August 31, 2020 Vertex Project #: 20E-00141-024

Spill Closure Report: Todd 14 Battery
Unit K, Section 14, Township 23 South, Range 31 East
County: Eddy
Incident Tracking Number: NRM2000935403

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

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

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for a produced water release that occurred on August 20, 2019, at the Todd 14 Battery (hereafter referred to as "Todd 14"). Devon provided notification of the release to New Mexico Oil Conservation Division (NM OCD) District 2 and the Bureau of Land Management (BLM), who owns the land, on August 21, 2019, via submission of an initial C-141 Release Notification (Attachment 1). The NM OCD incident tracking number assigned to the release is NRM2000935403.

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 August 20, 2019, a release occurred at Devon's Todd 14 site when a produced water tank developed a leak on the bottom of the tank. This incident resulted in the release of approximately 7.4 barrels (bbls) of produced water into the bermed, but unlined, secondary containment. Upon discovery of the release, the tank was repaired and a hydrovac truck was dispatched to site to recover free fluid. Approximately 4 bbls of produced water were recovered from the containment and removed for disposal at an approved location. No produced water was released outside of containment.

Site Characterization

The release at Todd 14 occurred on federally-owned land, N 32.302519, W 103.750994, approximately 20 miles east of Loving, New Mexico. The legal description for the site is Unit K, Section 14, Township 23 South, Range 31 East, Eddy County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic are included in Attachment 2 (Figure 1).

Todd 14 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 in which the Todd 14 tank battery is located.

The surrounding landscape is associated with sandy dunes and plains typical of elevations between 3,000 and 4,200 feet above sea level. The climate is semi-arid, with average annual precipitation ranging between 10 and 14 inches. Litter and, to a lesser extent, bare ground make up a significant proportion of ground cover, while grasses compose the remainder. The dominant grass species are black grama, dropseeds and bluestems, with perennial and annual forb abundance relative to precipitation (United States Department of Agriculture, Natural Resources Conservation Service, 2020). Limited to no vegetation is allowed to grow on the compacted tank battery pad.

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 on the cusp of Kermit-Berino fine sands and Berino complex. These types of soils tend to be excessively well-drained with low runoff and low-to-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 14 (United States Department of the Interior, United States Geological Survey, 2020a).

There is no surface water located at Todd 14. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Pecos River, located approximately 16 miles west of Todd 14 (United States Department of the Interior, United States Geological Survey, 2020b). A small, emergent pond is also located approximately 2.4 miles northwest of the release site (United States Fish and Wildlife Service, 2020). At Todd 14, there are no continuously flowing watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features nearby as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest groundwater well to the site is a 2014 New Mexico Office of the State Engineer (OSE)-identified well, located approximately 0.7 miles north-northwest of the site, with a depth to groundwater of 639 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). Although this well is located just outside of the preferred distance of a ½-mile from the release site as recommended in the *Procedures for Implementation of the Spill Rule* (19.15.29 NMAC; New Mexico Energy, Minerals and Natural Resources Department, 2019), additional nearby wells to the south and southeast of Todd 14 support the groundwater determination. These nearby wells include an OSE well located approximately 2.2 miles south of Todd 14, with a depth to groundwater of 430 feet bgs and an OSE well located approximately 3.5 miles southeast of Todd 14, with a depth to groundwater of 713 feet bgs. 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 14 is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site are determined to be associated with the following constituent concentration limits based on depth to groundwater.

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

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

[2]Benzene, toluene, ethylbenzene and xylenes (BTEX)

Remedial Actions

An initial spill inspection, completed on April 20, 2020, identified and mapped the boundaries of the produced water release by field screening soil samples using an electroconductivity (EC) meter. This method of field screening approximates chloride levels in the soil using electrical conductivity values and a regression equation. The release area was determined to be approximately 68 feet long and 35 feet wide; the total affected area was determined to be 1,808 square feet (Attachment 2 – Figure 1).

Initial field screening activities indicated that the constituent of concern for a produced water release – chloride - was below closure criteria as outlined in Table 1 and no remediation was deemed necessary. Surface soil samples were submitted for laboratory analyses to confirm the horizontal extents of the identified release. The initial characterization laboratory results confirmed initial field screening results, with the exception of surface sample 1 (SS 20-01), which indicated elevated hydrocarbons near the edge of the delineated release footprint. The presence of hydrocarbons at that location are not attributed to the release associated with this report and are believed to be the result of a separate, unknown incident. Field screening results and associated laboratory data are summarized in Table 2 (Attachment 4) and in the Daily Field Report from the initial inspection (Attachment 5).

On May 19, 2020, Vertex provided 48-hour notification of confirmation sampling to the NM OCD, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 6); and confirmatory samples were collected on May 23, 2020. A total of nine five-point composite confirmatory samples were collected from the surface of the release area. The initial characterization sampling laboratory data as shown in Table 2 (Attachment 4) had previously confirmed the horizontal extents of the release area, so additional sidewall samples were not collected. However, during confirmatory sampling activities, SS20-01 from the initial characterization sampling, which had laboratory-determined TPH levels approaching NM OCD Closure Criteria, was re-collected from the same location for re-analysis.

Each composite confirmatory sample was representative of no more than 200 square feet per the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which does not require prior NM OCD approval. The confirmatory samples and re-collected characterization sample were placed into laboratory-provided containers, preserved on ice, and submitted to a National Environmental Laboratory Accreditation Program-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 sampling analytical data are summarized in Table 3 (Attachment 4). The re-collected characterization sample (SS20-01) is shown in Table 2 (Attachment 4). 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 each of the five-point composite samples. The confirmatory sampling locations are presented on Figure 2 (Attachment 2).

Closure Request

Vertex recommends no remediation action to address the release at Todd 14. Laboratory analyses of the confirmatory samples showed constituent of concern concentration levels below NM OCD closure criteria for areas where depth to groundwater is greater than 100 feet bgs. The re-collected characterization sample (SS20-10) did not indicate any remaining presence of hydrocarbons near the produced water release. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident (NRM2000935403) 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 August 20, 2019, release at Todd 14.

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. Characterization and Confirmatory Sampling Laboratory Results
Attachment 5. Daily Field Report(s) with Photographs
Attachment 6. Required 48-hr Notification of Confirmation Sampling to Regulatory Agencies
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 Energy, Minerals and Natural Resources Department. (2019). *Procedures for Implementation of the Spill Rule.* Santa Fe, New Mexico.

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). *National Water Information System.* Retrieved from https://maps.waterdata.usgs.gov/mapper/index.html?state=nm

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	NRM2000935403
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

Latitude 32.302519 Longitude -103.750994
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Todd 14 Battery	Site Type Oil
Date Release Discovered 8/20/2019	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
K	14	23S	31E	Eddy

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 7.4	Volume Recovered (bbls) 4
	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: Produced water tank developed a leak on tank bottom. There is no liner in containment . Spill area 75'x2'x1/4".

State of New Mexico
Oil Conservation Division

Incident ID	NRM2000935403
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 8/21/2019

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

OCD Only

Received by: Ramona Marcus Date: 01/09/2020

State of New Mexico
Oil Conservation Division

Incident ID	NRM2000935403
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?	693 (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	NRM2000935403
District RP	
Facility ID	
Application ID	

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

Printed Name: Tom Bynum Title: EHS Consultant

Signature: Tom Bynum Date: 8/31/2020

email: tom.bynum@dvn.com Telephone: 575-748-2663

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NRM2000935403
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: 8/31/2020

email: tom.bynum@dvn.com Telephone: 575-748-2663

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ATTACHMENT 2

Borehole

Surface Sample

Spill Area (~1,808 sq. ft.)

VERTEX

0 12.5 25 Feet

Map Center:
Lat/Long: 32.302552, -103.751163

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

N

Site Schematic and Initial Characterization
Sampling Locations
Todd 14 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: Imagery from ESRI, 2018.

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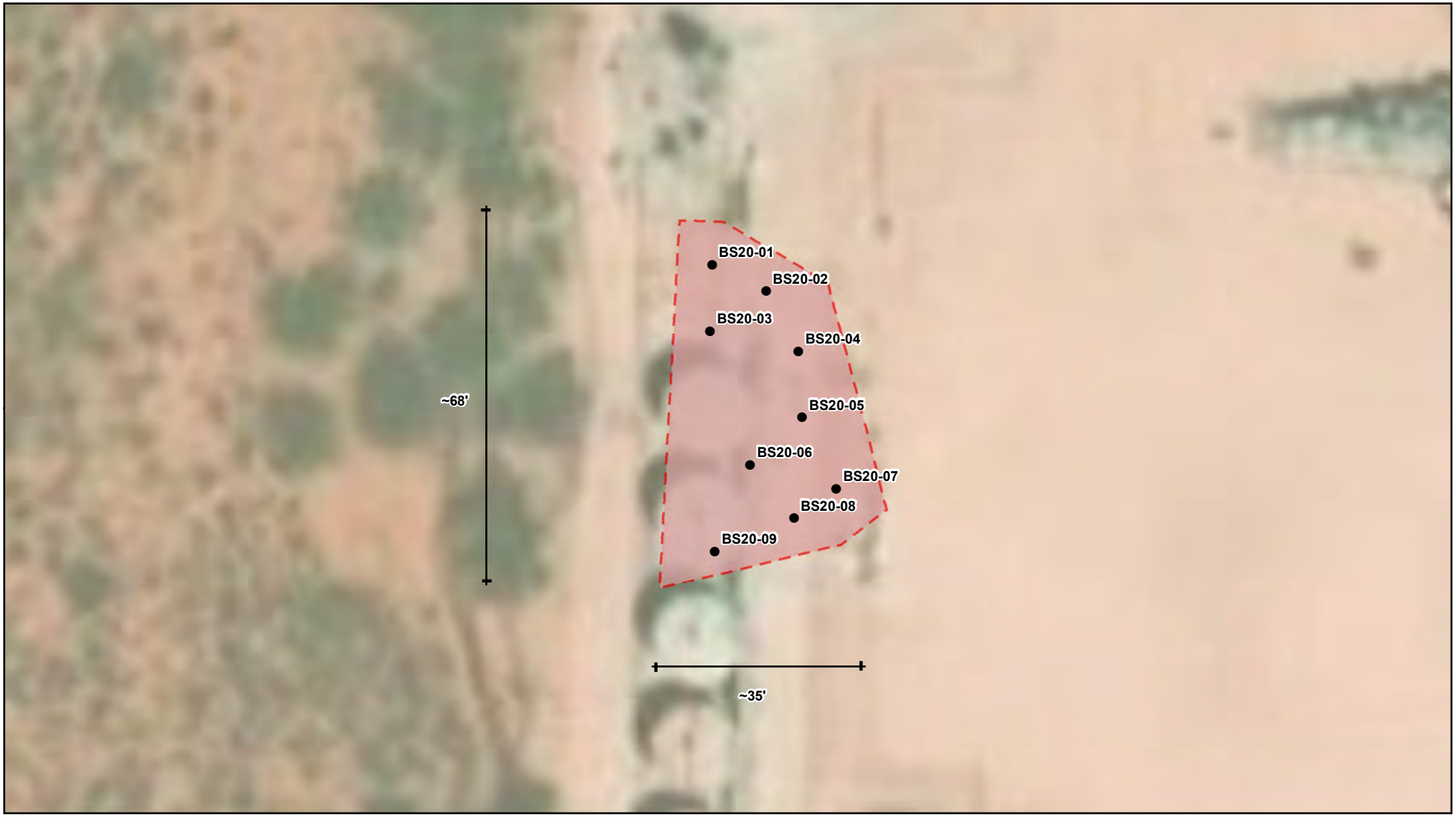
Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\024 - Todd 14 Battery\Figure 1 Site schematic and Delineation Sampling Todd 14 Battery.mxd



● Base Sample

Spill Area (~1,808 sq. ft.)

VERTEX

0 7.5 15 Feet

Map Center:
Lat/Long: 32.302545, -103.751161

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

N

Confirmatory Sampling Locations
Todd 14 Battery

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: Imagery from ESRI, 2018.

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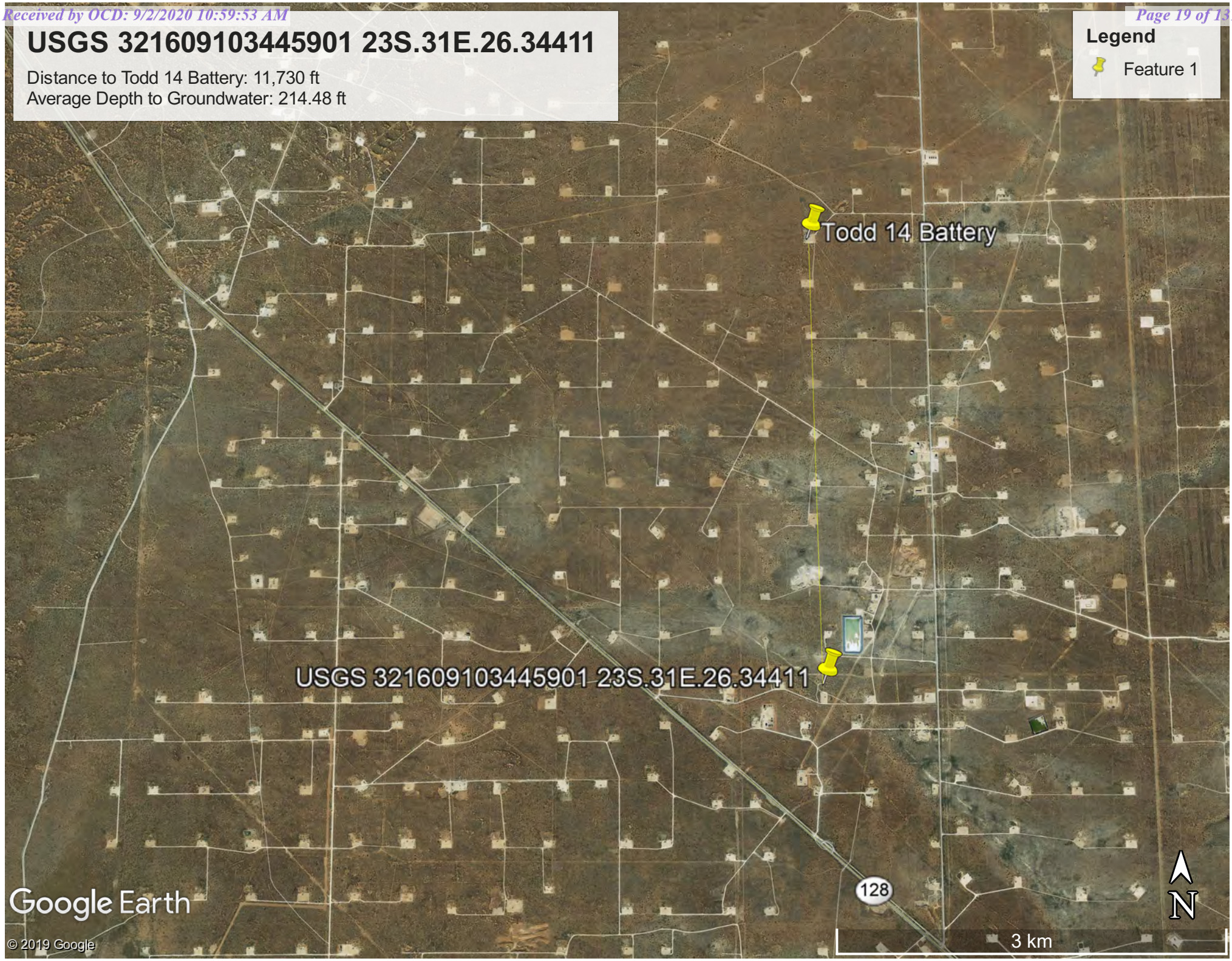
Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\024 - Todd 14 Battery\Figure 2 Confirmatory Schematic Todd 14 Battery.mxd

ATTACHMENT 3

Closure Criteria Worksheet			
Todd 14 Battery			
Spill Coordinates:		X: 32.302519	Y: -103.750994
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**215**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	10,220	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	12,628	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	20,401	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	3,878	feet
	ii) Within 1000 feet of any fresh water well or spring		feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	13,300	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'


USGS 321609103445901 23S.31E.26.34411
Distance to Todd 14 Battery: 11,730 ft
Average Depth to Groundwater: 214.48 ft
Legend
Feature 1
Todd 14 Battery
USGS 321609103445901 23S.31E.26.34411
128
N
3 km
Google Earth
© 2019 Google

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 321609103445901

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

USGS 321609103445901 23S.31E.26.34411

Available data for this site | Groundwater: Field measurements | GO

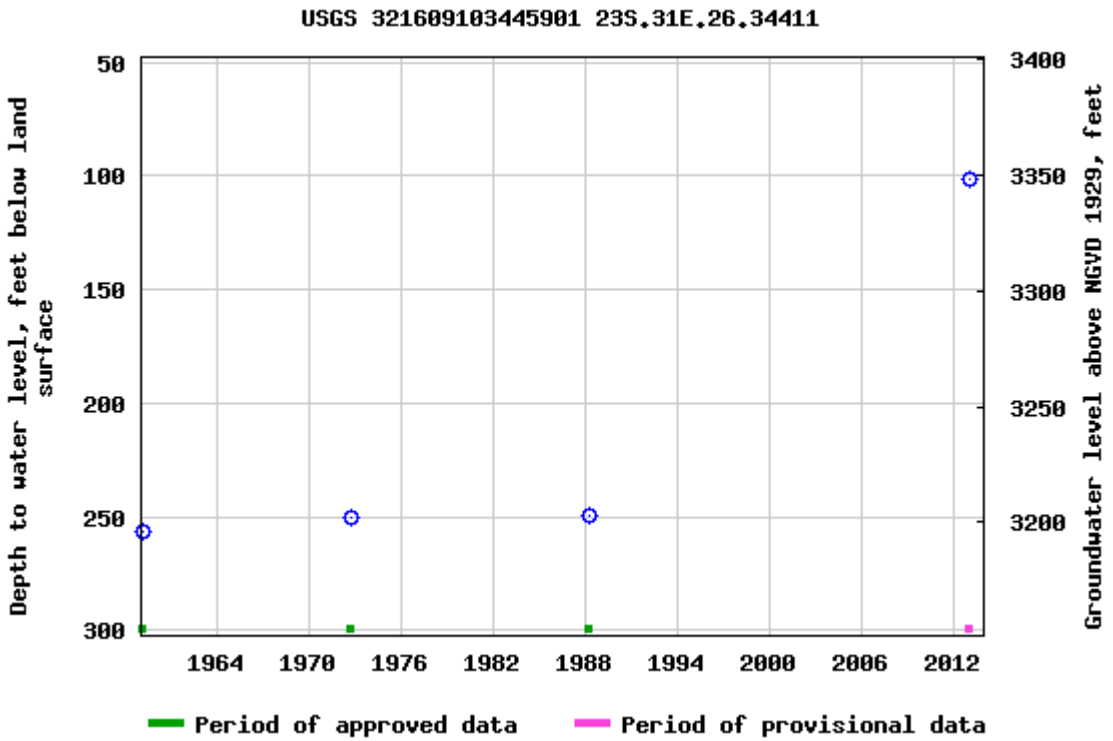
Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°16'11.9", Longitude 103°45'01.2" NAD83
Land-surface elevation 3,451.00 feet above NGVD29
The depth of the well is 365 feet below land surface.
This well is completed in the Dewey Lake Redbeds (312DYLK) local aquifer.

Output formats

Table of data
Tab-separated data

Graph of data

Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
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Data Tips
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U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-06-26 16:05:45 EDT
0.79 0.66 nadww01

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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 321809103481801

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

USGS 321809103481801 23S.31E.17.31141

Available data for this site | Groundwater: Field measurements | GO

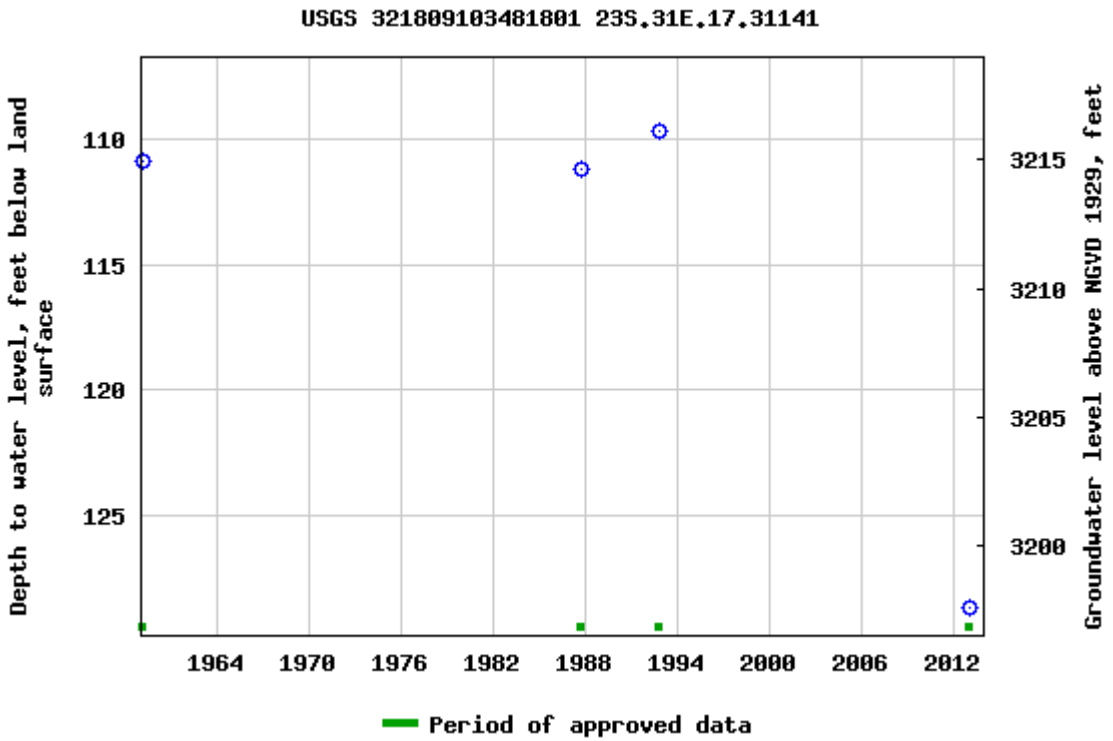
Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°18'11.3", Longitude 103°48'23.4" NAD83
Land-surface elevation 3,326.00 feet above NGVD29
The depth of the well is 354 feet below land surface.
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

Table of data
Tab-separated data

Graph of data

Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
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Accessibility Plug-Ins FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey

Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-06-26 16:04:19 EDT
0.69 0.56 nadww02

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 321952103400801

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

USGS 321952103400801 23S.32E.03.311114

Available data for this site | Groundwater: Field measurements | GO

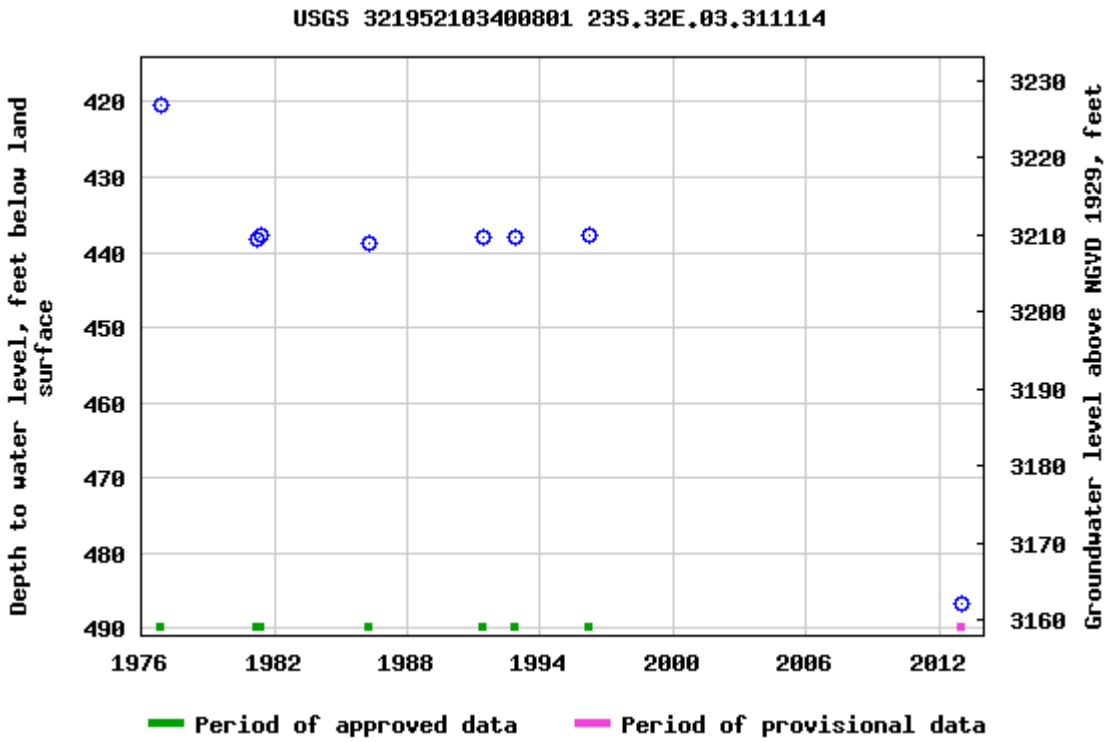
Lea County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°19'59.2", Longitude 103°40'12.6" NAD83
Land-surface elevation 3,648.00 feet above NGVD29
The depth of the well is 630 feet below land surface.
This well is completed in the Santa Rosa Sandstone (231SNRS) local aquifer.

Output formats

Table of data
Tab-separated data

Graph of data

Reselect period



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U.S. Department of the Interior | U.S. Geological Survey
Title: Groundwater for USA: Water Levels
URL: https://nwis.waterdata.usgs.gov/nwis/gwlevels?

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2020-06-26 16:07:09 EDT
0.66 0.56 nadww02

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 02777	CUB	MON	0	US DEPT OF ENERGY WIPP	ED	C 02777					4	4	4	10	23S	31E	616973	3575662	1182
C 03749	CUB	MON	0	US DEPARTMENT OF ENERGY	ED	C 03749 POD1				Shallow		2	2	15	23S	31E	616973	3575662	1182
C 02258	C	PRO	0	DEVON ENERGY CORP.(NEVADA)	ED	C 02258						3	2	26	23S	31E	618055	3571853*	2838
C 02348	C	STK	3	NGL WATER SOLUTIONS PERMIAN	ED	C 02348				Shallow	1	4	3	26	23S	31E	617647	3571068	3585
C 02773	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02773					4	1	3	03	23S	31E	615668	3577762*	3654
C 03140	CUB	MON	0	US DEPT OF ENERGY	ED	C 03140				Shallow	4	2	4	04	23S	31E	615266	3577758*	3878
C 02602	C	SAN	0	POGO PRODUCING COMPANY	ED	C 02602						2	2	35	23S	31E	618471	3570650*	4099
C 03351	C	STK	3	BUREAU OF LAND MANAGEMENT	ED	C 03351				Shallow	4	1	4	04	23S	31E	614916	3577861	4175
C 02954	CUB	EXP	0	U.S. DEPARTMENT OF ENERGY CARLSBAD FIELD OFFICE, WIPP	ED	C 02954 EXPL				Shallow	3	1	4	20	23S	31E	613114	3572906*	4805
C 02774	CUB	MON	0	U.S. DEPT. OF ENERGY - WIPP	ED	C 02774					3	1	3	04	23S	31E	613857	3577745*	4847

Record Count: 10

UTMNAD83 Radius Search (in meters):

Easting (X): 617590.31 **Northing (Y):** 3574653.43 **Radius:** 5000

Sorted by: Distance

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

New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 03749 POD1		2	2	15	23S	31E	616974	3575662

Driller License: 331 **Driller Company:** SBQ2, LLC DBA STEWART BROTHERS DRILLING CO.

Driller Name:

Drill Start Date: 07/10/2014 **Drill Finish Date:** 08/06/2014 **Plug Date:**

Log File Date: 09/11/2014 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 5 GPM

Casing Size: 4.50 **Depth Well:** 865 feet **Depth Water:** 639 feet

Water Bearing Stratifications:	Top	Bottom	Description
	820	846	Limestone/Dolomite/Chalk

Casing Perforations:	Top	Bottom
	820	846

New Mexico Office of the State Engineer

Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Twn	Rng	X	Y
	C 02348	1	4	3	26	23S	31E	617648	3571068

Driller License: 1654 **Driller Company:** NOT WORKING FOR HIRE--SIRMAN DRILLING AND CONSTRUC

Driller Name:

Drill Start Date: 10/31/2013 **Drill Finish Date:** 11/01/2013 **Plug Date:**

Log File Date: 11/07/2013 **PCW Rcv Date:** **Source:** Shallow

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 10 GPM

Casing Size: 6.00 **Depth Well:** 700 feet **Depth Water:** 430 feet

Water Bearing Stratifications:	Top	Bottom	Description
	15	125	Sandstone/Gravel/Conglomerate
	315	700	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	560	620
	680	700

New Mexico Office of the State Engineer

Point of Diversion Summary

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

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

Driller License: 1723 **Driller Company:** SBQ2, LLC DBA STEWART BROTHERS DRILLING CO.

Driller Name:

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

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 02777	CUB	ED	4	4	4	10	23S	31E	616974	3575662	1182	890		
C 03749 POD1	CUB	ED		2	2	15	23S	31E	616974	3575662	1182	865	639	226
C 02258	C	ED		3	2	26	23S	31E	618055	3571853*	2838	662		
C 02348	C	ED	1	4	3	26	23S	31E	617648	3571068	3585	700	430	270
C 02773	CUB	ED	4	1	3	03	23S	31E	615668	3577762*	3654	880		
C 03140	CUB	ED	4	2	4	04	23S	31E	615266	3577758*	3878	684		
C 03351	C	ED	4	1	4	04	23S	31E	614917	3577861	4175	320	168	152
C 02954 EXPL	CUB	ED	3	1	4	20	23S	31E	613114	3572906*	4805	905		
C 02774	CUB	ED	3	1	3	04	23S	31E	613857	3577745*	4847	1660		

Average Depth to Water: **412 feet**

Minimum Depth: **168 feet**

Maximum Depth: **639 feet**

Record Count: 9

UTMNAD83 Radius Search (in meters):

Easting (X): 617590.31 **Northing (Y):** 3574653.43 **Radius:** 5000

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

New Mexico Office of the State Engineer

Wells with Well Log Information

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD Number	POD Sub-basin Code	County	Source	q 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
C 03749 POD1	CUB	ED	Shallow	2	2		15	23S	31E	616974	3575662	1182	07/10/2014	08/06/2014	09/11/2014	865	639	RANDY STEWART	331
C 02258	C	ED		3	2		26	23S	31E	618055	3571853*	2838	09/18/1992	09/18/1992	09/25/1992	662		CORKY GLENN	421
C 02348	C	ED	Shallow	1	4	3	26	23S	31E	617648	3571068	3585	10/31/2013	11/01/2013	11/07/2013	700	430	JOHN SIRMAN	1654
C 03140	CUB	ED	Shallow	4	2	4	04	23S	31E	615266	3577758*	3878	05/02/2005	05/25/2005	06/03/2005	684		BROCKMAN, BERNARD J.	1184
C 03351	C	ED	Shallow	4	1	4	04	23S	31E	614917	3577861	4175	11/20/2007	11/20/2007	12/04/2007	320	168	GLENN, CLARK A."CORKY" (LD)	421
C 02954 EXPL	CUB	ED	Shallow	3	1	4	20	23S	31E	613114	3572906*	4805	06/25/2003	07/29/2003	08/07/2003	905		BROCKMAN, BERNARD J.	1184

Record Count: 6

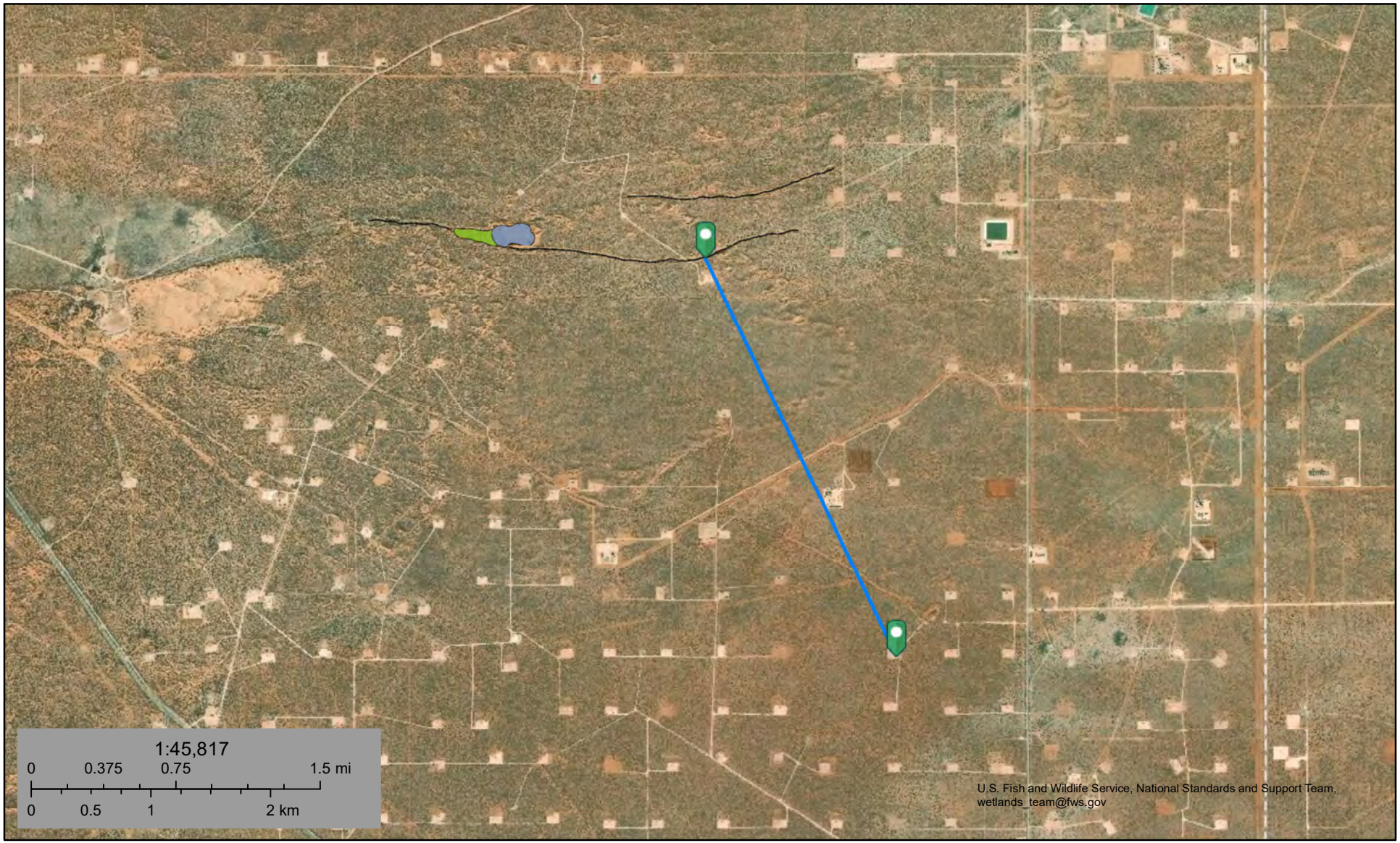
UTMNAD83 Radius Search (in meters):

Easting (X): 617590.31 **Northing (Y):** 3574653.43 **Radius:** 5000

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 14: Watercourse 10,220 ft



February 11, 2020

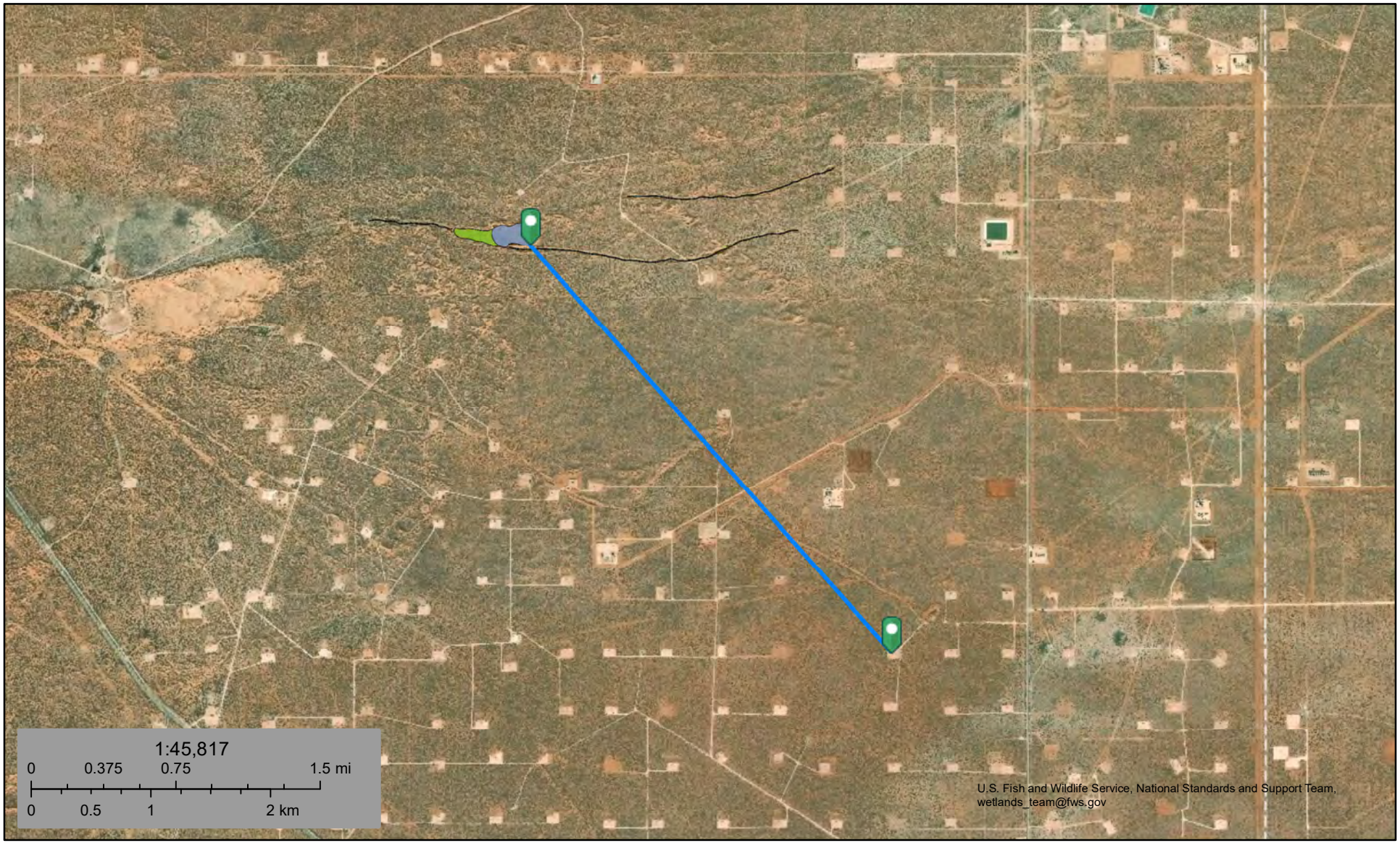
Wetlands

- 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.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Todd 14: Freshwater Pond 12,628 ft



February 11, 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.

U.S. Fish and Wildlife Service
National Wetlands Inventory

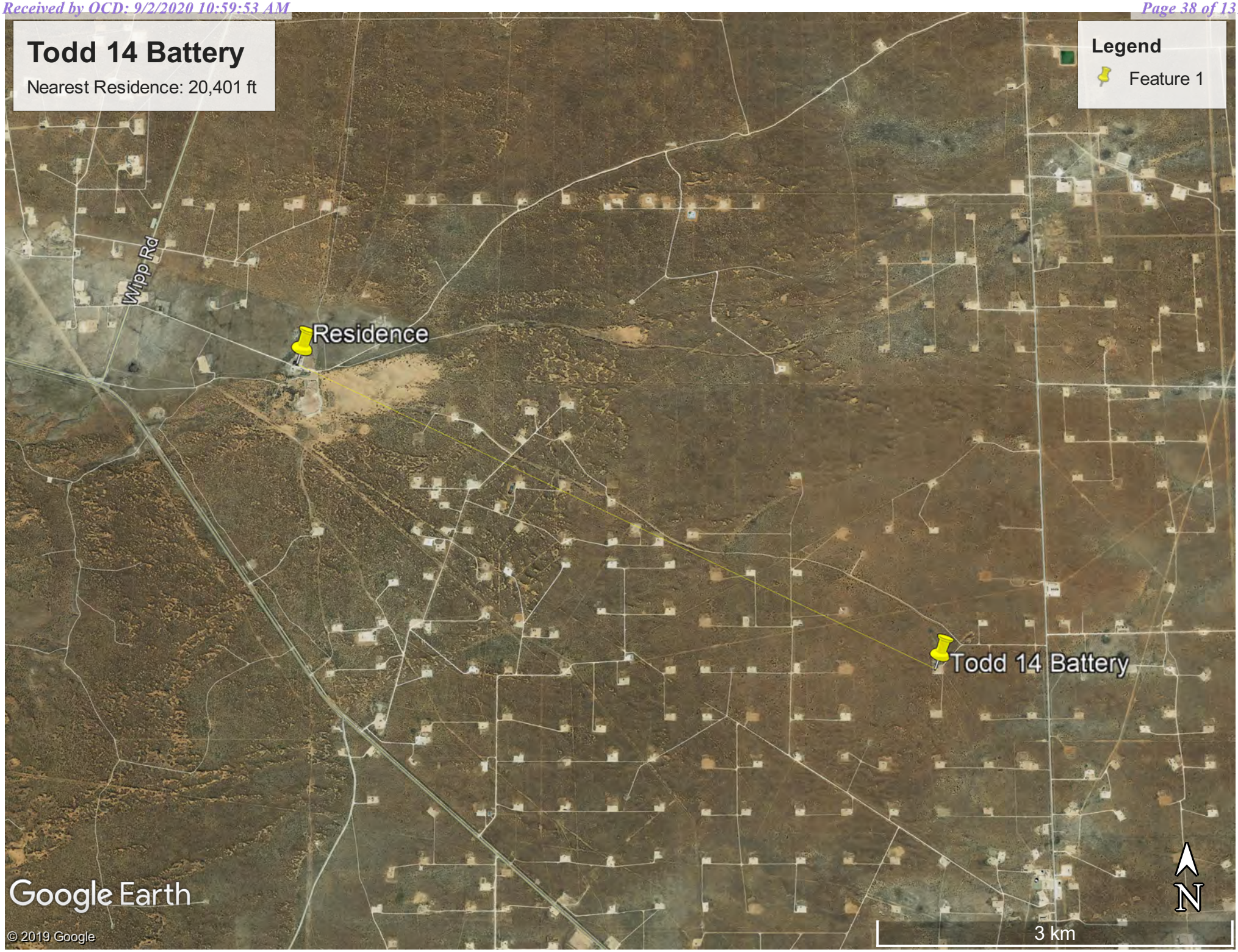
Todd 14: Wetland 13,300 ft

February 11, 2020

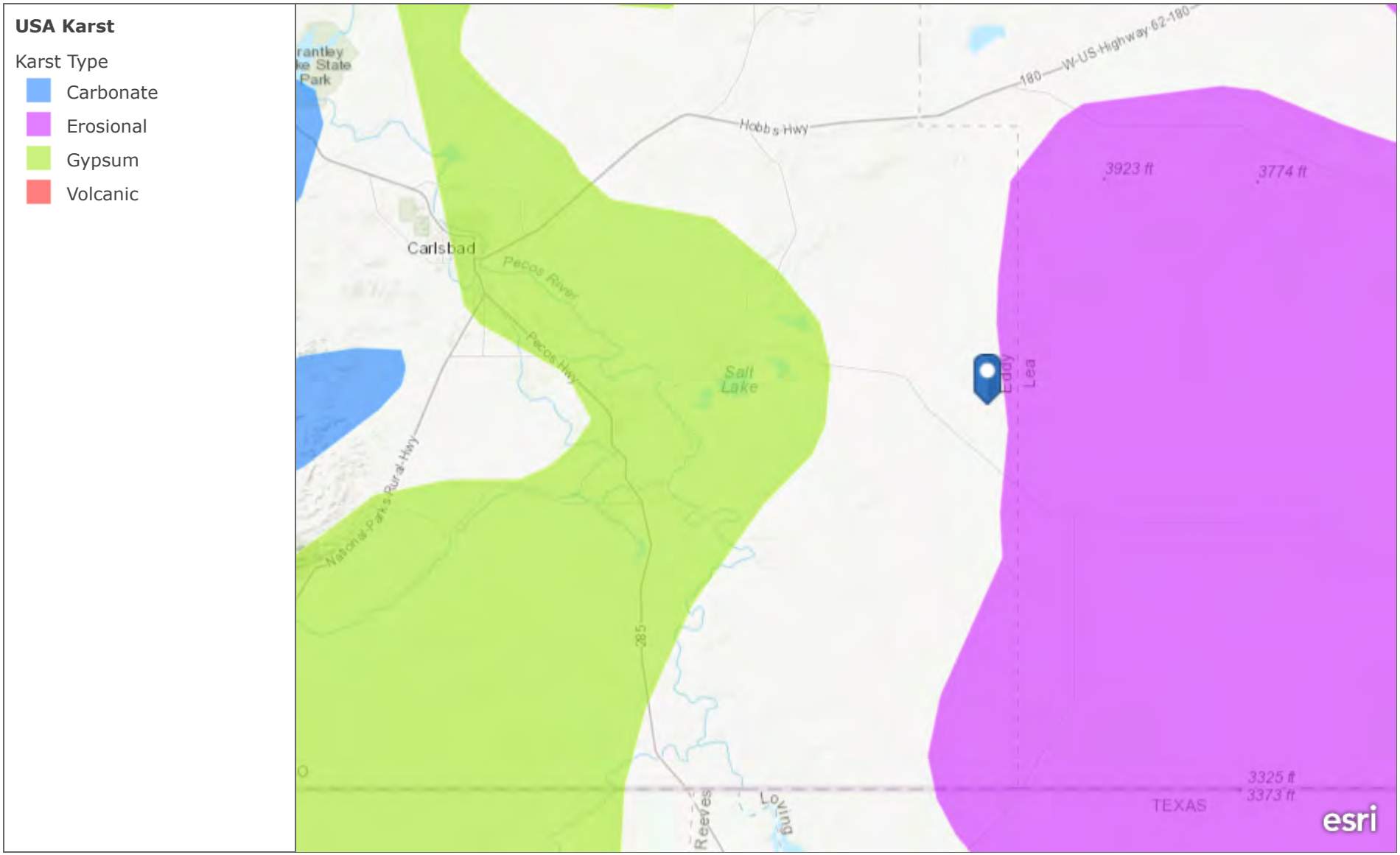
Wetlands

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

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


Todd 14 Battery
Nearest Residence: 20,401 ft
Legend
Feature 1
Wipp Rd
Residence
Todd 14 Battery
N
3 km
Google Earth
© 2019 Google

USA Karst



A map showing karst areas in the United States based on the U.S. Geological Survey Open-File Report 2004-1352

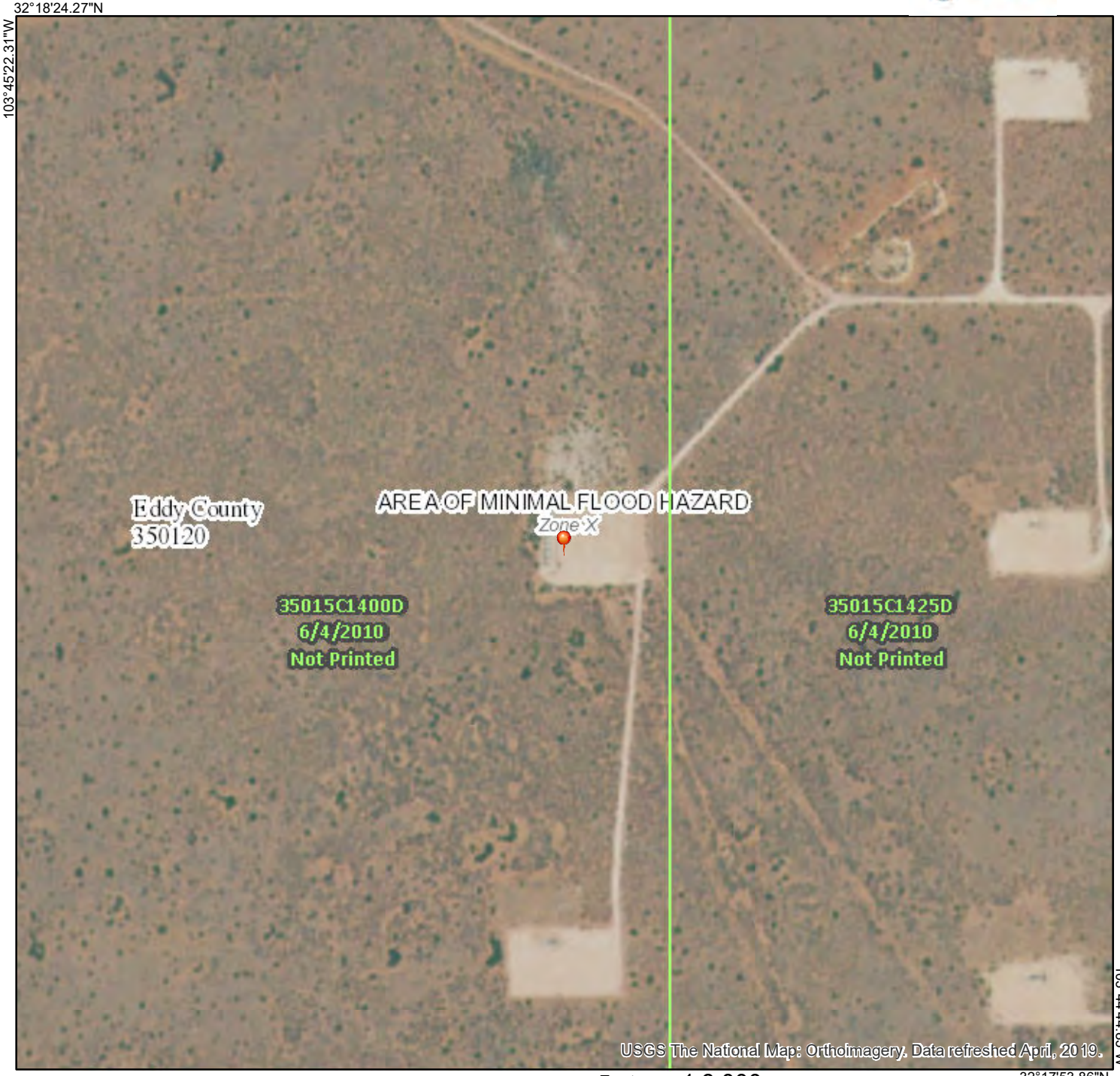
Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | U.S. Geological Survey Open-File Report 2004-1352, Caves and Karst in the U.S. National Park Service, AGI Karst Map of the US.

National Flood Hazard Layer FIRMette

FEMA

32°18'24.27"N

103°45'22.31"W



103°44'44.85"W

32°17'53.86"N

Feet

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

1:6,000

Legend

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

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

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

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

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

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

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

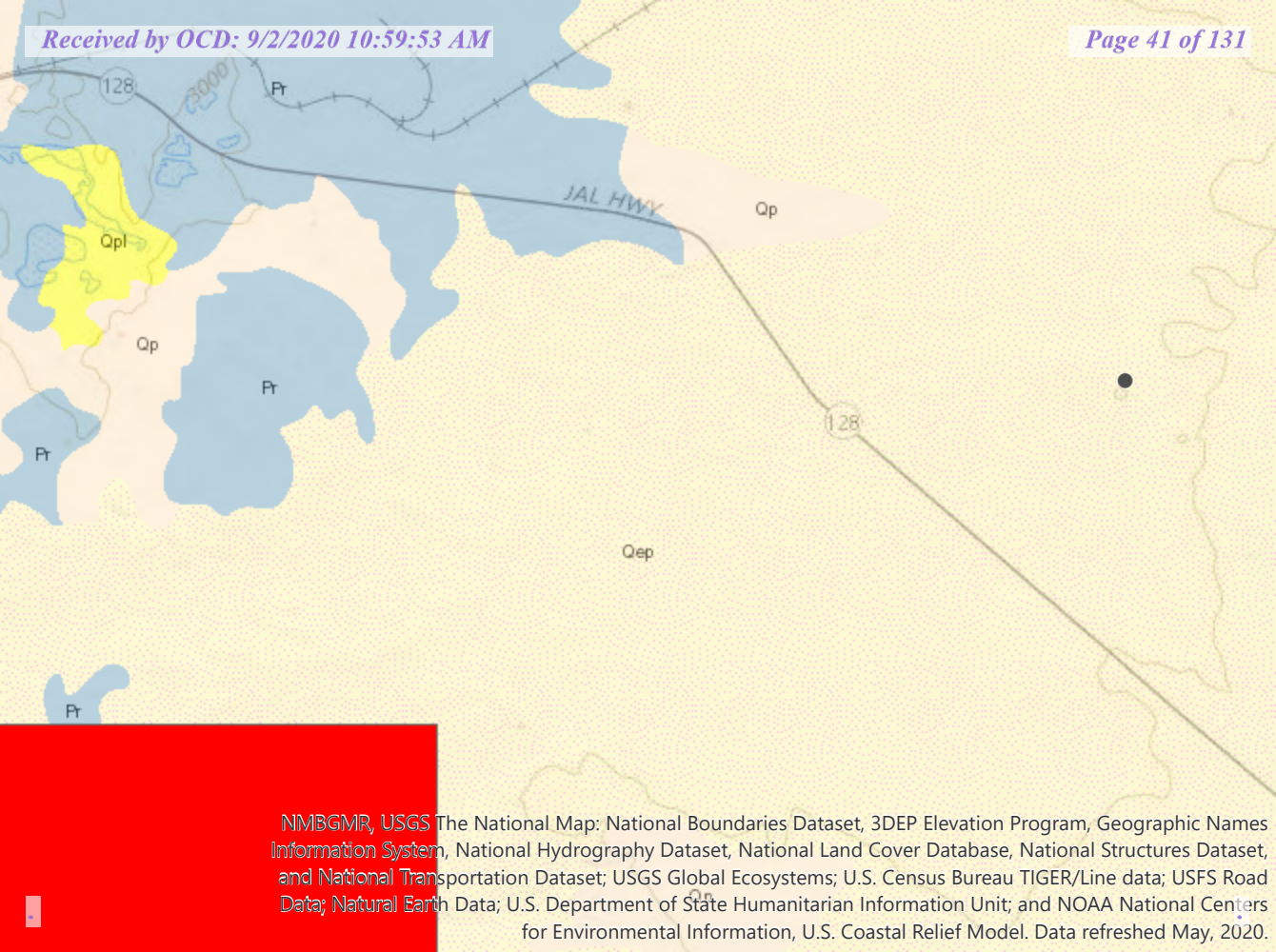
N

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

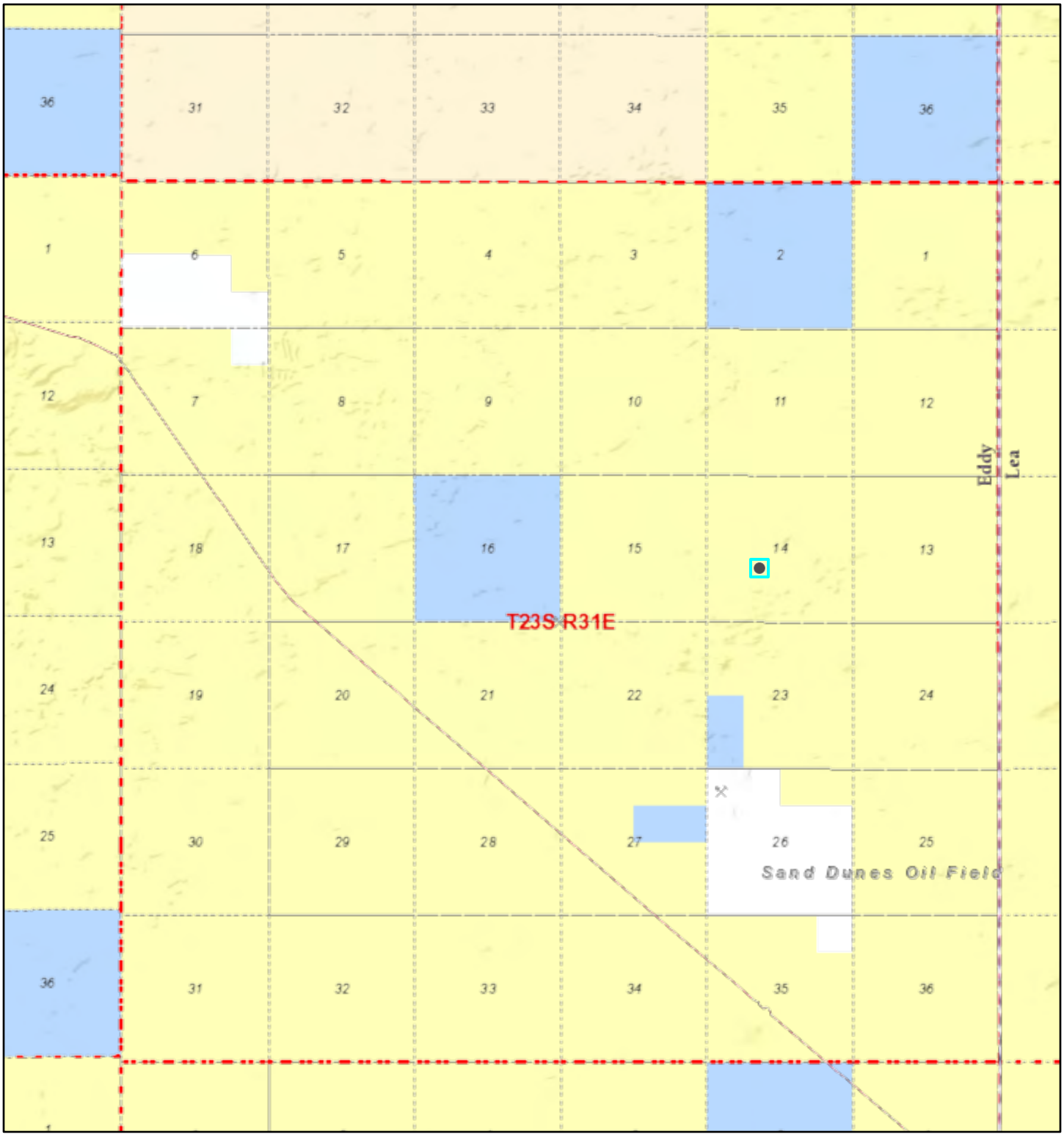
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/11/2020 at 9:50:30 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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


128
3000
Pr
JAL HWY
Qp
Qpl
Qp
Pr
Pr
128
Qep
Pr
NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed May, 2020.

Active Mines near Todd 14 Battery



2/11/2020, 8:08:36 AM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.

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

Soil Map—Eddy Area, New Mexico
(Todd 14 Battery Soil Map)

Soil Map—Eddy Area, New Mexico
(Todd 14 Battery Soil Map)

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BB	Berino complex, 0 to 3 percent slopes, eroded	0.2	10.1%
KM	Kermit-Berino fine sands, 0 to 3 percent slopes	1.7	89.9%
Totals for Area of Interest		**1.9**	**100.0%**

Eddy Area, New Mexico

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

Map Unit Setting

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

Map Unit Composition

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

Description of Berino

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

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

Description of Pajarito

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Cacique

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

Wink

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

Pajarito

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

Kermit

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

Data Source Information

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

Eddy Area, New Mexico

KM—Kermit-Berino fine sands, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w4q
Elevation: 3,100 to 4,200 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 190 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 50 percent
Berino and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

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

Typical profile

H1 - 0 to 7 inches: fine sand
H2 - 7 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
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: 1.0
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 Berino

Setting

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

Typical profile

H1 - 0 to 17 inches: fine sand
H2 - 17 to 50 inches: fine sandy loam
H3 - 50 to 58 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 1.0
Available water storage in profile: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: Loamy Sand (R042XC003NM)
Hydric soil rating: No

Minor Components

Active dune land

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

Data Source Information

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

ATTACHMENT 4

Client Name: Devon Energy Production Company
Site Name: Todd 14 Battery
NM OCD Incident Tracking Number: NRM2000935403
Project #: 20E-00141-024
Lab Reports: 2004943 and 2005A42

Table 2. Release Characterization Sampling - Depth to Groundwater >100 ft

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)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SS 20-01	0	April 20, 2020	-	-	342	<0.024	<0.215	<4.8	700	1,800	700	**2,500**	400
SS 20-01	0.5	May 23, 2020	-	-	-	<0.024	<0.216	<4.8	<10.0	<50	<14.8	**<64.8**	<60
SS 20-02	0	April 20, 2020	-	-	2,201	-	-	-	-	-	-	-	-
SS 20-03	0	April 20, 2020	-	-	1	<0.024	<0.219	<4.9	<9.8	<49	<14.7	<63.7	110
SS 20-04	0	April 20, 2020	-	-	1	<0.023	<0.207	<4.6	<8.4	<42	<13.0	<55.0	66
SS 20-05	0	April 20, 2020	-	-	1	<0.024	<0.216	<4.8	<9.1	<46	<13.9	<59.9	<60
SS 20-06	0	April 20, 2020	-	-	2,808	-	-	-	-	-	-	-	-
BH 20-01	0.5	April 20, 2020	-	-	3,700	<0.024	<0.216	<4.8	<8.3	<41	<13.1	<54.1	3,200
BH 20-01	1	April 20, 2020	-	-	996	-	-	-	-	-	-	-	-
BH 20-01	2	April 20, 2020	-	-	3,752	-	-	-	-	-	-	-	-
BH 20-01	3	April 20, 2020	-	-	3,352	<0.024	<0.212	<4.7	<9.4	<47	<14.1	<61.1	1,300
BH 20-01	4	April 20, 2020	-	-	20,000	-	-	-	-	-	-	-	-
BH 20-02	0.5	April 20, 2020	-	-	20,000	-	-	-	-	-	-	-	-
BH 20-02	1	April 20, 2020	-	-	2,367	-	-	-	-	-	-	-	-

"-" - Not applicable/assessed

Bold and grey shaded indicates approaching, or exceedance outside of, NM OCD closure criteria

Bold and green shaded indicates a re-sample of areas previously exceeding NM OCD closure criteria

VERTEX

Client Name: Devon Energy Production Company
Site Name: Todd 14 Battery
NM OCD Incident Tracking Number: NRM2000935403
Project #: 20E-00141-024
Lab Report: 2005A41-001

Table 3. Confirmatory Sampling Laboratory Results - Depth to Groundwater >100 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)
BS20-01	0	May 23, 2020	<0.023	<0.207	<4.6	<9.7	<48	<14.3	<62.3	4,100
BS20-02	0	May 23, 2020	<0.024	<0.215	<4.8	<9.2	<46	<14	<60.0	<60
BS20-03	0	May 23, 2020	<0.023	<0.207	<4.6	14	51	14	65	1,900
BS20-04	0	May 23, 2020	<0.023	<0.208	<4.6	<9.5	<47	<14.1	<62.1	3,300
BS20-05	0	May 23, 2020	<0.024	<0.216	<4.8	<8.7	<43	<13.5	<56.5	99
BS20-06	0	May 23, 2020	<0.024	<0.219	<4.9	<9.1	<45	<14.0	<59.0	100
BS20-07	0	May 23, 2020	<0.023	<0.210	<4.7	<9.6	<48	<14.3	<62.3	<60
BS20-08	0	May 23, 2020	<0.023	<0.211	<4.7	<9.8	<49	<14.5	<63.5	280
BS20-09	0	May 23, 2020	<0.023	<0.211	<4.7	<9.8	<49	<14.5	<63.5	420

"-" - Not applicable/assessed

Bold and shaded indicates exceedance outside of applied action level

ATTACHMENT 5

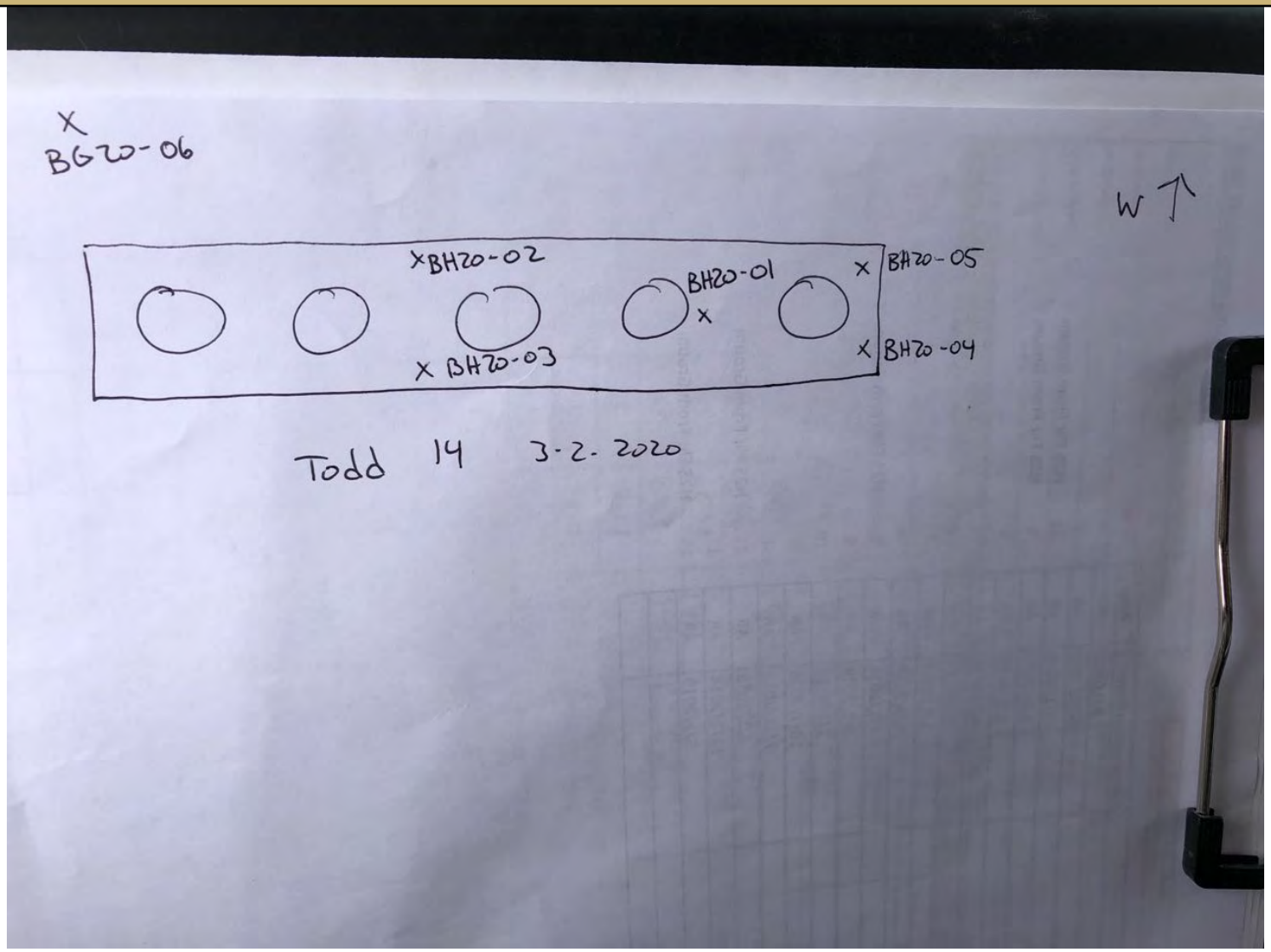
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	3/2/2020
Site Location Name:	Todd 14 Battery	Report Run Date:	3/2/2020 10:29 PM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	08/20/2019 - 4bbl PW Release
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	3/2/2020 8:30 AM
Arrived at Site	3/2/2020 9:32 AM
Departed Site	3/2/2020 2:02 PM
Returned to Office	3/2/2020 3:00 PM

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

9:32 Fill out arrival and safety forms
Map spill area
Take pictures
Collect and field screen characterization samples
Record data
Fill out DFR
Return to office

Next Steps & Recommendations

1

Sampling

Background20-06

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	53 ppm		10 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30227475, -103.75142376	Yes
0.5 ft.	0 ppm	38 ppm		17 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30227475, -103.75142376	Yes

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?
0 ft.	0 ppm	2840 ppm		110 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30252909, -103.75115457	Yes

Daily Site Visit Report

	0.5 ft.	0 ppm	609 ppm		702 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30252909, -103.75115457	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?
0 ft.	0 ppm	286 ppm		53 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30244327, -103.75120848	Yes
0.5 ft.	0 ppm	654 ppm		170 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30244327, -103.75120848	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?
0 ft.	0 ppm	283 ppm		140 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30243408, -103.75110670	Yes
0.5 ft.	1 ppm	301 ppm		166 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30243408, -103.75110670	Yes

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?
0 ft.	1 ppm	410 ppm		175 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30259519, -103.75113660	Yes

Daily Site Visit Report

	0.5 ft.	0 ppm	267 ppm		132 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30259519, -103.75113660	Yes

BH20-05

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	285 ppm		148 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30260462, -103.75116332	Yes
0.5 ft.	1 ppm	314 ppm		189 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓	32.30260462, -103.75116332	Yes

Daily Site Visit Report

Site Photos

Viewing Direction: West

Site photo

Viewing Direction: South

BH20-01

Viewing Direction: North

BH20-02

Viewing Direction: North

BH20-03

Daily Site Visit Report

Viewing Direction: South

BH20-04

Viewing Direction: North

BH20-05

Viewing Direction: East

BG20-06

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: BH20-01	Sample Point ID: BH20-01
	
Depth: 0 ft.	**Depth:** 0.5 ft.

Sample Point ID: BH20-02	Sample Point ID: BH20-02
	
Depth: 0 ft.	**Depth:** 0.5 ft.

Daily Site Visit Report

Sample Point ID: BH20-03	**Sample Point ID**: BH20-03
	
Depth: 0 ft.	**Depth:** 0.5 ft.

Sample Point ID: BH20-04	**Sample Point ID**: BH20-04
	
Depth: 0 ft.	**Depth:** 0.5 ft.

Daily Site Visit Report

Sample Point ID: BH20-05	**Sample Point ID**: BH20-05
	
Depth: 0 ft.	**Depth:** 0.5 ft.
Sample Point ID: Background20-06	**Sample Point ID**: Background20-06
	
Depth: 0 ft.	**Depth:** 0.5 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Jason Crabtree

Signature: 

VERTEX

Spill Response and Sampling

Client:	Devon
Date:	3-2-2020
Site Name:	Todd 14
Site Location:	
Project Owner:	Jason Crabtree
Project Manager:	Natalie Gordon
Project #:	20E-00141

Initial Spill Information - Record on First Visit	
Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Quantab (High/Low) + or -	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride			
BH20-01	0'	0	2840	110	32.30252909 -103.7511545?			
BH20-01	6"	0	609	702				
BH20-02	0'	0	286	53	32.30244327 -103.75120848			
BH20-02	6"	0	654	170				
BH20-03	0'	0	283	140	32.30243408 -103.7511067?			
BH20-03	6"	1	301	166				
BH20-04	0'	1	410	175	32.30259519 -103.7511360			
BH20-04	6"	0	267	132				
BH20-05	0'	0	295	148	32.30260462 -103.75116332			
BH20-05	6'	1	314	189				
BG20-06	0'	0	53	10	32.30227475 -103.75142376			
BG20-06	6'	0	38	17				

VERTEX

Client Name	Devon	Borehole Location		Start Date	3-2-2020	Logged by	JC	Northing	
Project Number	20E-00141	Borehole No.	BH20-01	End Date	3-2-2020	Checked by		Easting	
Project Name	Todd 14 Battery	Borehole Diameter (in)	6 in	Drilling Company	Vertex	Top of Well Elevation (m or ft)		UTM Zone	
Project Location		Total Depth (m or ft)	0.5 ft	Drilling Method	Hand Auger	Depth to Water (m or ft)		Page of	

(Circled selections shown in **bold**.)

Top (m or ft)	Bottom (m or ft)	% Major (>50%) Fine	% Major (>50%) Coarse	% Minor (10-40%) Fine	% Minor (10-40%) Coarse	% Trace (<10%) Fine	% Trace (<10%) Coarse	Gradation (Major and Coarse only)	Grain Size Major	Grain Size Minor	Moisture	Plasticity	Color	Notes
0.0	0.1	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	**Fine** / Medium / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	light brown	
Top: 0.50	Bottom: 0.51	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	**Fine** / Medium / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	reddish brown	
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		

Field Screening

Depth (m or ft)																	
CVC/VOC (ppm or LEL)																	
EC (µS/m or µS/cm)																	
Lab Sampling (Check Box)																	

VERTEX

Client Name	Devon	Borehole Location		Start Date	3-2-2020	Logged by	TC	Northing	
Project Number	20E-00141	Borehole No.	BH20-02	End Date	3-2-2020	Checked by		Easting	
Project Name	Todd 14	Borehole Diameter (in)	6in	Drilling Company	Vertex	Top of Well Elevation (m or ft)		UTM Zone	
Project Location		Total Depth (m or ft)	0.5 ft	Drilling Method	Hand Auger	Depth to Water (m or ft)		Page of	

Top (m or ft)	Bottom (m or ft)	% Major (>50%) Fine	% Major (>50%) Coarse	% Minor (10-40%) Fine	% Minor (10-40%) Coarse	% Trace (<10%) Fine	% Trace (<10%) Coarse	Gradation (Major and Coarse only)	Grain Size Major	Grain Size Minor	Moisture	Plasticity	Color	Notes
0.0	0.1	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	~~Sand~~ / Gravel	Poorly Graded / **Well Graded**	Fine / **Medium** / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	light brown	
0.50	0.51	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	Fine / **Medium** / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	reddish brown	
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		

Field Screening

Depth (m or ft)																	
CVC/VOC (ppm or LEL)																	
EC (µS/m or µS/cm)																	
Lab Sampling (Check Box)																	

VERTEX

Client Name	Devon	Borehole Location		Start Date	3-2-2020	Logged by	JC
Project Number	20E-00141	Borehole No.	BH20-03	End Date	3-2-2020	Checked by	
Project Name	Todd 14	Borehole Diameter (in)	6 in	Drilling Company	Vertex	Top of Well Elevation (m or ft)	
Project Location		Total Depth (m or ft)	0.5 ft	Drilling Method	Hand Auger	Depth to Water (m or ft)	

Northing	
Easting	
UTM Zone	
Page	of

Top (m or ft)	Bottom (m or ft)	% Major (>50%) Fine	% Major (>50%) Coarse	% Minor (10-40%) Fine	% Minor (10-40%) Coarse	% Trace (<10%) Fine	% Trace (<10%) Coarse	Gradation (Major and Coarse only)	Grain Size Major	Grain Size Minor	Moisture	Plasticity	Color	Notes
0.0	0.1	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	Fine / **Medium** / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	light brown	
Top 0.50	Bottom 0.51	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	Fine / **Medium** / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	reddish brown	
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		

Field Screening

Depth (m or ft)																	
CVC/VOC (ppm or LEL)																	
EC (µS/m or µS/cm)																	
Lab Sampling (Check Box)																	

VERTEX

Client Name	Devon	Borehole Location		Start Date	3-2-2020	Logged by	JC
Project Number	20E-00141	Borehole No.	BH20-04	End Date	3-2-2020	Checked by	
Project Name	Todd 14	Borehole Diameter (in)	6 in	Drilling Company	Vertex	Top of Well Elevation (m or ft)	
Project Location		Total Depth (m or ft)	0.5 ft	Drilling Method	Hand Auger	Depth to Water (m or ft)	

Northing	
Easting	
UTM Zone	
Page	of

Top (m or ft)	Bottom (m or ft)	% Major (>50%) Fine	% Major (>50%) Coarse	% Minor (10-40%) Fine	% Minor (10-40%) Coarse	% Trace (<10%) Fine	% Trace (<10%) Coarse	Gradation (Major and Coarse only)	Grain Size Major	Grain Size Minor	Moisture	Plasticity	Color	Notes
0.0	0.1	Clay / Silt	Sand (circled) / Gravel	Clay / Silt	Sand / Gravel (circled)	Clay / Silt (circled)	Sand / Gravel	Poorly Graded / Well Graded (circled)	Fine / Medium (circled) / Coarse	Fine (circled) / Medium / Coarse	Dry (circled) / Damp / Moist / Wet / Saturated	Non Plastic (circled) / Slightly Plastic / Plastic / Very Plastic	light brown	
0.50	0.51	Clay / Silt	Sand (circled) / Gravel	Clay (circled) / Silt	Sand / Gravel	Clay / Silt (circled)	Sand / Gravel	Poorly Graded / Well Graded (circled)	Fine / Medium (circled) / Coarse	Fine (circled) / Medium / Coarse	Dry (circled) / Damp / Moist / Wet / Saturated	Non Plastic (circled) / Slightly Plastic / Plastic / Very Plastic	reddish brown	
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		

Field Screening

Depth (m or ft)																	
CVC/VOC (ppm or LEL)																	
EC (µS/m or µS/cm)																	
Lab Sampling (Check Box)																	

VERTEX

Client Name	Devon	Borehole Location		Start Date	3-2-2020	Logged by	Northing
Project Number	20E-00141	Borehole No.	BH20-05	End Date	3-2-2020	Checked by	Easting
Project Name	Todd 14	Borehole Diameter (in)	6 in	Drilling Company	Vertex	Top of Well Elevation (m or ft)	UTM Zone
Project Location		Total Depth (m or ft)	0.5 ft	Drilling Method	Hand Auger	Depth to Water (m or ft)	Page of

Top (m or ft)	Bottom (m or ft)	% Major (>50%) Fine	% Major (>50%) Coarse	% Minor (10-40%) Fine	% Minor (10-40%) Coarse	% Trace (<10%) Fine	% Trace (<10%) Coarse	Gradation (Major and Coarse only)	Grain Size Major	Grain Size Minor	Moisture	Plasticity	Color	Notes
0.0	0.1	Clay / Silt	**Sand** / Gravel	Clay / Silt	Sand / **Gravel**	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	Fine / **Medium** / Coarse	**Fine** / Medium / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	light brown	
0.50	0.51	Clay / Silt	**Sand** / Gravel	**Clay** / Silt	Sand / Gravel	Clay / **Silt**	Sand / Gravel	Poorly Graded / **Well Graded**	Fine / **Medium** / Coarse	Fine / **Medium** / Coarse	**Dry** / Damp / Moist / Wet / Saturated	**Non Plastic** / Slightly Plastic / Plastic / Very Plastic	reddish brown	
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		
Top	Bottom	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Clay / Silt	Sand / Gravel	Poorly Graded / Well Graded	Fine / Medium / Coarse	Fine / Medium / Coarse	Dry / Damp / Moist / Wet / Saturated	Non Plastic / Slightly Plastic / Plastic / Very Plastic		

Field Screening

Depth (m or ft)																		
CVC/VOC (ppm or LEL)																		
EC (µS/m or µS/cm)																		
Lab Sampling (Check Box)																		

VERTEX

Client Name	Devon	Borehole Location		Start Date	3-2-2020	Logged by	JC
Project Number	20E-00141	Borehole No.	BG20-06	End Date	3-2-2020	Checked by	
Project Name	Todd 14	Borehole Diameter (in)	6 in	Drilling Company	Vertex	Top of Well Elevation (m or ft)	
Project Location		Total Depth (m or ft)	0.5 ft	Drilling Method	Hand Auger	Depth to Water (m or ft)	

Northing	
Easting	
UTM Zone	
Page	of

Top (m or ft)	Bottom (m or ft)	% Major (>50%) Fine	% Major (>50%) Coarse	% Minor (10-40%) Fine	% Minor (10-40%) Coarse	% Trace (<10%) Fine	% Trace (<10%) Coarse	Gradation (Major and Coarse only)	Grain Size Major	Grain Size Minor	Moisture	Plasticity	Color	Notes
0.0	0.1	Clay Silt	Sand (circled) Gravel	Clay Silt (circled)	Sand Gravel	Clay Silt	Sand Gravel	Poorly Graded Well Graded (circled)	Fine (circled) Medium Coarse	Fine (circled) Medium Coarse	Dry (circled) Damp Moist Wet Saturated	Non Plastic (circled) Slightly Plastic Plastic Very Plastic	red	
Top: 0.50	Bottom: 0.51	Clay Silt	Sand (circled) Gravel	Clay Silt (circled)	Sand Gravel	Clay (circled) Silt	Sand Gravel	Poorly Graded Well Graded (circled)	Fine (circled) Medium Coarse	Fine (circled) Medium Coarse	Dry (circled) Damp Moist Wet Saturated	Non Plastic (circled) Slightly Plastic Plastic Very Plastic	red	
Top:	Bottom:	Clay Silt	Sand Gravel	Clay Silt	Sand Gravel	Clay Silt	Sand Gravel	Poorly Graded Well Graded	Fine Medium Coarse	Fine Medium Coarse	Dry Damp Moist Wet Saturated	Non Plastic Slightly Plastic Plastic Very Plastic		
Top:	Bottom:	Clay Silt	Sand Gravel	Clay Silt	Sand Gravel	Clay Silt	Sand Gravel	Poorly Graded Well Graded	Fine Medium Coarse	Fine Medium Coarse	Dry Damp Moist Wet Saturated	Non Plastic Slightly Plastic Plastic Very Plastic		
Top:	Bottom:	Clay Silt	Sand Gravel	Clay Silt	Sand Gravel	Clay Silt	Sand Gravel	Poorly Graded Well Graded	Fine Medium Coarse	Fine Medium Coarse	Dry Damp Moist Wet Saturated	Non Plastic Slightly Plastic Plastic Very Plastic		

Field Screening

Depth (m or ft)																	
CVC/VOC (ppm or LEL)																	
EC (µS/m or µS/cm)																	
Lab Sampling (Check Box)																	

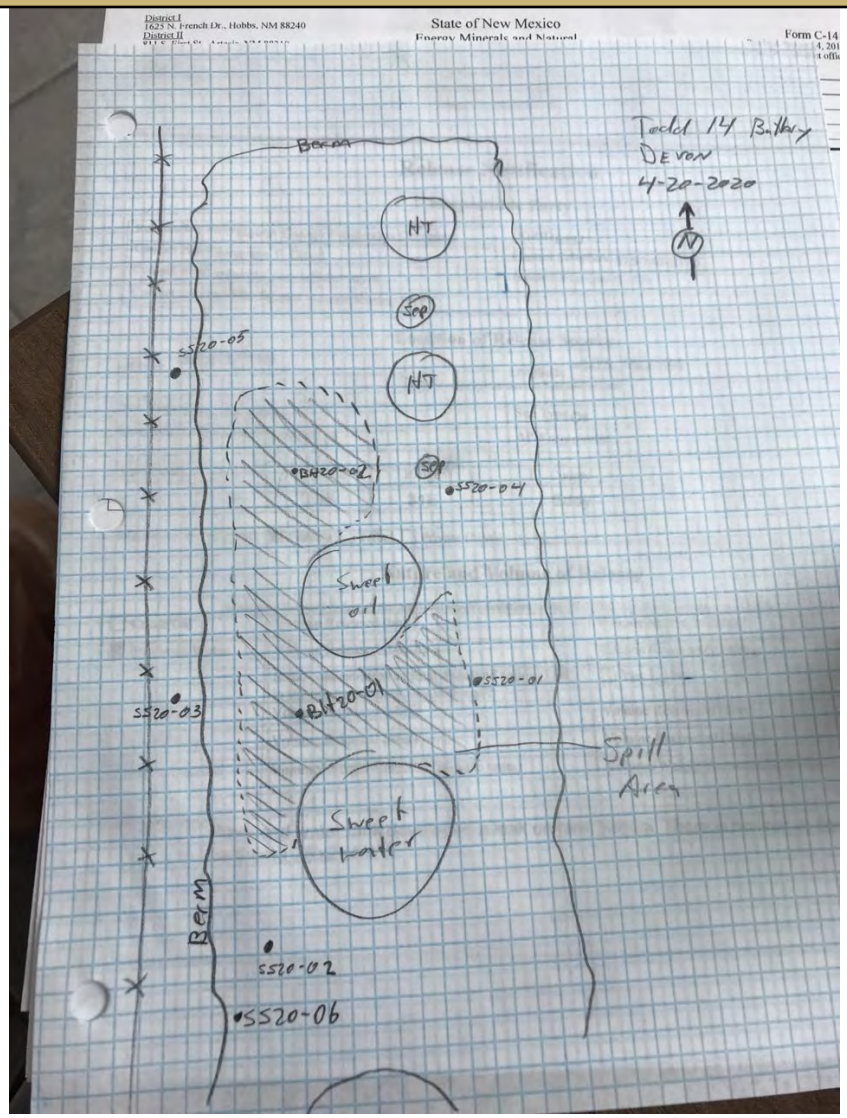
Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	4/20/2020
Site Location Name:	Todd 14 Battery	Report Run Date:	4/21/2020 12:48 AM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	08/20/2019 - 4bbl PW Release
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	4/20/2020 10:30 AM
Arrived at Site	4/20/2020 11:25 AM
Departed Site	4/20/2020 5:08 PM
Returned to Office	4/20/2020 6:10 PM

Daily Site Visit Report

Site Sketch



Daily Site Visit Report

Summary of Daily Operations

11:25 Arrive on site.
Complete safety paperwork.
Delineate spill.
Field screen and record in DFR.
Return to office.

Next Steps & Recommendations

1 Send delineation samples to lab

2 Schedule remediation

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?
0.5 ft.			High (300-6000ppm)	3700 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.302529, -103.751206	Yes
1 ft.			High (300-6000ppm)	996 ppm		✓	32.302529, -103.751206	Yes
2 ft.			High (300-6000ppm)	3752 ppm		✓	32.302529, -103.751206	Yes
3 ft.			High (300-6000ppm)	3352 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.302529, -103.751206	Yes

Daily Site Visit Report

	4 ft.			High (300-6000ppm)	20000 ppm		✓	32.302529, -103.751206	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?
0.5 ft.			High (300-6000ppm)	20000 ppm		✓	32.302643, -103.751193	Yes
1 ft.			High (300-6000ppm)	2367 ppm		✓	32.302643, -103.751193	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.			Low (30-600 ppm)	342 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.302517, -103.751100	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.			High (300-6000ppm)	2201 ppm		✓	32.302477, -103.751196	Yes

Daily Site Visit Report

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.			Low (30-600 ppm)	1 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.302520, -103.751220	Yes

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.			Low (30-600 ppm)	1 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.302626, -103.751123	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.			Low (30-600 ppm)	1 ppm	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (SW-4500 Cl), TPH (EPA SW-846 Method 8015M)	✓	32.302670, -103.751230	Yes

SS20-06

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.			High (300-6000ppm)	2808 ppm		✓	32.302471, -103.751223	Yes

Daily Site Visit Report

Site Photos

Viewing Direction: Southwest

Point of release

Viewing Direction: West

Point of release

Viewing Direction: South

Point of release

Viewing Direction: North

Point of release

Daily Site Visit Report

Viewing Direction: North

Spill area in production containment

Viewing Direction: Northwest

Spill area in production containment

Viewing Direction: South

Spill area in production containment

Daily Site Visit Report

Depth Sample Photos

Sample Point ID: SS20-01

Depth: 0 ft.

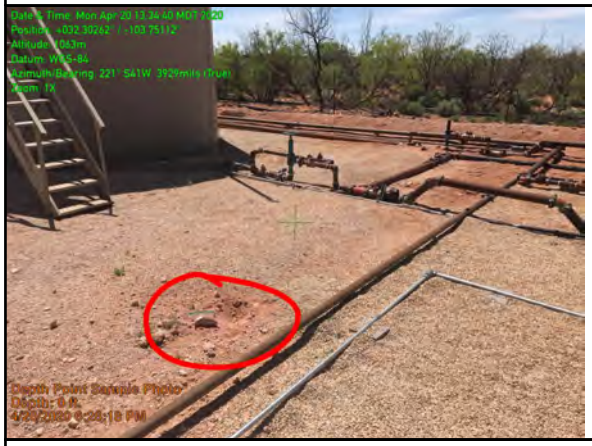
Sample Point ID: SS20-02

Depth: 0 ft.

Sample Point ID: SS20-03

Depth: 0 ft.

Sample Point ID: SS20-04



Depth: 0 ft.

Daily Site Visit Report

Sample Point ID: SS20-05

Depth: 0 ft.

Sample Point ID: SS20-06

Depth: 0 ft.

Sample Point ID: BH20-01

Depth: 0.5 ft.

Sample Point ID: BH20-02

Depth: 0.5 ft.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature: 

Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/22/2020
Site Location Name:	Todd 14 Battery	Report Run Date:	5/22/2020 5:25 PM
Project Owner:	Amanda Davis	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	08/20/2019 - 4bbl PW Release
Client Contact Phone #:	(575) 748-0176		

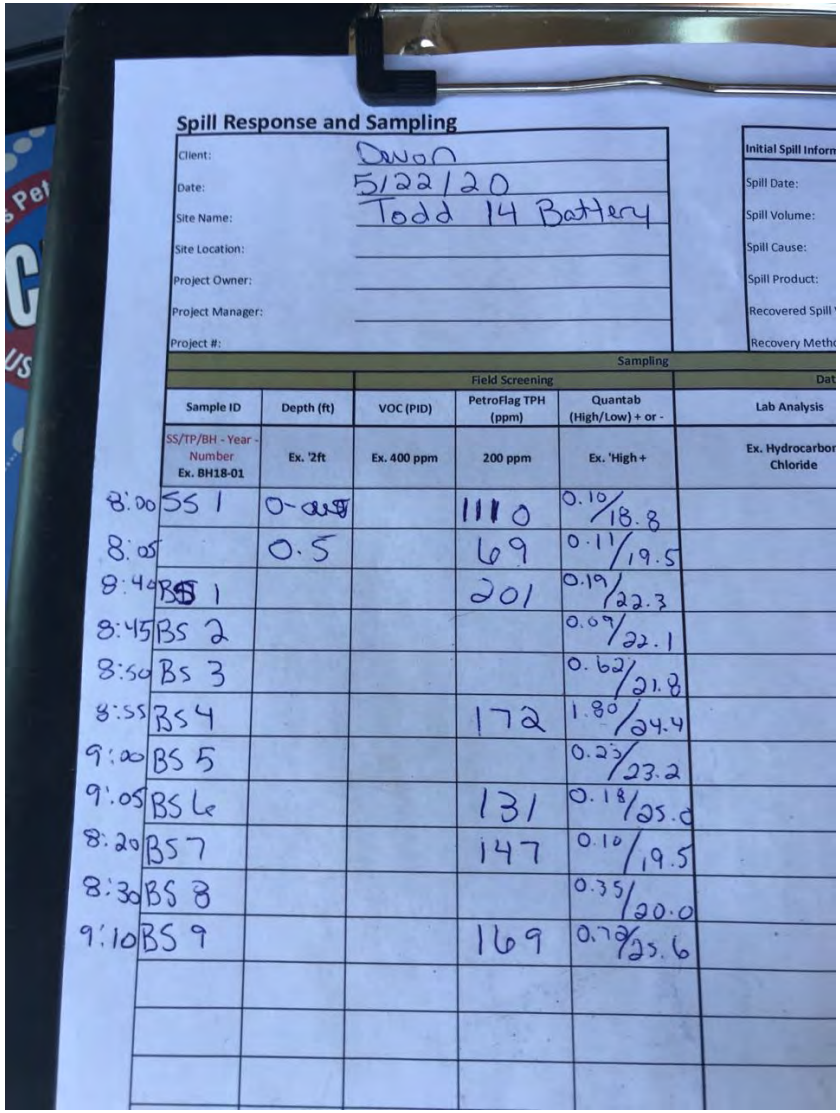
Summary of Times	
Left Office	5/22/2020 6:18 AM
Arrived at Site	5/22/2020 7:14 AM
Departed Site	
Returned to Office	

Daily Site Visit Report

VERTEX

Site Sketch

Daily Site Visit Report



Spill Response and Sampling

Client:	DVN
Date:	5/22/20
Site Name:	Todd 14 Battery
Site Location:	
Project Owner:	
Project Manager:	
Project #:	

Initial Spill Inform
Spill Date:
Spill Volume:
Spill Cause:
Spill Product:
Recovered Spill
Recovery Meth

Sampling

	Sample ID	Depth (ft)	Field Screening: VOC (PID)	Field Screening: PetroFlag TPH (ppm)	Field Screening: Quantab (High/Low) + or -	Dat: Lab Analysis
	SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride
8:00	SS 1	0-surf		1110	0.10/18.8	
8:05		0.5		69	0.11/19.5	
8:40	BS 1			201	0.19/22.3	
8:45	BS 2				0.09/22.1	
8:50	BS 3				0.62/21.8	
8:55	BS 4			172	1.80/24.4	
9:00	BS 5				0.23/23.2	
9:05	BS 6			131	0.18/25.0	
8:20	BS 7			147	0.10/19.5	
8:30	BS 8				0.35/20.0	
9:10	BS 9			169	0.72/25.6	

Daily Site Visit Report

Summary of Daily Operations

7:15 Recollect one horizontal sample for initial characterization and collect confirmation samples

8:20 Extended the spill boundary after locating the new ss1 sample for clean. 9 base samples being collected. Will run bs7 for TPH due to it being in the area that shows signs of higher tph levels

9:57 Collected a total number of 9 base samples. Ran a few samples petroflag to check that they would not be questionable.

Next Steps & Recommendations

1 Send samples to lab for analysis

2 Begin closure report

3 Finish geomatics requests for figures

Daily Site Visit Report

Site Photos

Viewing Direction: South

Containment area

Viewing Direction: West

North side of tanks

Viewing Direction: South

West side of tanks

Viewing Direction: South

East side of tanks

Daily Site Visit Report

Viewing Direction: West

East side of tanks from the front

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

ATTACHMENT 6

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Tuesday, May 19, 2020 4:35 PM
To: Natalie Gordon
Subject: Fwd: NRM2000935403: Todd 14 Battery - 48-hr Notification of Confirmation Sampling

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Tue, May 19, 2020 at 1:27 PM
Subject: NRM2000935403: Todd 14 Battery - 48-hr Notification of Confirmation Sampling
To: Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, Venegas, Victoria, EMNRD <Victoria.Venegas@state.nm.us>, Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us>, CFO_Spill, BLM_NM <blm_nm_cfo_spill@blm.gov>, Amos, James A <Jamos@blm.gov>, Kelsey <KWade@blm.gov>
Cc: <Lupe.Carrasco@dvn.com>, <amanda.davis@dvn.com>, <tom.bynum@dvn.com>, <wesley.mathews@dvn.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled confirmatory sampling to be conducted at Todd 14 Battery for the release that occurred on August 20, 2019, incident tracking #: NRM2000935403.

This work will be completed on behalf of Devon Energy Production Company.

On Friday, May 22, 2020 at approximately 9:00 a.m., Monica Peppin of Vertex will be onsite to conduct confirmatory 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
Project Manager

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

P 575.725.5001 ext 709
C 505.506.0040
F

www.vertex.ca

ATTACHMENT 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

April 28, 2020

Amanda Davis

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Todd 14 Battery OrderNo.: 2004943

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 6 sample(s) on 4/22/2020 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 **2004943**
Date Reported: **4/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2004943-001 **Matrix:** SOIL

Client Sample ID: SS20-01 0.0'
Collection Date: 4/20/2020 12:00:00 PM
Received Date: 4/22/2020 10:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	700	170		mg/Kg	20	4/25/2020 5:09:10 AM
Motor Oil Range Organics (MRO)	1800	830		mg/Kg	20	4/25/2020 5:09:10 AM
Surr: DNOP	0	55.1-146	S	%Rec	20	4/25/2020 5:09:10 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/26/2020 4:00:00 PM
Surr: BFB	97.9	66.6-105		%Rec	1	4/26/2020 4:00:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/26/2020 4:00:00 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2020 4:00:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2020 4:00:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	4/26/2020 4:00:00 PM
Surr: 4-Bromofluorobenzene	98.2	80-120		%Rec	1	4/26/2020 4:00:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	400	60		mg/Kg	20	4/25/2020 4:51:47 AM

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 **2004943**
Date Reported: **4/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2004943-002 **Matrix:** SOIL

Client Sample ID: SS20-03 0.0'
Collection Date: 4/20/2020 12:30:00 PM
Received Date: 4/22/2020 10:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/25/2020 5:33:01 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/25/2020 5:33:01 AM
Surr: DNOP	59.6	55.1-146		%Rec	1	4/25/2020 5:33:01 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/26/2020 4:23:32 PM
Surr: BFB	99.1	66.6-105		%Rec	1	4/26/2020 4:23:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/26/2020 4:23:32 PM
Toluene	ND	0.049		mg/Kg	1	4/26/2020 4:23:32 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/26/2020 4:23:32 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/26/2020 4:23:32 PM
Surr: 4-Bromofluorobenzene	99.6	80-120		%Rec	1	4/26/2020 4:23:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	110	60		mg/Kg	20	4/25/2020 5:53:51 AM

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 **2004943**
Date Reported: **4/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2004943-003 **Matrix:** SOIL

Client Sample ID: SS20-04 0.0'
Collection Date: 4/20/2020 1:00:00 PM
Received Date: 4/22/2020 10:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	4/23/2020 6:42:49 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	4/23/2020 6:42:49 PM
Surr: DNOP	96.6	55.1-146		%Rec	1	4/23/2020 6:42:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	4/26/2020 4:47:03 PM
Surr: BFB	100	66.6-105		%Rec	1	4/26/2020 4:47:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.023		mg/Kg	1	4/26/2020 4:47:03 PM
Toluene	ND	0.046		mg/Kg	1	4/26/2020 4:47:03 PM
Ethylbenzene	ND	0.046		mg/Kg	1	4/26/2020 4:47:03 PM
Xylenes, Total	ND	0.092		mg/Kg	1	4/26/2020 4:47:03 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	4/26/2020 4:47:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	66	60		mg/Kg	20	4/25/2020 6:06:15 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2004943**
Date Reported: **4/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2004943-004 **Matrix:** SOIL

Client Sample ID: SS20-05 0.0'
Collection Date: 4/20/2020 1:30:00 PM
Received Date: 4/22/2020 10:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	4/23/2020 7:07:05 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	4/23/2020 7:07:05 PM
Surr: DNOP	99.2	55.1-146		%Rec	1	4/23/2020 7:07:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/26/2020 5:57:25 PM
Surr: BFB	99.5	66.6-105		%Rec	1	4/26/2020 5:57:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/26/2020 5:57:25 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2020 5:57:25 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2020 5:57:25 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2020 5:57:25 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	4/26/2020 5:57:25 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	4/25/2020 6:18:39 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2004943**
Date Reported: **4/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2004943-005 **Matrix:** SOIL

Client Sample ID: BH20-01 0.5'
Collection Date: 4/20/2020 1:45:00 PM
Received Date: 4/22/2020 10:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	8.3		mg/Kg	1	4/23/2020 7:31:09 PM
Motor Oil Range Organics (MRO)	ND	41		mg/Kg	1	4/23/2020 7:31:09 PM
Surr: DNOP	99.2	55.1-146		%Rec	1	4/23/2020 7:31:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/26/2020 6:20:50 PM
Surr: BFB	99.8	66.6-105		%Rec	1	4/26/2020 6:20:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/26/2020 6:20:50 PM
Toluene	ND	0.048		mg/Kg	1	4/26/2020 6:20:50 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/26/2020 6:20:50 PM
Xylenes, Total	ND	0.096		mg/Kg	1	4/26/2020 6:20:50 PM
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	4/26/2020 6:20:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	3200	150		mg/Kg	50	4/27/2020 1:02:16 AM

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 **2004943**
Date Reported: **4/28/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2004943-006 **Matrix:** SOIL

Client Sample ID: BH20-01 3.0'
Collection Date: 4/20/2020 2:00:00 PM
Received Date: 4/22/2020 10:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/23/2020 7:55:25 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/23/2020 7:55:25 PM
Surr: DNOP	103	55.1-146		%Rec	1	4/23/2020 7:55:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/26/2020 6:44:17 PM
Surr: BFB	100	66.6-105		%Rec	1	4/26/2020 6:44:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	4/26/2020 6:44:17 PM
Toluene	ND	0.047		mg/Kg	1	4/26/2020 6:44:17 PM
Ethylbenzene	ND	0.047		mg/Kg	1	4/26/2020 6:44:17 PM
Xylenes, Total	ND	0.094		mg/Kg	1	4/26/2020 6:44:17 PM
Surr: 4-Bromofluorobenzene	99.2	80-120		%Rec	1	4/26/2020 6:44:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	1300	59		mg/Kg	20	4/25/2020 6:43:29 AM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004943**

28-Apr-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **MB-52083** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52083** RunNo: **68395**

Prep Date: **4/24/2020** Analysis Date: **4/25/2020** SeqNo: **2367114** Units: **mg/Kg**

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

Sample ID: **LCS-52083** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52083** RunNo: **68395**

Prep Date: **4/24/2020** Analysis Date: **4/25/2020** SeqNo: **2367115** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	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#: **2004943**

28-Apr-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **LCS-52025** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **52025** RunNo: **68357**

Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2366142** 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	120	70	130			
Surr: DNOP	6.3		5.000		125	55.1	146			

Sample ID: **MB-52025** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **52025** RunNo: **68357**

Prep Date: **4/22/2020** Analysis Date: **4/23/2020** SeqNo: **2366143** 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	13		10.00		129	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#: **2004943**

28-Apr-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **mb-52018** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **PBS** Batch ID: **52018** RunNo: **68422**

Prep Date: **4/22/2020** Analysis Date: **4/26/2020** SeqNo: **2367394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	66.6	105			

Sample ID: **lcs-52018** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**

Client ID: **LCSS** Batch ID: **52018** RunNo: **68422**

Prep Date: **4/22/2020** Analysis Date: **4/26/2020** SeqNo: **2367395** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.6	80	120			
Surr: BFB	1100		1000		114	66.6	105			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004943**

28-Apr-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **mb-52018** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **PBS** Batch ID: **52018** RunNo: **68422**

Prep Date: **4/22/2020** Analysis Date: **4/26/2020** SeqNo: **2367486** Units: **mg/Kg**

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

Sample ID: **LCS-52018** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**

Client ID: **LCSS** Batch ID: **52018** RunNo: **68422**

Prep Date: **4/22/2020** Analysis Date: **4/26/2020** SeqNo: **2367487** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.2	80	120			
Toluene	0.93	0.050	1.000	0	92.9	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	95.8	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	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: 2004943 RcptNo: 1

Received By: Scott Anderson 4/22/2020 ~~8:00:00 AM~~ 1035 SO 4/22/20

Completed By: Isaiah Ortiz 4/22/2020 10:40:06 AM I-OL

Reviewed By: MB 4/22/20

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 4/22/20

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	5.6	Good	Not Present			

Chain-of-Custody Record

Client: ~~Vertex~~ DEVON ENERGY

Mailing Address:

Phone #:

email or Fax#:

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 14 Battery

Project #: 20E-0014 WO# 20036369

Project Manager: Natalie Gordon

Sampler: AUSTIN HARRIS

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.6-0 = 5.6 (°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. 2004943	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)
4-20-2020	1200	Soil	SS20-01 0.0'	4oz Jar	Ice	-001										
4-20-2020	1230		SS20-03 0.0'			-002										
	1300		SS20-04 0.0'			-003										
	1330		SS20-05 0.0'			-004										
	1345		BH20-01 0.5'			-005										
	1400		BH20-01 3.0'			-006										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/21/20	0930				4/21/20	0930
4/21/20	1700		SPA	FEDEX	4/22/20	10:35

Remarks:
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: www.hallenvironmental.com

June 02, 2020

Amanda Davis

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Todd 14 Battery OrderNo.: 2005A41

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 9 sample(s) on 5/23/2020 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 **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-001 **Matrix:** SOIL

Client Sample ID: BS20-01 0'
Collection Date: 5/22/2020 8:40:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/27/2020 7:53:39 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/27/2020 7:53:39 PM
Surr: DNOP	90.6	55.1-146		%Rec	1	5/27/2020 7:53:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	4100	150		mg/Kg	50	6/1/2020 7:02:36 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 12:02:41 PM
Toluene	ND	0.046		mg/Kg	1	5/27/2020 12:02:41 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/27/2020 12:02:41 PM
Xylenes, Total	ND	0.092		mg/Kg	1	5/27/2020 12:02:41 PM
Surr: 1,2-Dichloroethane-d4	91.2	70-130		%Rec	1	5/27/2020 12:02:41 PM
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	5/27/2020 12:02:41 PM
Surr: Dibromofluoromethane	94.3	70-130		%Rec	1	5/27/2020 12:02:41 PM
Surr: Toluene-d8	99.4	70-130		%Rec	1	5/27/2020 12:02:41 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/27/2020 12:02:41 PM
Surr: BFB	106	70-130		%Rec	1	5/27/2020 12:02:41 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-002 **Matrix:** SOIL

Client Sample ID: BS20-02 0'
Collection Date: 5/22/2020 8:45:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/27/2020 8:18:24 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/27/2020 8:18:24 PM
Surr: DNOP	96.9	55.1-146		%Rec	1	5/27/2020 8:18:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/1/2020 9:19:21 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2020 1:31:33 PM
Toluene	ND	0.048		mg/Kg	1	5/27/2020 1:31:33 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/27/2020 1:31:33 PM
Xylenes, Total	ND	0.095		mg/Kg	1	5/27/2020 1:31:33 PM
Surr: 1,2-Dichloroethane-d4	94.8	70-130		%Rec	1	5/27/2020 1:31:33 PM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	5/27/2020 1:31:33 PM
Surr: Dibromofluoromethane	97.1	70-130		%Rec	1	5/27/2020 1:31:33 PM
Surr: Toluene-d8	100	70-130		%Rec	1	5/27/2020 1:31:33 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/27/2020 1:31:33 PM
Surr: BFB	107	70-130		%Rec	1	5/27/2020 1:31:33 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-003 **Matrix:** SOIL

Client Sample ID: BS20-03 0'
Collection Date: 5/22/2020 8:50:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	14	8.6		mg/Kg	1	5/28/2020 1:26:37 PM
Motor Oil Range Organics (MRO)	51	43		mg/Kg	1	5/28/2020 1:26:37 PM
Surr: DNOP	96.4	55.1-146		%Rec	1	5/28/2020 1:26:37 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	1900	60		mg/Kg	20	6/1/2020 9:31:46 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 2:59:47 PM
Toluene	ND	0.046		mg/Kg	1	5/27/2020 2:59:47 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/27/2020 2:59:47 PM
Xylenes, Total	ND	0.092		mg/Kg	1	5/27/2020 2:59:47 PM
Surr: 1,2-Dichloroethane-d4	97.7	70-130		%Rec	1	5/27/2020 2:59:47 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	5/27/2020 2:59:47 PM
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	5/27/2020 2:59:47 PM
Surr: Toluene-d8	103	70-130		%Rec	1	5/27/2020 2:59:47 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/27/2020 2:59:47 PM
Surr: BFB	109	70-130		%Rec	1	5/27/2020 2:59:47 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-004 **Matrix:** SOIL

Client Sample ID: BS20-04 0'
Collection Date: 5/22/2020 8:55:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/27/2020 9:32:22 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2020 9:32:22 PM
Surr: DNOP	94.5	55.1-146		%Rec	1	5/27/2020 9:32:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	3300	150		mg/Kg	50	6/1/2020 7:15:00 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 3:29:08 PM
Toluene	ND	0.046		mg/Kg	1	5/27/2020 3:29:08 PM
Ethylbenzene	ND	0.046		mg/Kg	1	5/27/2020 3:29:08 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/27/2020 3:29:08 PM
Surr: 1,2-Dichloroethane-d4	95.7	70-130		%Rec	1	5/27/2020 3:29:08 PM
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	5/27/2020 3:29:08 PM
Surr: Dibromofluoromethane	97.7	70-130		%Rec	1	5/27/2020 3:29:08 PM
Surr: Toluene-d8	102	70-130		%Rec	1	5/27/2020 3:29:08 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	5/27/2020 3:29:08 PM
Surr: BFB	107	70-130		%Rec	1	5/27/2020 3:29:08 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-005 **Matrix:** SOIL

Client Sample ID: BS20-05 0'
Collection Date: 5/22/2020 9:00:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	5/27/2020 9:56:55 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/27/2020 9:56:55 PM
Surr: DNOP	87.2	55.1-146		%Rec	1	5/27/2020 9:56:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	99	60		mg/Kg	20	6/1/2020 9:56:35 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2020 3:58:37 PM
Toluene	ND	0.048		mg/Kg	1	5/27/2020 3:58:37 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/27/2020 3:58:37 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/27/2020 3:58:37 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	5/27/2020 3:58:37 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	5/27/2020 3:58:37 PM
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	5/27/2020 3:58:37 PM
Surr: Toluene-d8	99.4	70-130		%Rec	1	5/27/2020 3:58:37 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/27/2020 3:58:37 PM
Surr: BFB	101	70-130		%Rec	1	5/27/2020 3:58:37 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-006 **Matrix:** SOIL

Client Sample ID: BS20-06 0'
Collection Date: 5/22/2020 9:05:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **CLP**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/27/2020 10:21:30 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/27/2020 10:21:30 PM
Surr: DNOP	92.6	55.1-146		%Rec	1	5/27/2020 10:21:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	100	60		mg/Kg	20	6/1/2020 10:09:00 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2020 4:28:05 PM
Toluene	ND	0.049		mg/Kg	1	5/27/2020 4:28:05 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/27/2020 4:28:05 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/27/2020 4:28:05 PM
Surr: 1,2-Dichloroethane-d4	91.3	70-130		%Rec	1	5/27/2020 4:28:05 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	5/27/2020 4:28:05 PM
Surr: Dibromofluoromethane	93.8	70-130		%Rec	1	5/27/2020 4:28:05 PM
Surr: Toluene-d8	100	70-130		%Rec	1	5/27/2020 4:28:05 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/27/2020 4:28:05 PM
Surr: BFB	105	70-130		%Rec	1	5/27/2020 4:28:05 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-007 **Matrix:** SOIL

Client Sample ID: BS20-07 0'
Collection Date: 5/22/2020 8:20:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/30/2020 9:13:15 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/30/2020 9:13:15 AM
Surr: DNOP	110	55.1-146		%Rec	1	5/30/2020 9:13:15 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/1/2020 10:21:24 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 4:57:35 PM
Toluene	ND	0.047		mg/Kg	1	5/27/2020 4:57:35 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/27/2020 4:57:35 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/27/2020 4:57:35 PM
Surr: 1,2-Dichloroethane-d4	99.5	70-130		%Rec	1	5/27/2020 4:57:35 PM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	5/27/2020 4:57:35 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	5/27/2020 4:57:35 PM
Surr: Toluene-d8	97.8	70-130		%Rec	1	5/27/2020 4:57:35 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/27/2020 4:57:35 PM
Surr: BFB	100	70-130		%Rec	1	5/27/2020 4:57:35 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-008 **Matrix:** SOIL

Client Sample ID: BS20-08 0'
Collection Date: 5/22/2020 8:30:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/29/2020 11:18:16 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/29/2020 11:18:16 AM
Surr: DNOP	88.9	55.1-146		%Rec	1	5/29/2020 11:18:16 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	280	60		mg/Kg	20	6/1/2020 12:37:54 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 5:27:03 PM
Toluene	ND	0.047		mg/Kg	1	5/27/2020 5:27:03 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/27/2020 5:27:03 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/27/2020 5:27:03 PM
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%Rec	1	5/27/2020 5:27:03 PM
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	5/27/2020 5:27:03 PM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	5/27/2020 5:27:03 PM
Surr: Toluene-d8	104	70-130		%Rec	1	5/27/2020 5:27:03 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/27/2020 5:27:03 PM
Surr: BFB	108	70-130		%Rec	1	5/27/2020 5:27:03 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2005A41**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A41-009 **Matrix:** SOIL

Client Sample ID: BS20-09 0'
Collection Date: 5/22/2020 9:10:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/29/2020 11:42:28 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/29/2020 11:42:28 AM
Surr: DNOP	56.6	55.1-146		%Rec	1	5/29/2020 11:42:28 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	420	60		mg/Kg	20	6/1/2020 12:50:18 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.023		mg/Kg	1	5/27/2020 5:56:27 PM
Toluene	ND	0.047		mg/Kg	1	5/27/2020 5:56:27 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/27/2020 5:56:27 PM
Xylenes, Total	ND	0.094		mg/Kg	1	5/27/2020 5:56:27 PM
Surr: 1,2-Dichloroethane-d4	97.4	70-130		%Rec	1	5/27/2020 5:56:27 PM
Surr: 4-Bromofluorobenzene	92.0	70-130		%Rec	1	5/27/2020 5:56:27 PM
Surr: Dibromofluoromethane	102	70-130		%Rec	1	5/27/2020 5:56:27 PM
Surr: Toluene-d8	100	70-130		%Rec	1	5/27/2020 5:56:27 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/27/2020 5:56:27 PM
Surr: BFB	99.8	70-130		%Rec	1	5/27/2020 5:56:27 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A41**

02-Jun-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **MB-52775** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52775** RunNo: **69282**

Prep Date: **5/29/2020** Analysis Date: **5/30/2020** SeqNo: **2401885** Units: **mg/Kg**

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

Sample ID: **LCS-52775** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52775** RunNo: **69282**

Prep Date: **5/29/2020** Analysis Date: **5/30/2020** SeqNo: **2401886** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

Sample ID: **MB-52800** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**

Client ID: **PBS** Batch ID: **52800** RunNo: **69292**

Prep Date: **6/1/2020** Analysis Date: **6/1/2020** SeqNo: **2403563** Units: **mg/Kg**

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

Sample ID: **LCS-52800** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**

Client ID: **LCSS** Batch ID: **52800** RunNo: **69292**

Prep Date: **6/1/2020** Analysis Date: **6/1/2020** SeqNo: **2403565** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

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#: **2005A41**

02-Jun-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **MB-52681** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52681** RunNo: **69134**
Prep Date: **5/26/2020** Analysis Date: **5/27/2020** SeqNo: **2397783** 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	10		10.00		102	55.1	146			

Sample ID: **LCS-52681** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52681** RunNo: **69134**
Prep Date: **5/26/2020** Analysis Date: **5/27/2020** SeqNo: **2397784** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	53	10	50.00	0	107	70	130			
Surr: DNOP	5.1		5.000		102	55.1	146			

Sample ID: **MB-52679** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52679** RunNo: **69206**
Prep Date: **5/26/2020** Analysis Date: **5/28/2020** SeqNo: **2398752** 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-52679** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52679** RunNo: **69206**
Prep Date: **5/26/2020** Analysis Date: **5/28/2020** SeqNo: **2398753** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.0		5.000		80.9	55.1	146			

Sample ID: **LCS-52738** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **52738** RunNo: **69198**
Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399901** 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	4.6		5.000		92.5	55.1	146			

Sample ID: **MB-52738** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52738** RunNo: **69198**
Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399902** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								

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#: **2005A41**
02-Jun-20

Client: Devon Energy
Project: Todd 14 Battery

Sample ID: **MB-52738** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **52738** RunNo: **69198**
Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399902** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		101	55.1	146			

Sample ID: **2005A41-007AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-07 0'** Batch ID: **52738** RunNo: **69267**
Prep Date: **5/28/2020** Analysis Date: **5/30/2020** SeqNo: **2400746** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	8.4	42.02	6.367	92.9	47.4	136			
Surr: DNOP	3.7		4.202		87.5	55.1	146			

Sample ID: **2005A41-007AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BS20-07 0'** Batch ID: **52738** RunNo: **69267**
Prep Date: **5/28/2020** Analysis Date: **5/30/2020** SeqNo: **2400747** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	8.5	42.74	6.367	96.8	47.4	136	5.00	43.4	
Surr: DNOP	3.9		4.274		91.4	55.1	146	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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A41**
02-Jun-20

Client: Devon Energy
Project: Todd 14 Battery

Sample ID: **LCS-52674** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397013** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	89.8	80	120			
Toluene	1.0	0.050	1.000	0	99.7	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		91.7	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.1	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.5	70	130			
Surr: Toluene-d8	0.49		0.5000		97.5	70	130			

Sample ID: **mb-52674** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397014** 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	0.46		0.5000		92.5	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.0	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.8	70	130			
Surr: Toluene-d8	0.48		0.5000		96.1	70	130			

Sample ID: **2005a41-001ams** SampType: **MS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BS20-01 0'** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2398124** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.024	0.9588	0	102	71.1	115			
Toluene	1.1	0.048	0.9588	0	115	79.6	132			
Ethylbenzene	1.1	0.048	0.9588	0	114	83.8	134			
Xylenes, Total	3.3	0.096	2.876	0	115	82.4	132			
Surr: 1,2-Dichloroethane-d4	0.46		0.4794		96.4	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.4794		98.7	70	130			
Surr: Dibromofluoromethane	0.47		0.4794		98.6	70	130			
Surr: Toluene-d8	0.46		0.4794		97.0	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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A41**
02-Jun-20

Client: Devon Energy
Project: Todd 14 Battery

Sample ID: **2005a41-001amsd** SampType: **MS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BS20-01 0'** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2398126** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	0.9881	0	93.7	71.1	115	5.63	0	
Toluene	1.0	0.049	0.9881	0	102	79.6	132	8.99	0	
Ethylbenzene	1.1	0.049	0.9881	0	110	83.8	134	0.646	0	
Xylenes, Total	3.2	0.099	2.964	0	107	82.4	132	4.70	0	
Surr: 1,2-Dichloroethane-d4	0.45		0.4941		92.0	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.48		0.4941		97.2	70	130	0	0	
Surr: Dibromofluoromethane	0.45		0.4941		91.4	70	130	0	0	
Surr: Toluene-d8	0.48		0.4941		96.8	70	130	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A41**

02-Jun-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **lcs-52674** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **52674** RunNo: **69165**

Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.3	70	130			
Surr: BFB	550		500.0		110	70	130			

Sample ID: **mb-52674** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **52674** RunNo: **69165**

Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397021** 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	550		500.0		109	70	130			

Sample ID: **2005a41-002ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **BS20-02 0'** Batch ID: **52674** RunNo: **69165**

Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2398193** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.6	22.91	0	98.6	70	130			
Surr: BFB	490		458.3		107	70	130			

Sample ID: **2005a41-002amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **BS20-02 0'** Batch ID: **52674** RunNo: **69165**

Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2398195** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.6	23.15	0	89.4	70	130	8.69	20	
Surr: BFB	490		463.0		105	70	130	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: DEVON ENERGY Work Order Number: 2005A41 RcptNo: 1

Received By: **Juan Rojas** 5/23/2020 8:00:00 AM

Completed By: **Juan Rojas** 5/23/2020 8:38:10 AM

Reviewed By: JR 05/23/20

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 ☐	

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

Adjusted? _____

Checked by: JR 5/23/20

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	0.8	Good				

Chain-of-Custody Record

Client: Devon Energy
A. Davis / W. Mathews
Mailing Address: 6488 Seven Rivers Hwy
Artesia, NM 88210
Phone #:
email or Fax#:
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 14 Battery
Project #: 20E-06141
Project Manager: Natalie Gordon
Sampler: MJP
On Ice: ☐ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 0.8-0=0.8 (°C)

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. 2005A411	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)
5/22	8:40	Soil	BS20-01 0'	402	Ice	-001	✓	✓					✓			
	8:45		BS20-02 0'			-002	✓	✓					✓			
	8:50		BS20-03 0'			-003	✓	✓					✓			
	8:55		BS20-04 0'			-004	✓	✓					✓			
	9:00		BS20-05 0'			-005	✓	✓					✓			
	9:05		BS20-06 0'			-006	✓	✓					✓			
	8:20		BS20-07 0'			-007	✓	✓					✓			
	8:30		BS20-08 0'			-008	✓	✓					✓			
	9:10		BS20-09 0'			-009	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/22	1100				5/22	1200
5/22	1900			courier	5/23/20	8:40

Remarks: Direct bill CC: Natalie Gordon
Devon w/o#: 208363369

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

June 02, 2020

Amanda Davis

Devon Energy
6488 Seven Rivers Highway
Artesia, NM 88210
TEL: (505) 350-1336
FAX:

RE: Todd 14 Battery OrderNo.: 2005A42

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/23/2020 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 **2005A42**
Date Reported: **6/2/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Todd 14 Battery
Lab ID: 2005A42-001 **Matrix:** SOIL

Client Sample ID: SS20-01 0-0.5
Collection Date: 5/22/2020 8:05:00 AM
Received Date: 5/23/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/29/2020 12:06:26 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/29/2020 12:06:26 PM
Surr: DNOP	79.5	55.1-146		%Rec	1	5/29/2020 12:06:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	ND	60		mg/Kg	20	6/1/2020 1:02:42 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2020 6:25:49 PM
Toluene	ND	0.048		mg/Kg	1	5/27/2020 6:25:49 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/27/2020 6:25:49 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/27/2020 6:25:49 PM
Surr: 1,2-Dichloroethane-d4	98.4	70-130		%Rec	1	5/27/2020 6:25:49 PM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	5/27/2020 6:25:49 PM
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	5/27/2020 6:25:49 PM
Surr: Toluene-d8	99.9	70-130		%Rec	1	5/27/2020 6:25:49 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/27/2020 6:25:49 PM
Surr: BFB	106	70-130		%Rec	1	5/27/2020 6:25:49 PM

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A42**
02-Jun-20

Client: Devon Energy
Project: Todd 14 Battery

Sample ID: **MB-52800** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **52800** RunNo: **69292**
Prep Date: **6/1/2020** Analysis Date: **6/1/2020** SeqNo: **2403563** Units: **mg/Kg**

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

Sample ID: **LCS-52800** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **52800** RunNo: **69292**
Prep Date: **6/1/2020** Analysis Date: **6/1/2020** SeqNo: **2403565** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	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#: **2005A42**

02-Jun-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **LCS-52738** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **LCSS** Batch ID: **52738** RunNo: **69198**

Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399901** 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	4.6		5.000		92.5	55.1	146			

Sample ID: **MB-52738** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**

Client ID: **PBS** Batch ID: **52738** RunNo: **69198**

Prep Date: **5/28/2020** Analysis Date: **5/29/2020** SeqNo: **2399902** 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	10		10.00		101	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#: **2005A42**
02-Jun-20

Client: Devon Energy
Project: Todd 14 Battery

Sample ID: **LCS-52674** SampType: **LCS4** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BatchQC** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397013** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	89.8	80	120			
Toluene	1.0	0.050	1.000	0	99.7	80	120			
Ethylbenzene	1.0	0.050	1.000	0	104	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		91.7	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.1	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.5	70	130			
Surr: Toluene-d8	0.49		0.5000		97.5	70	130			

Sample ID: **mb-52674** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52674** RunNo: **69165**
Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397014** 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	0.46		0.5000		92.5	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.0	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.8	70	130			
Surr: Toluene-d8	0.48		0.5000		96.1	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2005A42**

02-Jun-20

Client: Devon Energy

Project: Todd 14 Battery

Sample ID: **lcs-52674** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **52674** RunNo: **69165**

Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	94.3	70	130			
Surr: BFB	550		500.0		110	70	130			

Sample ID: **mb-52674** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **52674** RunNo: **69165**

Prep Date: **5/25/2020** Analysis Date: **5/27/2020** SeqNo: **2397021** 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	550		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: 2005A42 RcptNo: 1

Received By: **Juan Rojas** 5/23/2020 8:00:00 AM

Completed By: **Juan Rojas** 5/23/2020 8:47:27 AM

Reviewed By: 05/23/20

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 ☐	

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

Adjusted? _____

Checked by: JR 5/23/20

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	0.8	Good				

Chain-of-Custody Record

Client: Devon Energy

A. Davis / W. Mathews

Mailing Address: 6488 Seven Rivers Hwy

Artesia, NM 88210

Phone #:

email or Fax#:

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 14 Battery

Project #: 20E-00141

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 0.8-0=0.8 (°C)

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. 2005412	Analysis Request: (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)
5/22	8:05	Soil	SS20-010-05	4oz	ice	-001	✓	✓					✓			

Date: 5/22 Time: 1100 Relinquished by:

Received by: Via: Date: 5/22 Time: 1200

Date: 5/22 Time: 1400 Relinquished by:

Received by: Via: courier Date: 5/23/20 Time: 8:00

Remarks: Direct bill Devon c.c Natalie Gordon w/o # 208363691

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.