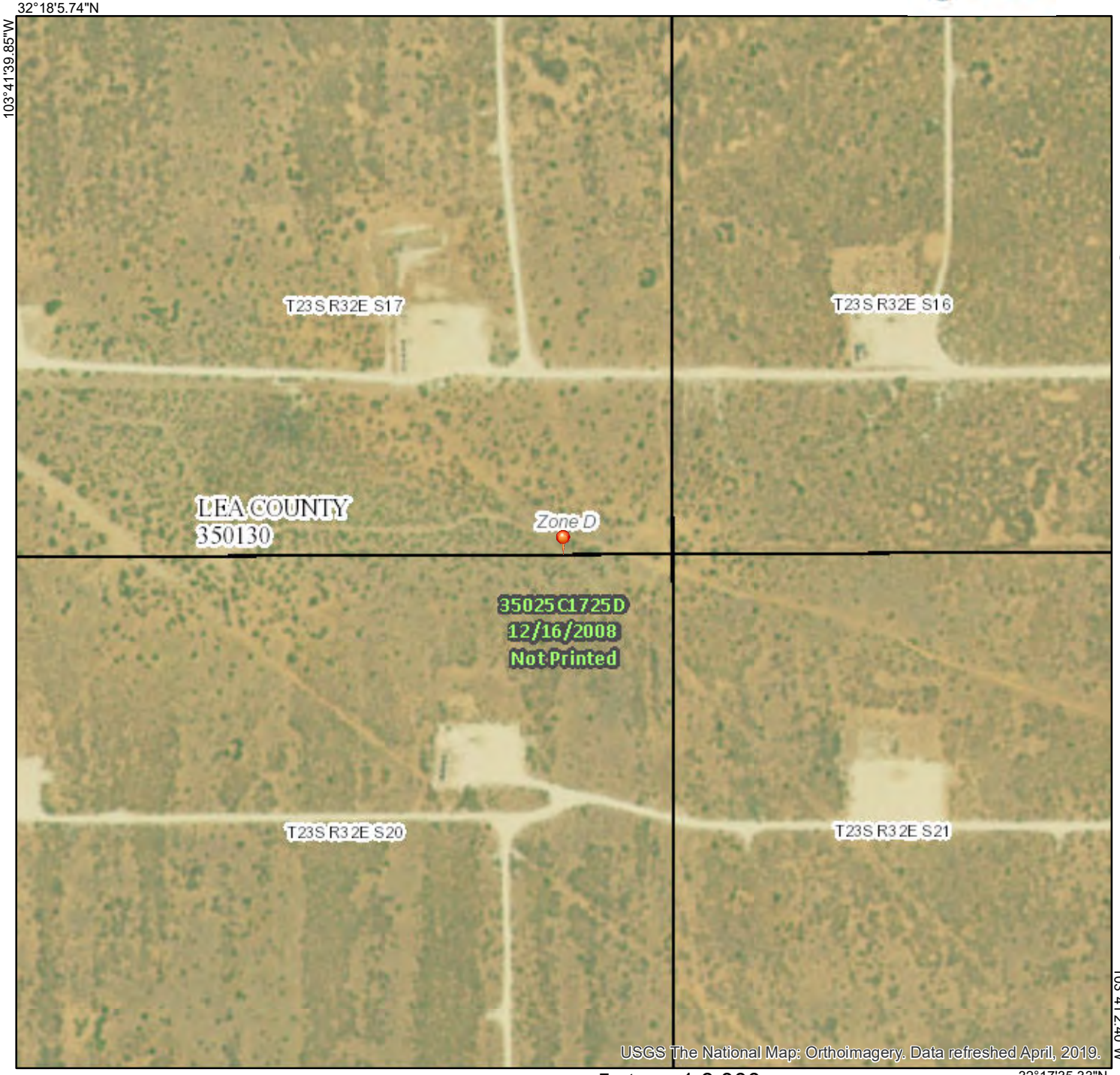
0 12.5 25 50 km

National Flood Hazard Layer FIRMette

FEMA

32°18'5.74"N

103°41'39.85"W



103°41'2.40"W

32°17'35.33"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 1/28/2020 at 7:07:24 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.

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 Lea County, New Mexico

January 28, 2020

Preface

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

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

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

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 Scale: 1:877 if printed on A landscape (11" x 8.5") 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

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: Lea County, New Mexico
Survey Area Data: Version 16, 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
KD	Kermit-Palomas fine sands, 0 to 12 percent slopes	1.3	40.2%
PU	Pyote and maljamar fine sands	2.0	59.8%
Totals for Area of Interest		**3.3**	**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.

Lea County, New Mexico

KD—Kermit-Palomas fine sands, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: dmpv
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 70 percent
Palomas and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand
C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 3.1 inches)

Interpretive groups

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

Description of Palomas

Setting

Landform: Dunes

Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex
Parent material: Alluvium derived from sandstone

Typical profile

A - 0 to 16 inches: fine sand
Bt - 16 to 60 inches: sandy clay loam
Bk - 60 to 66 inches: sandy loam

Properties and qualities

Slope: 0 to 5 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: 50 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 7.5 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

Minor Components

Maljamar

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

Pyote

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

Dune land

Percent of map unit: 1 percent
Hydric soil rating: No

Palomas

Percent of map unit: 1 percent
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

PU—Pyote and maljamar fine sands

Map Unit Setting

National map unit symbol: dmqq
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Maljamar and similar soils: 45 percent
Pyote and similar soils: 45 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maljamar

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 24 inches: fine sand
Bt - 24 to 50 inches: sandy clay loam
Bkm - 50 to 60 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
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: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e

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

Description of Pyote

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 30 inches: fine sand
Bt - 30 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible
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: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: Sandhills (R042XC022NM)
Hydric soil rating: No

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ATTACHMENT 4

Daily Site Visit Report

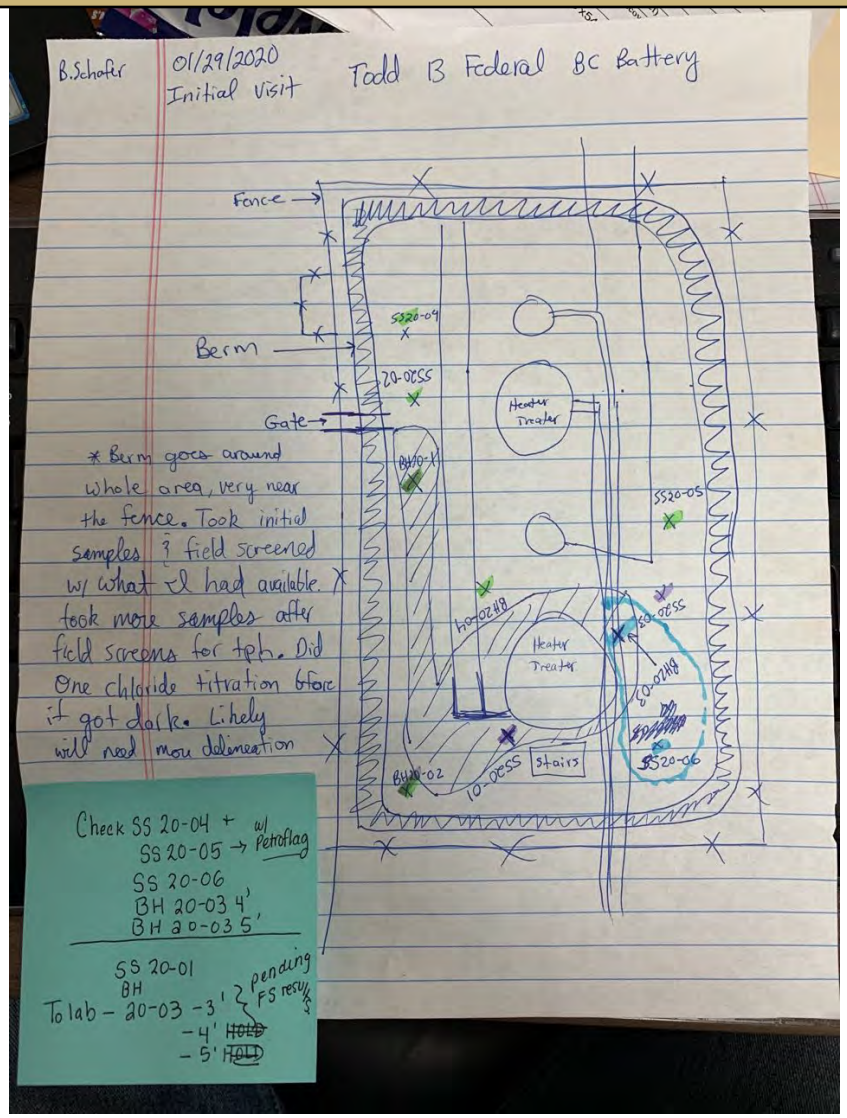
Client:	Devon Energy Corporation	Inspection Date:	1/29/2020
Site Location Name:	Todd 13 Battery	Report Run Date:	2/1/2020 8:27 PM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	11/05/2019 - 6bbls PW
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	1/29/2020 10:15 AM
Arrived at Site	1/29/2020 11:30 AM
Departed Site	
Returned to Office	

Daily Site Visit Report

VERTEX

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

13:07 Initial characterization and field screening

Next Steps & Recommendations

1

Sampling

BH20-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
						✓	32.305, -103.733	Yes

BH20-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
3 ft.						✓	32.30575, -103.73380	Yes

BH20-03

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
5 ft.						✓	32.30578, -103.73387	Yes

Daily Site Visit Report

BH20-04

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
2 ft.						✓	32.30577, -103.73389	Yes

SS20-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.	0.6 ppm			415 ppm		✓	32.30576, -103.73385	Yes

SS20-02

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.	6 ppm	160 ppm		217.5 ppm		✓	32.30575, -103.73397	Yes

SS20-03

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.	0.5 ppm	891 ppm		120 ppm		✓	32.30579, -103.73389	Yes

Daily Site Visit Report

SS20-04

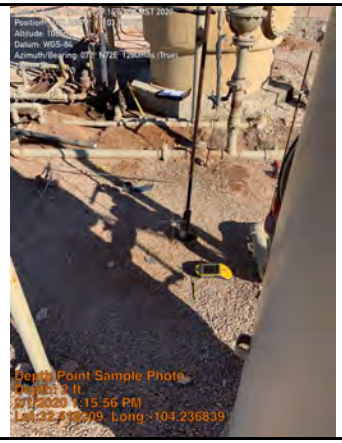
Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.	0.1 ppm	617 ppm		135 ppm		✓	32.30575, -103.73400	Yes

SS20-05

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.	0 ppm	55 ppm				✓	32.30581, -103.73391	Yes

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: BH20-01	Sample Point ID: BH20-02
	
Depth:	**Depth:** 3 ft.
Sample Point ID: BH20-03	**Sample Point ID**: BH20-04
	
Depth: 5 ft.	**Depth:** 2 ft.

Daily Site Visit Report

Sample Point ID: SS20-01	**Sample Point ID**: SS20-02
	
Depth: 0 ft.	**Depth:** 0 ft.

Sample Point ID: SS20-03	**Sample Point ID**: SS20-04
	
Depth: 0 ft.	**Depth:** 0 ft.

Daily Site Visit Report

Sample Point ID: SS20-05

Depth: 0 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brandon Schafer

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/21/2020
Site Location Name:	Todd 13 Battery	Report Run Date:	2/21/2020 11:31 PM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	11/05/2019 - 6bbls PW
Client Contact Phone #:	(575) 748-0176		

Summary of Times

Left Office	2/21/2020 7:30 AM
Arrived at Site	2/21/2020 8:30 AM
Departed Site	2/21/2020 2:46 PM
Returned to Office	

Summary of Daily Operations

9:01 Hand excavation for confirmatory sampling

Next Steps & Recommendations

1 Return to finish excavation

Daily Site Visit Report

Site Photos

Viewing Direction: East	**Viewing Direction**: West
	
Overview of site	Overview of site
Viewing Direction: Northwest	**Viewing Direction**: East
	
Day's end excavation	Days end excavation

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brandon Schafer

Signature:

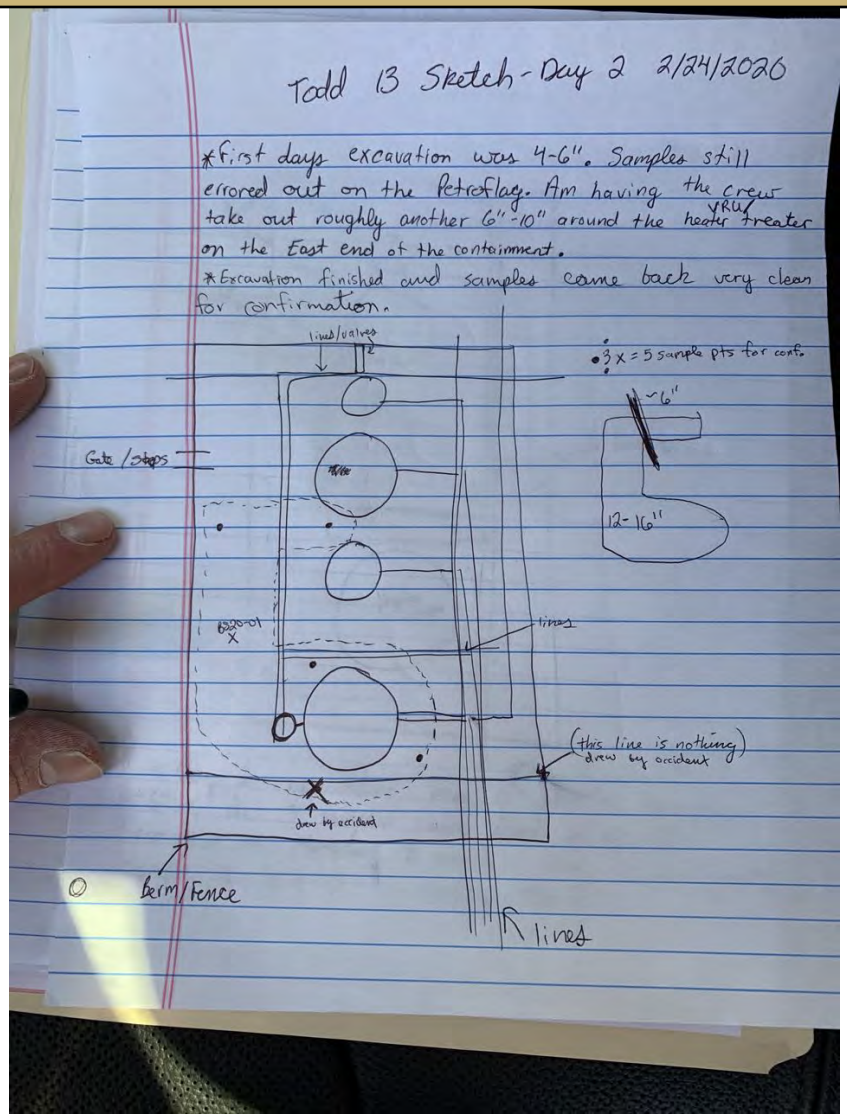
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/24/2020
Site Location Name:	Todd 13 Battery	Report Run Date:	2/25/2020 2:03 AM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	11/05/2019 - 6bbls PW
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	2/24/2020 7:20 AM
Arrived at Site	2/24/2020 8:11 AM
Departed Site	2/24/2020 2:02 PM
Returned to Office	

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

8:11 Continue hand excavation and obtain confirmatory samples

Next Steps & Recommendations

1 Send in samples and await lab results

Sampling

ES-Base20-01

Depth ft	VOC PID	Petro Flag TPH ppm	Quantab Range ppm	Quantab Reading ppm	Lab Analysis	Picture	Trimble Location	Marked On Site Sketch?
0 ft.					BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30575480, -103.73389144	Yes

Daily Site Visit Report

Site Photos

Viewing Direction: East	**Viewing Direction**: South
	
Beginning of excavation	Beginning of day 2 excavation
Viewing Direction: Southwest	**Viewing Direction**: North
	
Beginning of day 2 excavation	Petroflags result

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: West
	
End of excavation	End of excavation
Viewing Direction: Northwest	**Viewing Direction**: West
	
Excavation	End of Excavation

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
Excavation	Excavation
Viewing Direction: East	**Viewing Direction**: South
	
Excavation	Excavation

Daily Site Visit Report

Viewing Direction:

Field screen

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: ES-Base20-01

Depth: 0 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brandon Schafer

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/17/2020
Site Location Name:	Todd 13 Battery	Report Run Date:	6/19/2020 5:08 PM
Client Contact Name:	Amanda Davis	API #:	
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Todd 13 Battery	Project Owner:	Amanda Davis
Project Reference #	11/05/2019 - 6bbls PW	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	6/17/2020 12:45 PM
Departed Site	6/17/2020 2:44 PM

Field Notes

9:14 Resamples collected for BS20-01. BS20-02 sample point added to sample schematic due to excavation being approximately 400 square feet. Wall sample (WS20-01) collected.

Next Steps & Recommendations

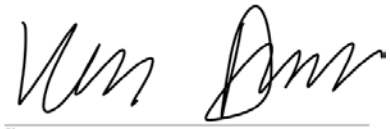
1 Submit confirmation samples for laboratory analysis.

2 Complete closure report.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Kevin Smith

Signature: 
Signature

ATTACHMENT 5

Natalie Gordon

From: Natalie Gordon
Sent: Tuesday, February 18, 2020 4:40 PM
To: emnrd-ocd-district1spills@state.nm.us; Mike Bratcher (mike.bratcher@state.nm.us); ramona.marcus@state.nm.us; blm_nm_cfo_spill@blm.gov; Wade , Kelsey; jamos@blm.gov
Cc: Bynum, Tom (Contract); Wesley. Mathews@dvn. com (Wesley.Mathews@dvn.com)
Subject: Todd 13 Battery, DOR: 11/05/2019, Inc. # TBD - 48-hr Notice of Confirmatory Sampling (Devon Energy)

All:

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled final confirmatory sampling to be conducted at Todd 13 Battery (Devon Energy) for the release that occurred on November 5, 2019. Incident #: to be assigned.

On Thursday afternoon, February 20, 2020, and Friday morning, February 21, 2020, Monica Peppin of Vertex will be onsite to perform confirmation sampling. She can be reached at (575) 361-9880 . If you need directions to the site, please do not hesitate to contact her.

If you have any questions or concerns regarding this notification, please give me a call at (505) 506-0040.

Thank you,
Natalie

Natalie Gordon

From: Natalie Gordon
Sent: Tuesday, January 28, 2020 12:48 PM
To: emnrd-ocd-district1spills@state.nm.us; Mike Bratcher (mike.bratcher@state.nm.us); ramona.marcus@state.nm.us
Cc: Bynum, Tom (Contract); Wesley. Mathews@dvn. com (Wesley.Mathews@dvn.com)
Subject: Extension Request - Todd 13 Battery - DOR: 11/5/2019; No Incident # assigned
Attachments: Lea_Devon_Todd 13 Battery_11.5.19.pdf

All:

Please accept this 30-day extension request for the November 5, 2019 produced water release at Todd 13 Battery per the attached initial C-141.

Remediation is in progress for this incident.

If you need any more information regarding this extension request, contact me at 505-506-0040.

Thank you,
Natalie Gordon

ATTACHMENT 6

ATTACHMENT 8

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

February 06, 2020

Natalie Gordon

Vertex Resource Group Ltd.
213 S. Mesa St
Carlsbad, NM 88220
TEL:
FAX

RE: Todd 13 Battery OrderNo.: 2002001

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/1/2020 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 **2002001**
Date Reported: **2/6/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** SS20-01 0'
Project: Todd 13 Battery **Collection Date:** 1/30/2020 3:05:00 PM
Lab ID: 2002001-001 **Matrix:** SOIL **Received Date:** 2/1/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	2900	490		mg/Kg	50	2/5/2020 10:48:36 AM
Motor Oil Range Organics (MRO)	4200	2500		mg/Kg	50	2/5/2020 10:48:36 AM
Surr: DNOP	0	55.1-146	S	%Rec	50	2/5/2020 10:48:36 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/5/2020 12:42:11 AM
Surr: BFB	69.7	66.6-105		%Rec	1	2/5/2020 12:42:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	2/5/2020 4:51:24 PM
Toluene	ND	0.047		mg/Kg	1	2/5/2020 4:51:24 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/5/2020 4:51:24 PM
Xylenes, Total	ND	0.095		mg/Kg	1	2/5/2020 4:51:24 PM
Surr: 4-Bromofluorobenzene	88.1	80-120		%Rec	1	2/5/2020 4:51:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	720	60		mg/Kg	20	2/5/2020 2:40:44 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 **2002001**
Date Reported: **2/6/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resource Group Ltd. **Client Sample ID:** BH20-03 5'
Project: Todd 13 Battery **Collection Date:** 1/30/2020 5:15:00 PM
Lab ID: 2002001-002 **Matrix:** SOIL **Received Date:** 2/1/2020 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	170	9.4		mg/Kg	1	2/5/2020 11:10:21 AM
Motor Oil Range Organics (MRO)	240	47		mg/Kg	1	2/5/2020 11:10:21 AM
Surr: DNOP	109	55.1-146		%Rec	1	2/5/2020 11:10:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/5/2020 1:05:11 AM
Surr: BFB	72.8	66.6-105		%Rec	1	2/5/2020 1:05:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	2/5/2020 1:05:11 AM
Toluene	ND	0.048		mg/Kg	1	2/5/2020 1:05:11 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/5/2020 1:05:11 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/5/2020 1:05:11 AM
Surr: 4-Bromofluorobenzene	82.8	80-120		%Rec	1	2/5/2020 1:05:11 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	590	60		mg/Kg	20	2/5/2020 3:17:57 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#: **2002001**
06-Feb-20

Client: Vertex Resource Group Ltd.
Project: Todd 13 Battery

Sample ID: **MB-50258**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **50258**	RunNo: **66340**							
Prep Date: **2/4/2020**	Analysis Date: **2/5/2020**	SeqNo: **2278649**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50258**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **50258**	RunNo: **66340**							
Prep Date: **2/4/2020**	Analysis Date: **2/5/2020**	SeqNo: **2278650**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.8	90	110			

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#: **2002001**
06-Feb-20

Client: Vertex Resource Group Ltd.
Project: Todd 13 Battery

Sample ID: **MB-50229**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50229**	RunNo: **66269**
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**	SeqNo: **2276519** 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	12		10.00		115	55.1	146			

Sample ID: **LCS-50229**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50229**	RunNo: **66269**
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**	SeqNo: **2276520** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	10	50.00	0	119	63.9	124			
Surr: DNOP	5.3		5.000		106	55.1	146			

Sample ID: **MB-50216**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50216**	RunNo: **66269**
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277503** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		113	55.1	146			

Sample ID: **LCS-50216**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50216**	RunNo: **66269**
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277504** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.2		5.000		104	55.1	146			

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#: **2002001**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Todd 13 Battery

Sample ID: **mb-50185**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **50185**	RunNo: **66278**
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277391** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	790		1000		79.4	66.6	105			

Sample ID: **lcs-50185**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50185**	RunNo: **66278**
Prep Date: **1/31/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277393** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1000		91.2	66.6	105			

Sample ID: **mb-50219**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **50219**	RunNo: **66278**
Prep Date: **2/3/2020**	Analysis Date: **2/5/2020**	SeqNo: **2277403** 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	750		1000		75.4	66.6	105			

Sample ID: **lcs-50219**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **50219**	RunNo: **66278**
Prep Date: **2/3/2020**	Analysis Date: **2/4/2020**	SeqNo: **2277404** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.0	80	120			
Surr: BFB	850		1000		85.5	66.6	105			

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#: **2002001**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Todd 13 Battery

Sample ID: **mb-50185** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **50185** RunNo: **66278**

Prep Date: **1/31/2020** Analysis Date: **2/4/2020** SeqNo: **2277424** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.87		1.000		86.5	80	120			

Sample ID: **lcs-50185** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **50185** RunNo: **66278**

Prep Date: **1/31/2020** Analysis Date: **2/4/2020** SeqNo: **2277425** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.90		1.000		89.7	80	120			

Sample ID: **mb-50219** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **50219** RunNo: **66278**

Prep Date: **2/3/2020** Analysis Date: **2/5/2020** SeqNo: **2277435** 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	0.85		1.000		85.3	80	120			

Sample ID: **lcs-50219** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **50219** RunNo: **66278**

Prep Date: **2/3/2020** Analysis Date: **2/4/2020** SeqNo: **2277436** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	92.7	80	120			
Toluene	0.95	0.050	1.000	0	95.4	80	120			
Ethylbenzene	0.95	0.050	1.000	0	94.8	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.2	80	120			
Surr: 4-Bromofluorobenzene	0.92		1.000		91.9	80	120			

Sample ID: **2002001-001ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **SS20-01 0'** Batch ID: **50219** RunNo: **66278**

Prep Date: **2/3/2020** Analysis Date: **2/5/2020** SeqNo: **2277438** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.024	0.9479	0.01514	86.1	78.5	119			
Toluene	0.85	0.047	0.9479	0.01731	88.0	75.7	123			
Ethylbenzene	0.85	0.047	0.9479	0.01476	87.9	74.3	126			
Xylenes, Total	2.5	0.095	2.844	0.04532	87.7	72.9	130			

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#: **2002001**

06-Feb-20

Client: Vertex Resource Group Ltd.

Project: Todd 13 Battery

Sample ID: **2002001-001ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **SS20-01 0'** Batch ID: **50219** RunNo: **66278**

Prep Date: **2/3/2020** Analysis Date: **2/5/2020** SeqNo: **2277438** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.79		0.9479		83.2	80	120			

Sample ID: **2002001-001amsd** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **SS20-01 0'** Batch ID: **50219** RunNo: **66278**

Prep Date: **2/3/2020** Analysis Date: **2/5/2020** SeqNo: **2277439** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	0.9814	0.01514	86.3	78.5	119	3.73	20	
Toluene	0.89	0.049	0.9814	0.01731	89.0	75.7	123	4.57	20	
Ethylbenzene	0.89	0.049	0.9814	0.01476	89.5	74.3	126	5.21	20	
Xylenes, Total	2.7	0.098	2.944	0.04532	89.2	72.9	130	5.12	20	
Surr: 4-Bromofluorobenzene	0.80		0.9814		81.2	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: **VERTEX CARLSBAD** Work Order Number: **2002001** RcptNo: **1**

Received By: **Erin Melendrez** **2/1/2020 10:00:00 AM**

Completed By: **Erin Melendrez** **2/1/2020 10:43:12 AM**

Reviewed By: YG 2/3/20

Chain of Custody

1. Is Chain of Custody sufficiently 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. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
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 ☐

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

Adjusted? _____

Checked by: JR+ 2/3/20

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	3.6	Good	Not Present			

Chain-of-Custody Record

Client: Vertex

Mailing Address: On File

Phone #: On File

email or Fax#: Natalie Gordon

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush 5 Day

Project Name: Todd 13 Battery

Project #: 20E-00141-001

Project Manager: Natalie Gordon

Sampler: BS

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.9-0.3(CF)= 3.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2002001	(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)
1/30	3:05	soil	SS20-01 0'	4oz	Ice	-001	✓	✓					✓			
1/30	5:15	soil	BH20-03 5'	4oz	ice	-002	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/31/20	0840				1/31/20	0840
1/31/20	1900			Courier	2/1/20	1000

Remarks:
CC: Natalie Gordon

Devon

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.

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

March 04, 2020

Natalie Gordon

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (575) 748-0176
FAX

RE: Todd 13 Battery OrderNo.: 2002A66

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 1 sample(s) on 2/25/2020 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 **2002A66**
Date Reported: **3/4/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 13 Battery
Lab ID: 2002A66-001 **Matrix:** SOIL

Client Sample ID: BS20-01
Collection Date: 2/24/2020 12:25:00 PM
Received Date: 2/25/2020 10:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	2/27/2020 6:02:15 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/27/2020 6:02:15 PM
Surr: DNOP	76.6	55.1-146		%Rec	1	2/27/2020 6:02:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/29/2020 12:00:35 AM
Surr: BFB	81.3	66.6-105		%Rec	1	2/29/2020 12:00:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	2/29/2020 12:00:35 AM
Toluene	ND	0.046		mg/Kg	1	2/29/2020 12:00:35 AM
Ethylbenzene	ND	0.046		mg/Kg	1	2/29/2020 12:00:35 AM
Xylenes, Total	ND	0.093		mg/Kg	1	2/29/2020 12:00:35 AM
Surr: 4-Bromofluorobenzene	89.3	80-120		%Rec	1	2/29/2020 12:00:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	2100	60		mg/Kg	20	3/1/2020 8:24:21 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#: **2002A66**

04-Mar-20

Client: Devon Energy

Project: Todd 13 Battery

Sample ID: **MB-50776**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **50776**	RunNo: **66941**
Prep Date: **3/1/2020**	Analysis Date: **3/1/2020**	SeqNo: **2302756** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-50776**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **50776**	RunNo: **66941**
Prep Date: **3/1/2020**	Analysis Date: **3/1/2020**	SeqNo: **2302757** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.9	90	110			

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#: **2002A66**

04-Mar-20

Client: Devon Energy

Project: Todd 13 Battery

Sample ID: **LCS-50685**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50685**	RunNo: **66879**
Prep Date: **2/26/2020**	Analysis Date: **2/27/2020**	SeqNo: **2299849** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	70	130			
Surr: DNOP	5.1		5.000		101	55.1	146			

Sample ID: **MB-50685**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50685**	RunNo: **66879**
Prep Date: **2/26/2020**	Analysis Date: **2/27/2020**	SeqNo: **2299850** 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	11		10.00		115	55.1	146			

Sample ID: **MB-50823**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **50823**	RunNo: **66967**
Prep Date: **3/3/2020**	Analysis Date: **3/3/2020**	SeqNo: **2304322** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.8		10.00		88.5	55.1	146			

Sample ID: **LCS-50823**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **50823**	RunNo: **66967**
Prep Date: **3/3/2020**	Analysis Date: **3/3/2020**	SeqNo: **2304323** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.3		5.000		86.4	55.1	146			

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#: **2002A66**

04-Mar-20

Client: Devon Energy

Project: Todd 13 Battery

Sample ID: **mb-50678** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **50678** RunNo: **66892**

Prep Date: **2/25/2020** Analysis Date: **2/28/2020** SeqNo: **2301157** 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	830		1000		83.4	66.6	105			

Sample ID: **lcs-50678** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **50678** RunNo: **66892**

Prep Date: **2/25/2020** Analysis Date: **2/28/2020** SeqNo: **2301158** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.5	80	120			
Surr: BFB	890		1000		88.9	66.6	105			

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#: **2002A66**

04-Mar-20

Client: Devon Energy

Project: Todd 13 Battery

Sample ID: **mb-50678** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **50678** RunNo: **66892**

Prep Date: **2/25/2020** Analysis Date: **2/28/2020** SeqNo: **2301205** 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	0.90		1.000		89.9	80	120			

Sample ID: **LCS-50678** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **50678** RunNo: **66892**

Prep Date: **2/25/2020** Analysis Date: **2/28/2020** SeqNo: **2301206** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.1	80	120			
Toluene	0.97	0.050	1.000	0	97.1	80	120			
Ethylbenzene	0.98	0.050	1.000	0	98.1	80	120			
Xylenes, Total	3.0	0.10	3.000	0	99.0	80	120			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	80	120			

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: **2002A66** RcptNo: **1**

ENH 2/25/20

Received By: Juan Rojas **2/25/2020 10:55:00 AM**

Completed By: **Erin Melendrez** **2/25/2020 1:20:55 PM**

Reviewed By: MJ 02/25/20

Chain of Custody

1. Is Chain of Custody sufficiently 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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
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 ☐	

TO

# of preserved bottles checked for pH: 2/25/20 (<2 or >12 unless noted)

Adjusted? _____

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	0.2	Good				
2	4.2	Good				

Chain-of-Custody Record

Client: Devon Energy

Mailing Address: on file

Phone #: on file

email or Fax#: on file

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time: 5-day
☒ Standard ☐ Rush

Project Name: Todd 13 Battery

Project #: 20E-00141

Project Manager: Natalie Gordon

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 0.3 - 0.1 = 0.2 (°C)
4.3 - 0.1 = 4.2

HEAL No. 2002A060

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.	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)
2/24/20	12:25	Soil	BS20-01	4 oz. Jar	ICE	-001	X	X					X			

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
2/24/20	15:00	Brandon Dehoff			2/24/20	1500
2/24/20	1900		Jen Courier		2/25/20	10:55

Remarks: Bill: Devon W.O#=20829607
CC: Natalie Gordon

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.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 25, 2020

Natalie Gordon

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (575) 748-0176
FAX:

RE: Todd 13 Battery OrderNo.: 2006A28

Dear Natalie Gordon:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/19/2020 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 **2006A28**
Date Reported: **6/25/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 13 Battery
Lab ID: 2006A28-001 **Matrix:** SOIL

Client Sample ID: BS20-01
Collection Date: 6/17/2020 1:31:00 PM
Received Date: 6/19/2020 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	6/24/2020 3:52:01 PM	53275
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/22/2020 3:58:23 AM	53183
Surr: BFB	107	70-130		%Rec	1	6/22/2020 3:58:23 AM	53183
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/21/2020 2:49:08 AM	53187
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/21/2020 2:49:08 AM	53187
Surr: DNOP	95.8	55.1-146		%Rec	1	6/21/2020 2:49:08 AM	53187
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.025		mg/Kg	1	6/22/2020 3:58:23 AM	53183
Toluene	ND	0.050		mg/Kg	1	6/22/2020 3:58:23 AM	53183
Ethylbenzene	ND	0.050		mg/Kg	1	6/22/2020 3:58:23 AM	53183
Xylenes, Total	ND	0.099		mg/Kg	1	6/22/2020 3:58:23 AM	53183
Surr: 1,2-Dichloroethane-d4	96.5	70-130		%Rec	1	6/22/2020 3:58:23 AM	53183
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	6/22/2020 3:58:23 AM	53183
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	6/22/2020 3:58:23 AM	53183
Surr: Toluene-d8	98.7	70-130		%Rec	1	6/22/2020 3:58:23 AM	53183

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 **2006A28**
Date Reported: **6/25/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 13 Battery
Lab ID: 2006A28-002 **Matrix:** SOIL

Client Sample ID: BS20-02
Collection Date: 6/17/2020 1:48:00 PM
Received Date: 6/19/2020 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	ND	60		mg/Kg	20	6/24/2020 4:04:22 PM	53275
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/22/2020 4:27:38 AM	53183
Surr: BFB	103	70-130		%Rec	1	6/22/2020 4:27:38 AM	53183
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	6/21/2020 2:59:26 AM	53187
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/21/2020 2:59:26 AM	53187
Surr: DNOP	167	55.1-146	S	%Rec	1	6/21/2020 2:59:26 AM	53187
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.025		mg/Kg	1	6/22/2020 4:27:38 AM	53183
Toluene	ND	0.049		mg/Kg	1	6/22/2020 4:27:38 AM	53183
Ethylbenzene	ND	0.049		mg/Kg	1	6/22/2020 4:27:38 AM	53183
Xylenes, Total	ND	0.098		mg/Kg	1	6/22/2020 4:27:38 AM	53183
Surr: 1,2-Dichloroethane-d4	96.5	70-130		%Rec	1	6/22/2020 4:27:38 AM	53183
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	6/22/2020 4:27:38 AM	53183
Surr: Dibromofluoromethane	97.1	70-130		%Rec	1	6/22/2020 4:27:38 AM	53183
Surr: Toluene-d8	101	70-130		%Rec	1	6/22/2020 4:27:38 AM	53183

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 **2006A28**
Date Reported: **6/25/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 13 Battery
Lab ID: 2006A28-003 **Matrix:** SOIL

Client Sample ID: WS20-01
Collection Date: 6/17/2020 2:03:00 PM
Received Date: 6/19/2020 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Chloride	ND	60		mg/Kg	20	6/24/2020 4:16:42 PM	53275
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst:	**DJF**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/22/2020 4:57:22 AM	53183
Surr: BFB	108	70-130		%Rec	1	6/22/2020 4:57:22 AM	53183
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst:	**BRM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	6/21/2020 3:09:38 AM	53187
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/21/2020 3:09:38 AM	53187
Surr: DNOP	113	55.1-146		%Rec	1	6/21/2020 3:09:38 AM	53187
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst:	**DJF**
Benzene	ND	0.025		mg/Kg	1	6/22/2020 4:57:22 AM	53183
Toluene	ND	0.049		mg/Kg	1	6/22/2020 4:57:22 AM	53183
Ethylbenzene	ND	0.049		mg/Kg	1	6/22/2020 4:57:22 AM	53183
Xylenes, Total	ND	0.098		mg/Kg	1	6/22/2020 4:57:22 AM	53183
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%Rec	1	6/22/2020 4:57:22 AM	53183
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	1	6/22/2020 4:57:22 AM	53183
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	6/22/2020 4:57:22 AM	53183
Surr: Toluene-d8	98.6	70-130		%Rec	1	6/22/2020 4:57:22 AM	53183

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#: **2006A28**
25-Jun-20

Client: Devon Energy
Project: Todd 13 Battery

Sample ID: **MB-53275**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **53275**	RunNo: **69865**
Prep Date: **6/24/2020**	Analysis Date: **6/24/2020**	SeqNo: **2426931** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-53275**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **53275**	RunNo: **69865**
Prep Date: **6/24/2020**	Analysis Date: **6/24/2020**	SeqNo: **2426932** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	90	110			

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#: **2006A28**

25-Jun-20

Client: Devon Energy

Project: Todd 13 Battery

Sample ID: **LCS-53184** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **53184** RunNo: **69768**

Prep Date: **6/19/2020** Analysis Date: **6/20/2020** SeqNo: **2422439** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.4		5.000		128	55.1	146			

Sample ID: **LCS-53187** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **53187** RunNo: **69768**

Prep Date: **6/19/2020** Analysis Date: **6/20/2020** SeqNo: **2422440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	59	10	50.00	0	119	70	130			
Surr: DNOP	6.5		5.000		131	55.1	146			

Sample ID: **MB-53184** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **53184** RunNo: **69768**

Prep Date: **6/19/2020** Analysis Date: **6/20/2020** SeqNo: **2422442** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	14		10.00		137	55.1	146			

Sample ID: **MB-53187** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **53187** RunNo: **69768**

Prep Date: **6/19/2020** Analysis Date: **6/20/2020** SeqNo: **2422443** 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	12		10.00		115	55.1	146			

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#: **2006A28**
25-Jun-20

Client: Devon Energy
Project: Todd 13 Battery

Sample ID: **mb-53183** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **53183** RunNo: **69787**
Prep Date: **6/19/2020** Analysis Date: **6/21/2020** SeqNo: **2423069** 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: 1,2-Dichloroethane-d4	0.49		0.5000		97.8	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		103	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.8	70	130			
Surr: Toluene-d8	0.50		0.5000		100	70	130			

Sample ID: **lcs-53183** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **53183** RunNo: **69787**
Prep Date: **6/19/2020** Analysis Date: **6/21/2020** SeqNo: **2423070** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	97.4	80	120			
Toluene	1.1	0.050	1.000	0	106	80	120			
Ethylbenzene	1.1	0.050	1.000	0	110	80	120			
Xylenes, Total	3.2	0.10	3.000	0	106	80	120			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.3	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.50		0.5000		99.4	70	130			

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#: **2006A28**

25-Jun-20

Client: Devon Energy

Project: Todd 13 Battery

Sample ID: **mb-53183**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **53183**	RunNo: **69787**
Prep Date: **6/19/2020**	Analysis Date: **6/21/2020**	SeqNo: **2423143** 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	540		500.0		107	70	130			

Sample ID: **lcs-53183**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **53183**	RunNo: **69787**
Prep Date: **6/19/2020**	Analysis Date: **6/21/2020**	SeqNo: **2423144** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.6	70	130			
Surr: BFB	540		500.0		109	70	130			

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: 2006A28 RcptNo: 1

Received By: Isaiah Ortiz 6/19/2020 9:35:00 AM I-OK

Completed By: Juan Rojas 6/19/2020 9:52:26 AM

Reviewed By: SPA 6.19.20

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. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
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 ☐	

IO

# of preserved bottles checked for pH: 6/19/20 (<2 or >12 unless noted)

Adjusted?

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	3.1	Good				

Chain-of-Custody Record

Client: Devon Energy

Mailing Address: ON FILE

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day Turn

☒ Standard ☐ Rush

Project Name: Todd 13 Battery

Project #: 20829607

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.2-0.1(CF)=3.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2006A28	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)
6/17/20	1:31	Soil	BS20-01	4oz jar	ice	-001	X	X					X			
X	1:38	X	BS20-02	X	X	-002	X	X					X			
X	2:03	X	WS20-01	X	X	-003	X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
6/18/20	1000				6/18/20	1000
6/19/20	1900				6/19/20	0935

Remarks: CC Natalie Gordon
Bill Devon Energy

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.