May 4, 2021 Vertex Project #: 20E-00141-041

Spill Closure Report: Tomcat 16 State 2
Unit M, Section 16, Township 23 South, Range 32 East
County: Lea
API: 30-025-34306
NM OCD Tracking Number: NCH1817040776
Remediation Case Number: 1RP-5102

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

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

Devon Energy Production Company (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for an oil release that occurred on June 5, 2018, at Tomcat 16 State 2, API 30-025-34306 (hereafter referred to as "Tomcat"). Devon provided notification of the spill to New Mexico Oil Conservation Division (NM OCD) District 1, and the New Mexico State Land Office (NM SLO), via submission of an initial C-141 Release Notification (Attachment 1) on June 11, 2018. The NM OCD tracking number and remediation case numbers assigned to this incident are NCH1817040776 and 1RP-5102, respectively.

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, with the understanding that any restoration of the site required as a result of this incident will be deferred until such time as oil and gas activities are terminated and the site is reclaimed per 19.15.29.13 NMAC.

Incident Description

On June 5, 2018, a release occurred at Devon's Tomcat site when the threading came apart on the BS&W line, allowing the pipe to come apart. The valve upstream of the line was closed to stop the resulting release. This incident resulted in the release of approximately 257 barrels (bbl) of oil into the unlined earthen berm containment on the engineered wellpad. No oil was released into undisturbed areas or waterways. Upon discovery of the release, a hydrovac truck was dispatched to the site to recover free liquids. Approximately 61 bbl of oil were recovered from the spill area and removed for disposal off-site.

Site Characterization

The release at Tomcat occurred on state-owned land, N 32.298878, W 103.686694, approximately 22 miles east of Loving, New Mexico. The legal description for the site is Unit M, Section 16, Township 23 South, Range 32 East, Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland. An aerial photograph and site schematic are included in Attachment 2 (Figure 1).

Tomcat is typical of oil and gas exploration and production sites in the western portion of the Permian Basin, and is currently used for oil and gas production, and storage. The following sections specifically describe the release area on the southwestern portion of the constructed wellpad.

The surrounding landscape has historically been associated with plains at elevations of 3,000 to 3,900 feet above sea level. The climate is semiarid, with average annual precipitation ranging between 10 and 12 inches. The historical plant community is dominated by black grama, dropseeds and bluestems, with scattered shinnery oak and sand sage. Litter and, to a lesser extent, bare ground make up a significant proportion of ground cover (United States Department of Agriculture, Natural Resources Conservation Service, 2021). Limited to no vegetation is allowed to grow on the compacted production wellpad and lease road.

The Geological Map of New Mexico indicates the surface geology at Tomcat is comprised primarily of Qep – interlayed eolian sands and piedmont-slope deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2020). The Natural Resources Conservation Service Web Soil Survey characterizes the soil at the site as Pyote and Maljamar fine sands, comprised of fine sand over a layer of sandy clay loam and a deeper layer of cemented material. This type of soil tends to be well-drained with very low runoff and low available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2021). There is low potential for karst geology to be present near Tomcat (United States Department of the Interior, Bureau of Land Management, 2020).

There is no surface water located on-site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately 5.7 miles east of the site (United States Department of the Interior, United States Fish and Wildlife, 2020). There are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC near Tomcat.

There are two active wells near the release site identified by New Mexico Office of the State Engineer. The closest well is from 1912, is located approximately 1.07 miles southeast of the site, does not have current depth to water measurements, and is used for stock water. The next-closest well to site is a monitoring well from 2015 and is located approximately 1.15 miles south-southwest of the site, with a depth to groundwater of 713 feet below ground surface (bgs; New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2021). 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 Tomcat is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC. The nearest well less than 25 years old is more than 0.5 miles from the spill site; therefore, the most stringent closure criteria were applied. The closure criteria for the incident assumes depth to groundwater <50 ft bgs, and are determined to be associated with the following constituent concentration limits.

Table 1. Closure Criteria for Soils Impacted by a Release

Depth to Groundwater	Constituent	Limit
<50 feet	Chloride	600 mg/kg
	TPH[1] (GRO + DRO + MRO)	100 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

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

Remedial Actions

Initial spill inspection and site characterization activities at Tomcat were completed by Vertex on January 25, 2021. The Daily Field Report (DFR) and field screening data associated with the site visit are included in Attachment 4. Using initial field screening data, the release was initially delineated horizontally and vertically as presented on Figure 1 (Attachment 2). The impacted area was determined to be approximately 70 feet long and 78 feet wide; the total affected area was determined to be approximately 4,677 square feet. The initial site visit also showed no indication that impacts from the release extended off the wellpad. A remediation plan was developed based on the initial characterization.

Remediation efforts were initiated on February 23, 2021, with Vertex personnel guiding the excavation of impacted soils to a depth of approximately 4 feet bgs. Excavated material was transported by a licensed waste hauler to an approved waste management facility for disposal. Field screening was conducted during excavation activities, utilizing a Photoionization Detector (PID) for the detection of volatile organic compounds, and a Dexsil PetroFlag (SW-846 Method 9074; United States Environmental Protection Agency, 2007) to detect the presence of hydrocarbons. Additional details and field screening results for this and all subsequent site visits can be found in the DFRs (Attachment 4). Excavation of the former containment area to 4 feet bgs was completed on February 26, 2021. Laboratory results indicated four sampling locations that exceeded closure criteria and required further excavation.

On February 26, 2021, Vertex provided 48-hour notification of confirmatory sampling to NM OCD District 1 and the SLO, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 5). On March 1, 2021, Vertex was on-site to conduct confirmatory sampling and further excavation of areas identified as exceeding constituent

concentration thresholds. Vertex collected 23 five-point composite confirmatory soil samples, each 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. A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit was used to map the approximate center of the five-point composite samples. The confirmatory sample locations are presented on Figure 2 (Attachment 2). Relevant equipment and prominent features/reference points at the site were mapped as well. Two areas required excavation to 8 feet bgs to return field screening results below closure criteria values.

On March 16, 2021, Vertex provided 48-hour notification of final confirmation sampling to the NM OCD, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC (Attachment 5). The remaining confirmatory samples were collected from the base and walls of the excavation and submitted to National Environmental Laboratory Accreditation Program (NELAP)-approved laboratory for chemical analysis. On March 18, 2021, Vertex personnel oversaw backfilling of the excavation with non-waste-containing, uncontaminated, earthen material, sourced locally, and placed to meet the site's existing grade to prevent ponding of water and erosion.

The composite samples were placed into laboratory-provided containers, preserved on ice, and submitted to a NELAP-approved laboratory for chemical analysis. Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. The final confirmatory sample analytical data are summarized in Attachment 6, and laboratory data reports and chain of custody forms are included in Attachment 7.

Closure Request

Vertex does not recommend any additional remediation actions to address the release at Tomcat. Laboratory analyses of the final confirmatory samples showed constituent of concern concentration levels below NMOCD closure criteria for areas where depth to groundwater is less than 50 feet bgs as presented in Table 3 (Attachment 6). There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that this incident (NCH1817040776) 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 June 5, 2018, release at Tomcat.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 832.588.0674 or dhanton@vertex.ca.

Sincerely,

Dhugal Hanton
VICE PRESIDENT, US OPERATIONS

Attachments

Attachment 1. NM OCD C-141 Report
Attachment 2. Figures
Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. 48-hr Notification of Confirmatory Sampling
Attachment 6. Tables
Attachment 7. Laboratory Data Reports/Chain of Custody Forms

References

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

New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division. (2021). *Registered Mines Web Map.* Retrieved from http://www.emnrd.state.nm.us/MMD/gismapminedata.html

New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System. (2021). *Water Column/Average Depth to Water Report*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html.

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

United States Department of Agriculture, Natural Resources Conservation Service. (2021). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

United States Department of Homeland Security, Federal Emergency Management Agency. 2020. *FEMA Flood Map Service Center*. Retrieved from https://msc.fema.gov/portal/search.

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

United States Department of the Interior, United States Fish and Wildlife (2020). National Wetlands Inventory. Retrieved from https://www.fws.gov/wetlands/Data/Mapper/html.

United States Environmental Protection Agency. (2007). *SW-846 Test Method 9074: Turbidimetric Screening Method for Total Recoverable Petroleum Hydrocarbons in Soil*.

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

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company	Contact Merle Lewis, Production Foreman
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-748-3371
Facility Name Tomcat 16 State 2	Facility Type Oil

Surface Owner State	Mineral Owner State	API No. 30-025-34306

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
M	16	23S	32E					Lea

Latitude_32.298878_ **Longitude**_103.686394_ NAD83

NATURE OF RELEASE

Type of Release Oil	Volume of Release 257bbls	Volume Recovered 61bbls
Source of Release BS&W line on oil tank	Date and Hour of Occurrence June 5, 2018 @ 1:30 PM MST	Date and Hour of Discovery June 5, 2018 @ 1:30 PM MST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD-Olivia Yu and Christina Hernandez NMSLO-Ryan Mann	
By Whom? Mike Shoemaker	Date and Hour June 6, 2018 @ 11:23 AM MST	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

RECEIVED
By CHernandez at 11:14 am, Jun 19, 2018

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*
The threads came apart on the BS&W line allowing the pipe to come apart and for the spill to occur. The valve upstream of the line was shut to stop the release.

Describe Area Affected and Cleanup Action Taken.*
Approximately 257 bbls of oil was released into the earthen berm SPCC containment. Approximately 61 bbls oil was recovered by the dispatched vacuum truck. An Environmental contractor will be contacted to assist with further delineation and remediation efforts.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

Signature: Sheila Fisher

Printed Name: Sheila Fisher

Title: Field Admin Support

E-mail Address: Sheila.Fisher@dvn.com

Date: 6/11/18 Phone: 575.748.1829

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: CH

Approval Date: 6/19/2018 Expiration Date:

Conditions of Approval:
See attached directive
1RP-5102 nCH1817040776
pCH1817041237

Attached ☑

* Attach Additional Sheets If Necessary

Tomcat 16 State 2

257bbls oil_6.5.18

devon

This map is for illustrative purposes only and is neither a legally recorded map nor survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS_1984_Web_Mercator_Auxiliary_Sphere
Prepared by: Sheila Fisher
Map is current as of: 19-Jun-2018

N

Miles
0 0.01 0.02 0.04
1: 1,779

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _6/19/2018_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-5102__ has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

> *The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC.* [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _7/19/2018_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

● Nominal detection limits for field and laboratory analyses must be provided.

● Composite sampling is not generally allowed.

● Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

●Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

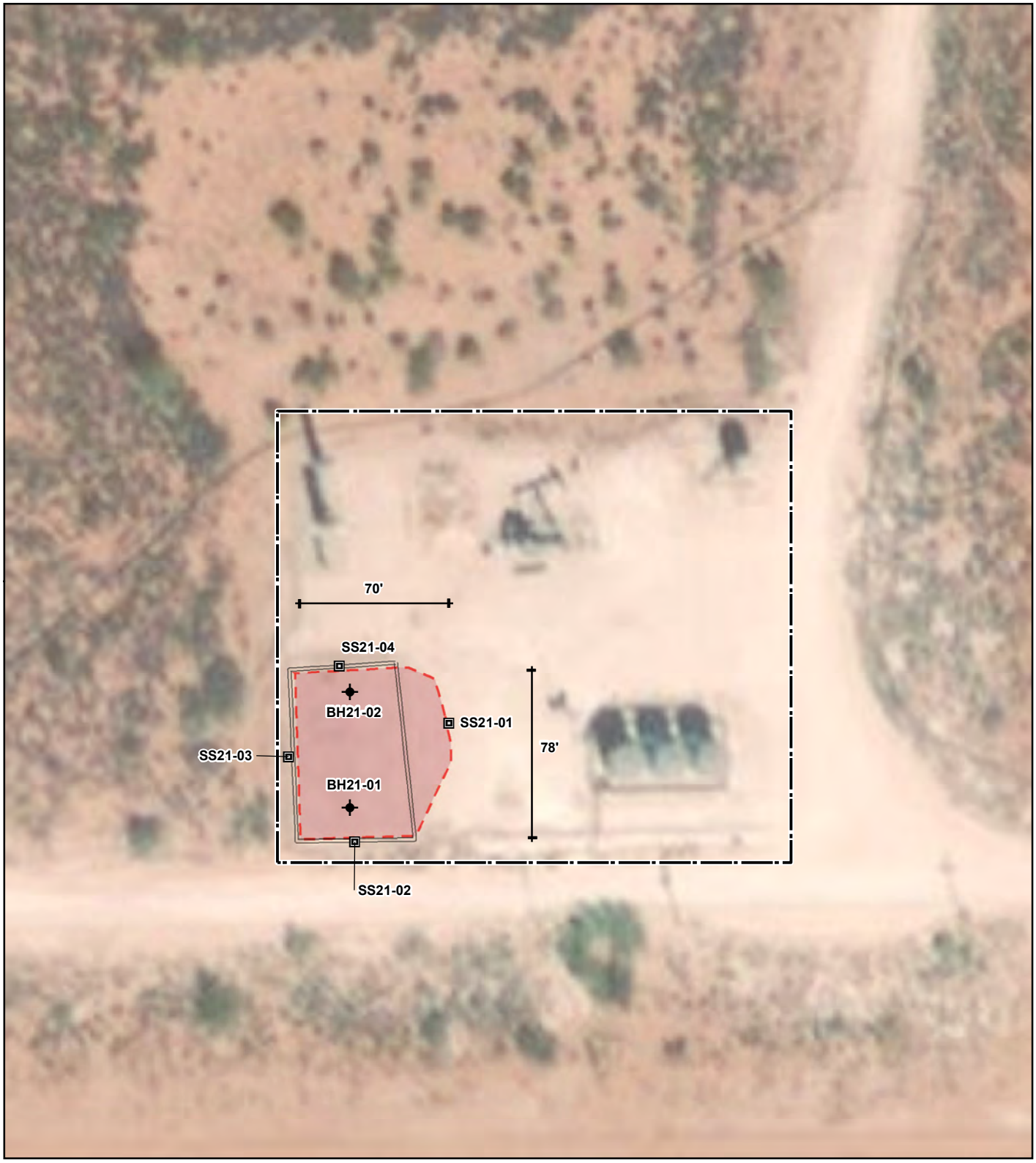
● If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

● Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

ATTACHMENT 2



Borehole
Soil Sample
Approximate Lease Boundary
Approximate Spill Extent (4677 sq. ft.)
Earthen Containment

VERTEX

0 10 20 40 ft.

WGS 1984 UTM Zone 13N
Date: Jan 26/21

Map Center:
Lat: 32.299091,
Long:-103.686115

N

Site Schematic and Characterization
Sampling Locations
Tomcat 16 State 2

FIGURE: 1

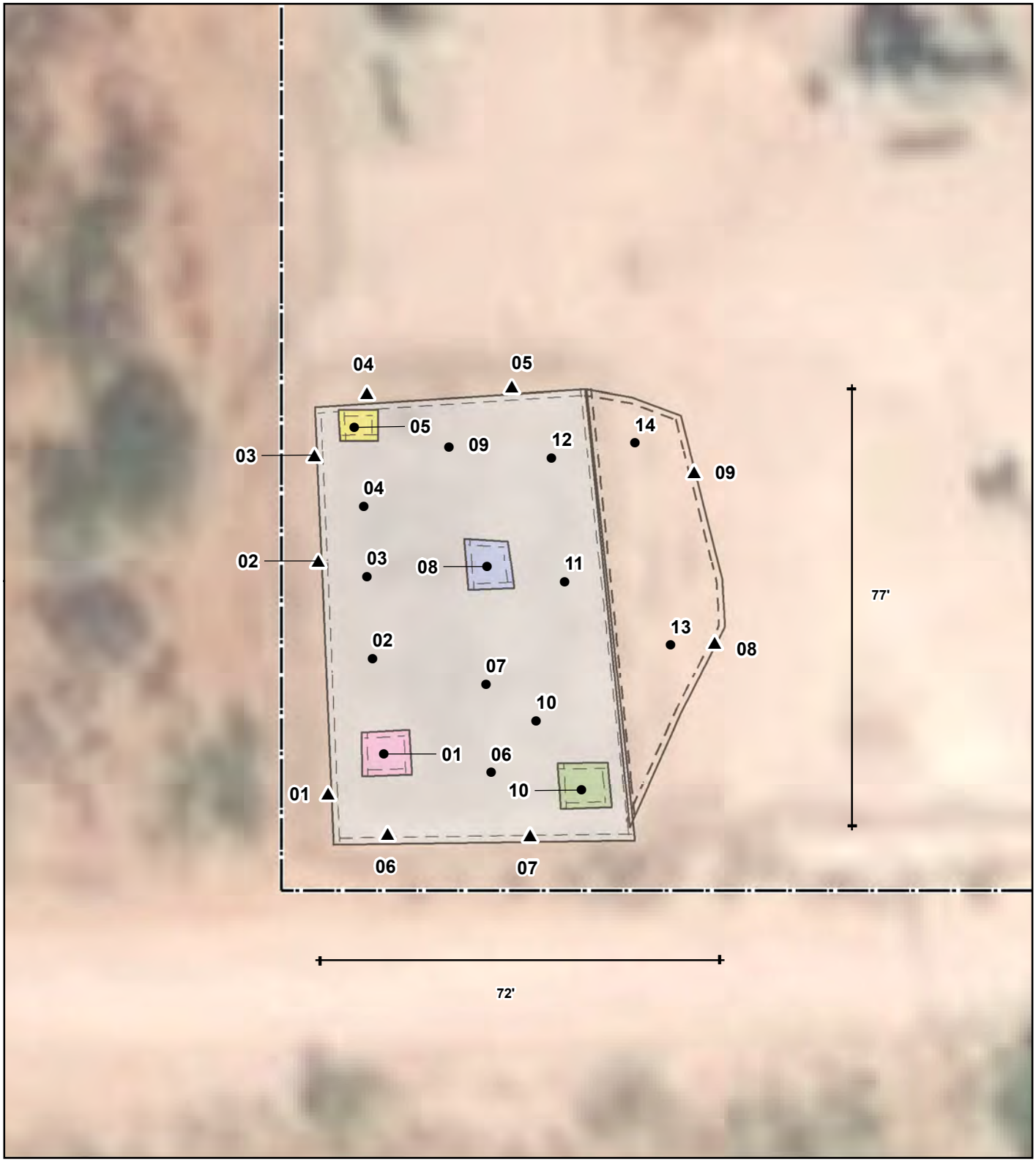
devon

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: Basemap imagery provided by ESRI, 2019

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\041 - Tomcat 16 State 2\Figure 1 Initial Characterization (2nd Event) Tomcat 16 State 2.mxd



- Base Sample (Prefixed with "BS21-")
- Wall Sample (Prefixed with "WS21-")
- BS21-01 - Excavated down 8ft (65 sq. ft.)
- BS21-05 - Excavated down 5ft (36 sq.ft.)
- BS21-08 - Excavated down 8ft (68 sq. ft.)
- BS21-10 - Excavated down 8ft (69 sq. ft.)
- Containment - Excavated down 4ft (3870 sq. ft.)
- Excavation Outside Containment - down 1ft (1078 sq. ft.)
- Approximate Lease Boundary

VERTEX

0 4.25 8.5 17 ft.

WGS 1984 UTM Zone 13N
Date: Apr 16/21

Map Center:
Lat: 32.298897,
Long:-103.686331

N

Confirmatory Sampling Locations
Tomcat 16 State 2

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: Basemap imagery provided by ESRI, 2019

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Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\041 - Tomcat 16 State 2\Figure 2 Confirmatory Schematic Tomcat 16 State 2 West.mxd

ATTACHMENT 3

Closure Criteria Worksheet			
Site Name: Tomcat 16 State 2			
Spill Coordinates:		X: 32.298878	Y: -103.686394
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**713**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	30446	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	12008	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	33684	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**	5650	feet
	ii) Within 1000 feet of any fresh water well or spring	5650	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	18603	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	Undetermined	year
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'

Tomcat 16 State 2

Nearest Active Well: C 02216, 1.07 miles
Nearest DTGW Reference Well: C 03851 POD1, 1.15 miles
DTGW: 713 feet

Tomcat 16 State 2

1/28/2021, 8:41:34 AM

GIS WATERS PODs
- Pending
- OSE District Boundary

New Mexico State Trust Lands
- Subsurface Estate
- Both Estates

SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

USDA FSA, GeoEye, Maxar, Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC

OSE POD Locations

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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02216		CUB	LE	2	2	4	21	23S	32E	625035	3573261*	1722	585	400	185
C 03851 POD1		CUB	LE	3	3	4	20	23S	32E	622880	3572660	1843	1392	713	679
C 03529 POD1		C	LE	2	4	3	29	23S	32E	622651	3571212	3274	550		
C 02349		CUB	ED		2	3	03	23S	32E	625678	3578004*	4190	525		

Average Depth to Water: **556 feet**
Minimum Depth: **400 feet**
Maximum Depth: **713 feet**

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 623678 **Northing (Y):** 3574322 **Radius:** 5000

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

4/19/21 11:07 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 02216	2	2	4	21	23S	32E	625035	3573261*

Driller License: **Driller Company:**

Driller Name: UNKNOWN

Drill Start Date:		**Drill Finish Date:**	12/31/1912	**Plug Date:**	
Log File Date:		**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	7 GPM
Casing Size:	6.50	**Depth Well:**	585 feet	**Depth Water:**	400 feet

***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 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

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 met

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 64	q 16	q 4	Sec	Twn	Rng	X	Y
C 02216	CUB	PLS	11.3	BRININSTOOL XL RANCH LLC	LE	C 02216					2	2	4	21	23S	32E	625035	3573261*
C 03851	CUB	MON	0	US DEPARTMENT OF ENERGY	LE	C 03851 POD1				Artesian	3	3	4	20	23S	32E	622879	3572660
C 02520	C	PRO	0	PENWELL ENERGY	LE	C 02520						1	4	15	23S	32E	626122	3574791*
C 03529	C	STK	0	MARK MCCLOY	LE	C 03529 POD1					2	4	3	29	23S	32E	622651	3571212
C 02349	CUB	STK	3	CHARLES F. JAMES	ED	C 02349						2	3	03	23S	32E	625678	3578004*
C 02445	C	STK	3	BUREAU OF LAND MANAGEMENT	LE	C 02445					3	3	3	13	23S	32E	628437	3574327*

Record Count: 6

UTMNAD83 Radius Search (in meters):

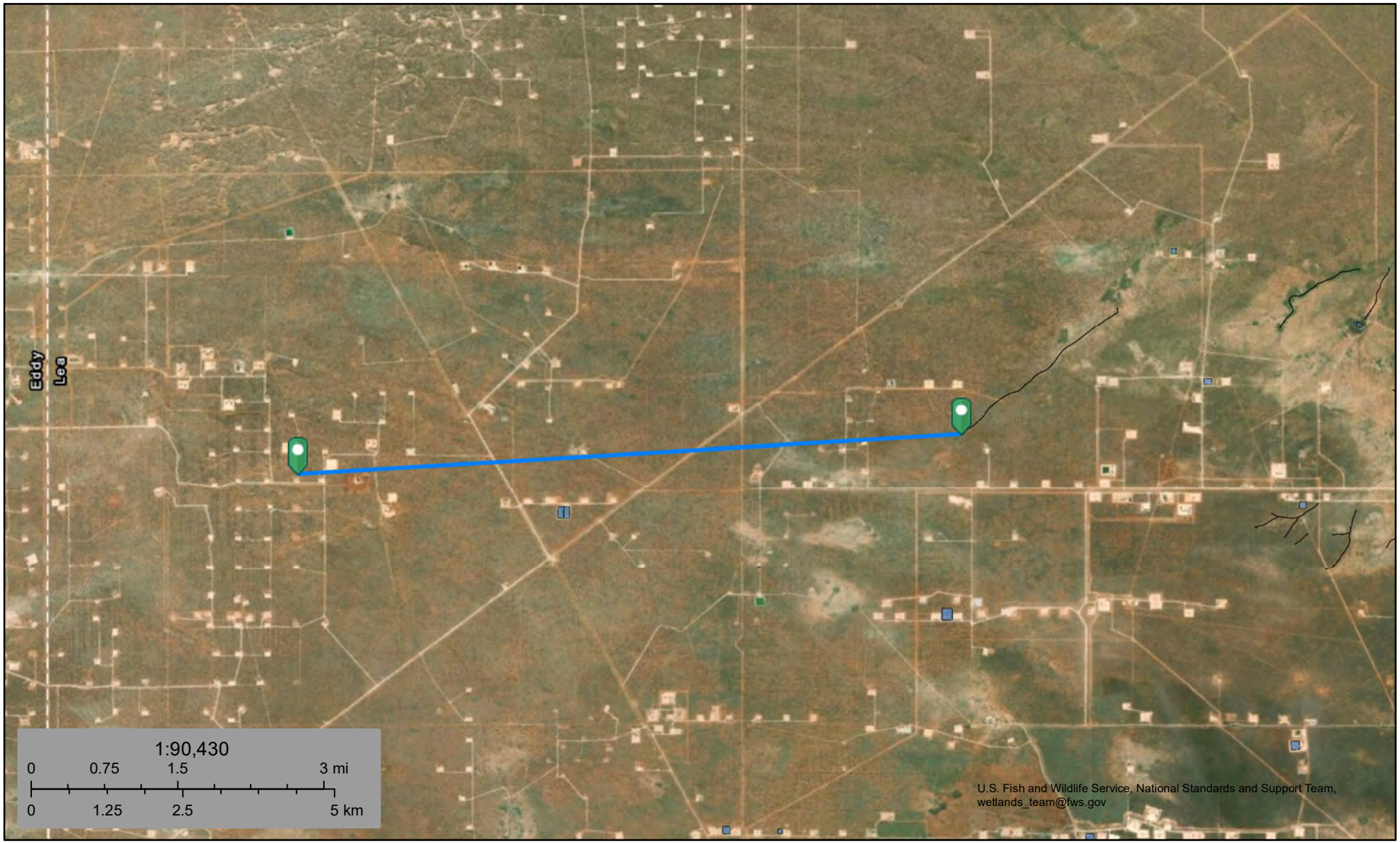
Easting (X): 623678 **Northing (Y):** 3574322 **Radius:** 5000

Sorted by: Distance

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Tomcat 16 State 2: Watercourse 30,446 ft



March 8, 2020

Wetlands

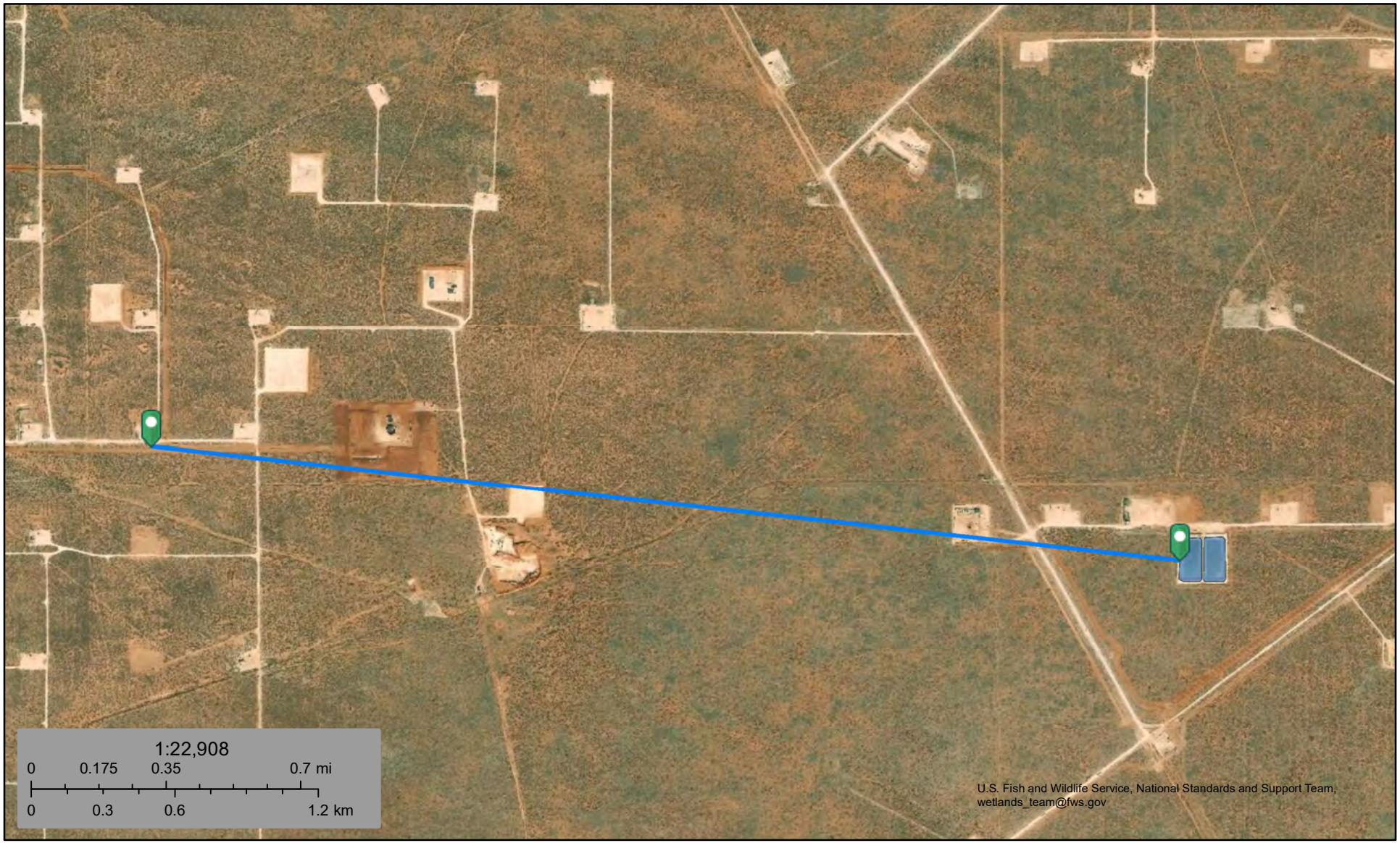
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Tomcat 16 State 2: Pond 12,008 ft



March 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
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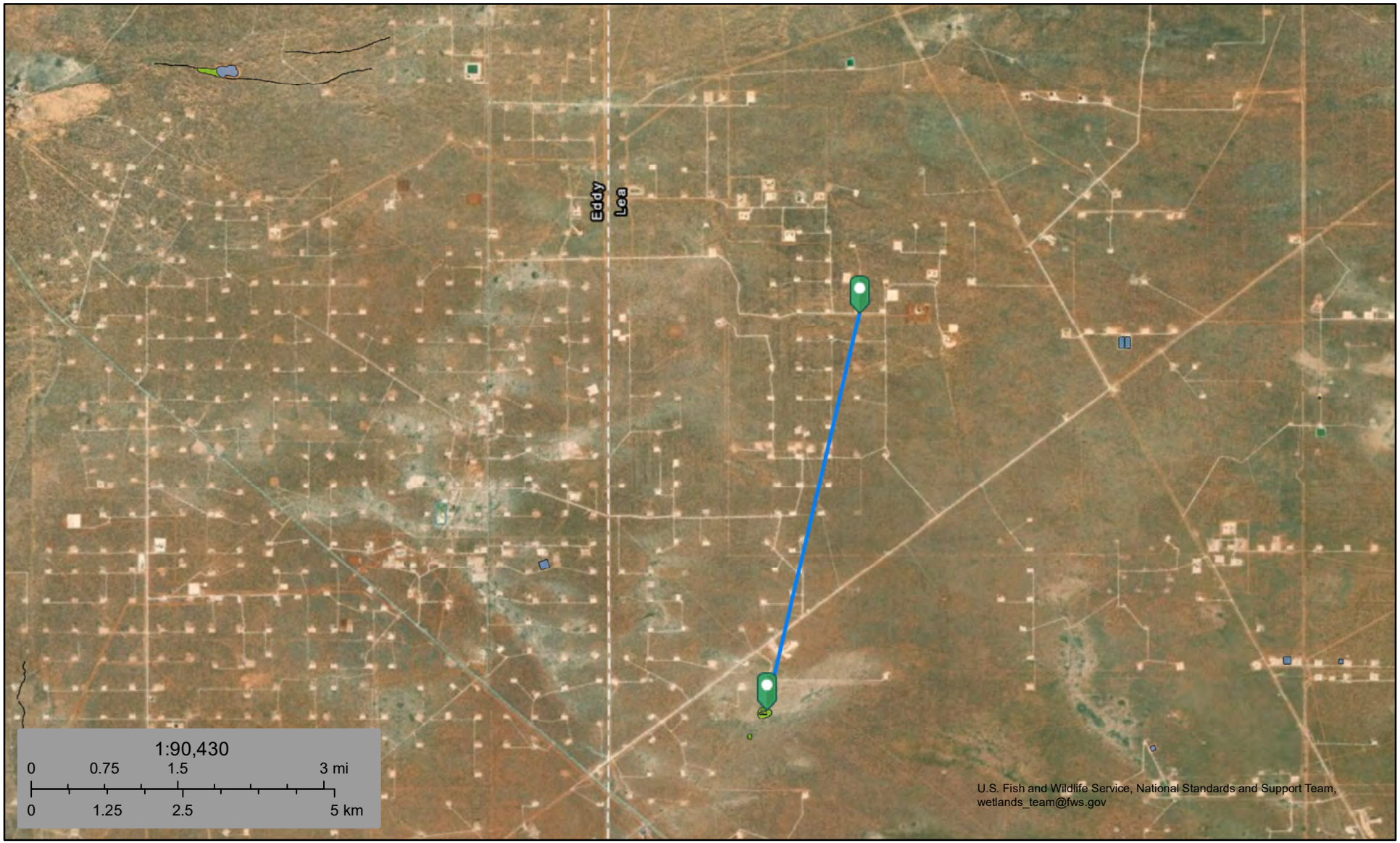
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service
National Wetlands Inventory

Tomcat 16 State 2: Wetland 18,603 ft



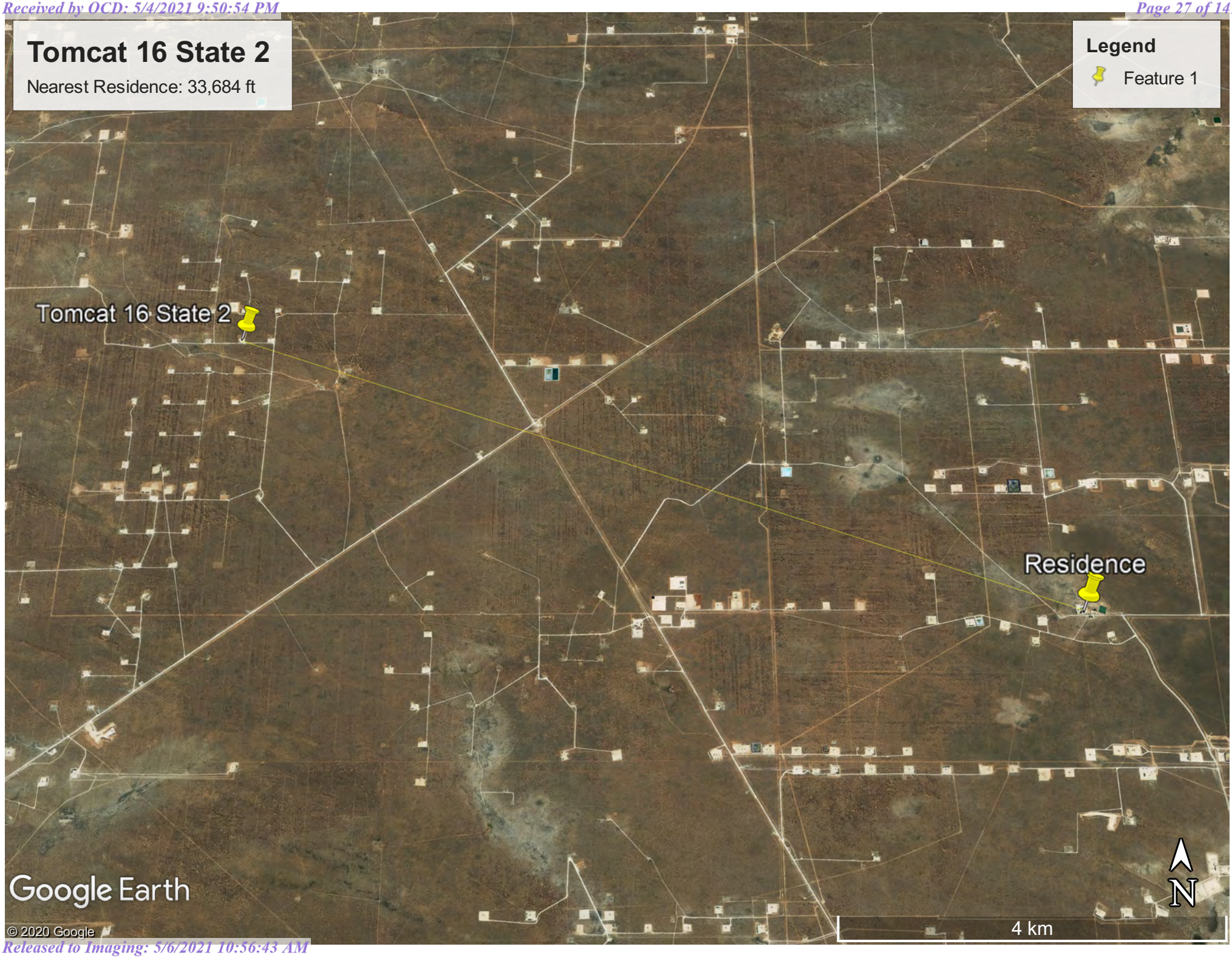
March 8, 2020

Wetlands

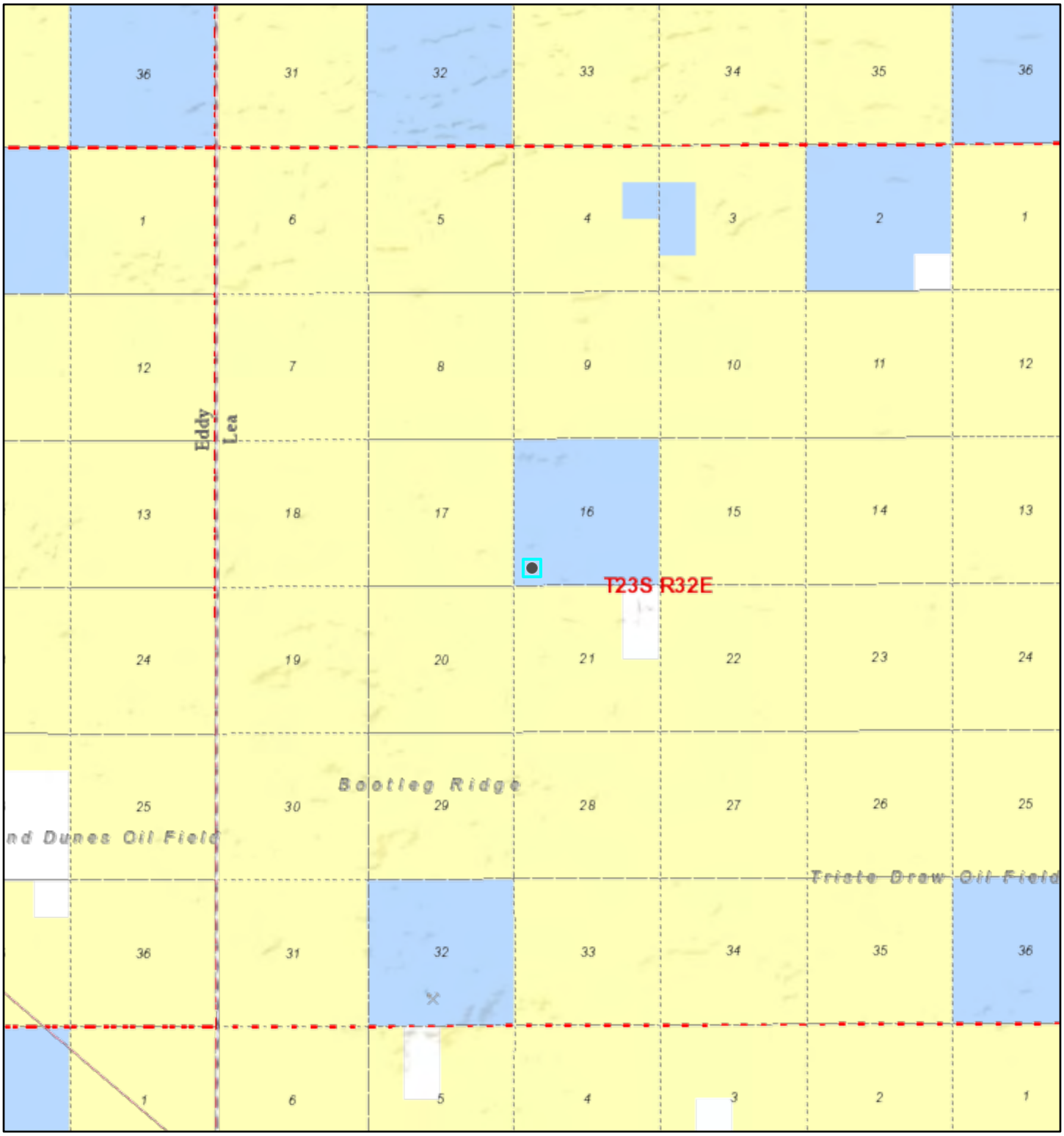
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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


Tomcat 16 State 2
Nearest Residence: 33,684 ft
Legend
Feature 1
Tomcat 16 State 2
Residence
Google Earth
© 2020 Google
N
4 km

Active Mines near Tomcat 16 State 2



3/8/2020, 11:56:09 AM

1:72,224

0 0.5 1 2 mi

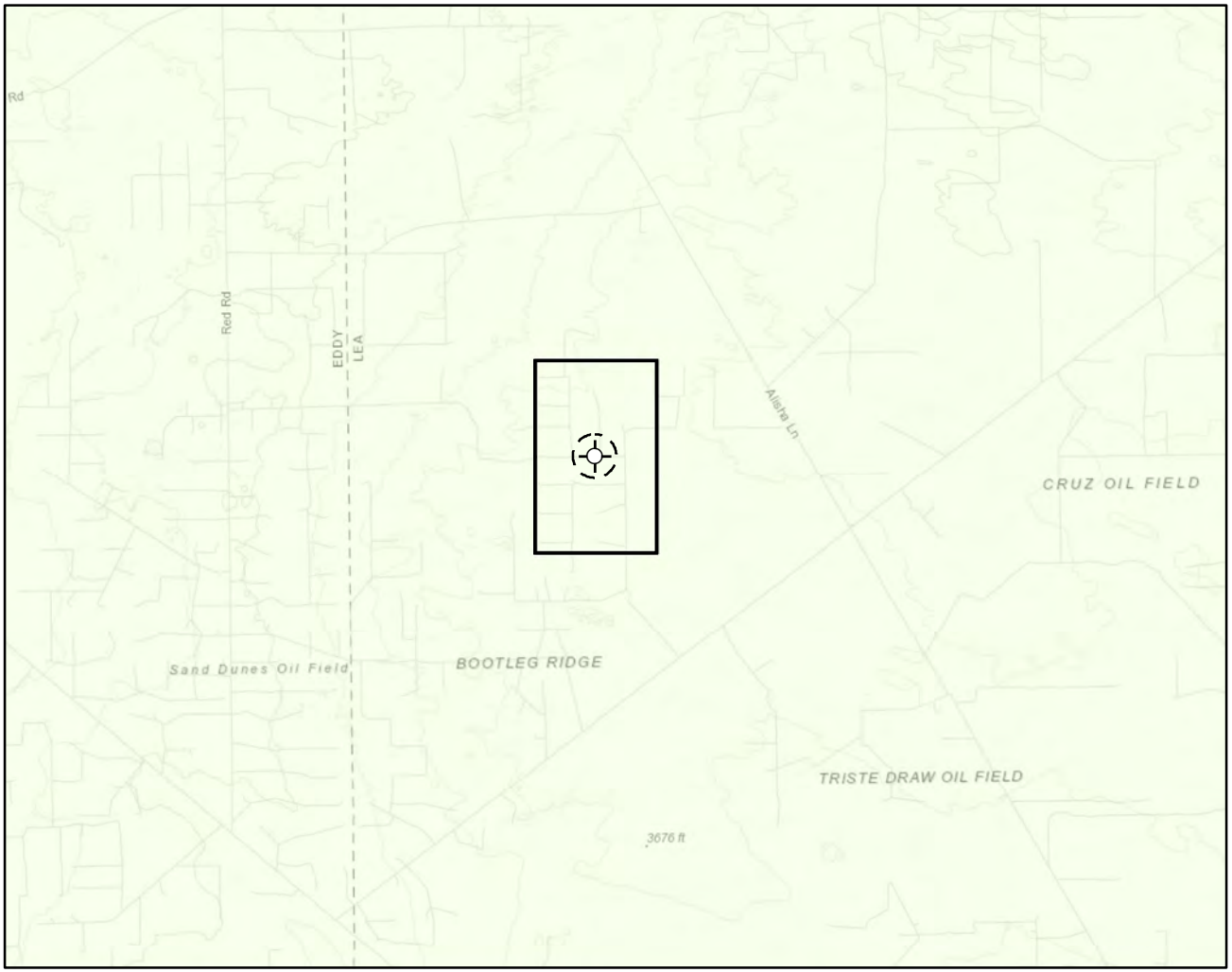
0 0.75 1.5 3 km

Registered Mines

Aggregate, Stone etc.

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

EMNRD MMD GIS Coordinator



Karst Potential

- Critical
- High
- Medium
- Low

Site

Site Buffer

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 600 1,200 ft.

VERTEX

Map Center:
Lat/Long: 32.295007, -103.683217

NAD 1983 UTM Zone 13N
Date: Jun 09/20

N

Karst Potential Map
Tomcat 16 State 2

FIGURE:
X

devon

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

Note: Inset Map - ESRI 2018; Overview Map - ESRI World Topographic

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\041 - Tomcat 16 State 2\Figure Tomcat 16 State 2 Karst.mxd

National Flood Hazard Layer FIRMette

FEMA

32°18'11.97"N

103°41'28.33"W

103°40'50.87"W

32°17'41.55"N

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

1:6,000

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/8/2020 at 1:38:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Soil Map—Lea County, New Mexico
(Tomcat 16 State 2)

Map Scale: 1:615 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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

Soil Map—Lea County, New Mexico
(Tomcat 16 State 2)

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PU	Pyote and maljamar fine sands	1.6	100.0%
Totals for Area of Interest		**1.6**	**100.0%**

Lea County, New Mexico

PU—Pyote and maljamar fine sands

Map Unit Setting

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

Map Unit Composition

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

Description of Maljamar

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

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

Description of Pyote

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

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

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: Sandhills (R042XC022NM)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 16, Sep 15, 2019

USDA Natural Resources Conservation Service

Ecological site R042XC003NM
Loamy Sand

Accessed: 04/19/2021

General information

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

Figure 1. Mapped extent

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

Associated sites

R042XC004NM	**Sandy** Sandy
R042XC005NM	**Deep Sand** Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site is on uplands, plains, dunes, fan piedmonts and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock. Slope range on this site range from 0 to 9 percent with the average of 5 percent.

Low stabilized dunes may occur occasionally on this site. Elevations range from 2,800 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Alluvial fan (3) Dune
Elevation	2,800–5,000 ft
Slope	0–9%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

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

Table 3. Representative climatic features

Frost-free period (average)	221 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

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

Soil features

Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam.

Subsurface is a loamy fine sand, coarse sandy loam, fine sandy loam or loam that averages less than 18 percent clay and less than 15 percent carbonates.

Substratum is a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

These soils, if unprotected by plant cover and organic residue, become wind blown and low hummocks are formed.

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

Characteristic soils are:

Maljamar
Berino
Parjarito
Palomas
Wink
Pyote

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Fine sandy loam (3) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid
Soil depth	40–72 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–7 in
Calcium carbonate equivalent (0-40in)	3–40%
Electrical conductivity (0-40in)	2–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	4–12%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Overview

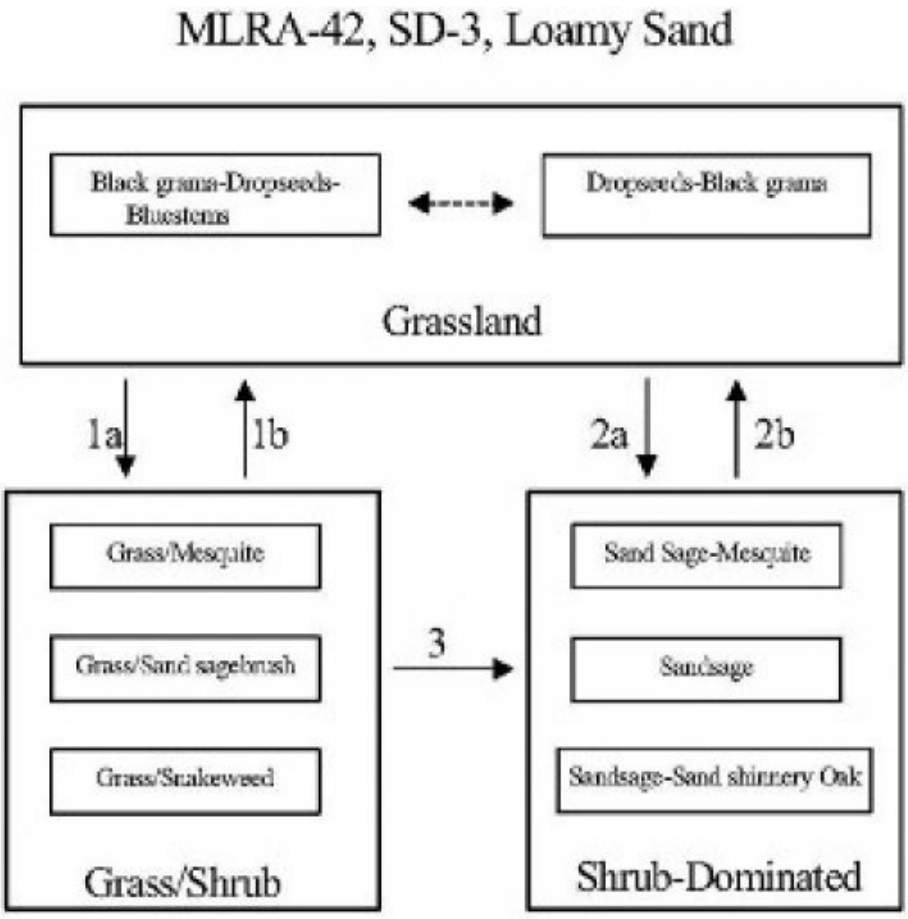
The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (sandy loam and fine sandy loam) surfaces. Although Loamy Sand and Deep Sand sites have similar surface textures, the depth to a textural change is different—Loamy Sand sub-surface textures typically increase in clay at approximately 20 to 30 inches, and Deep Sand sites not until around 40 inches.

The historic plant community of Loamy Sand sites is dominated by black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*). Perennial and annual forb abundance and distribution are dependent on precipitation. Litter and to a lesser extent, bare ground, are a significant proportion of ground cover while grasses compose the remainder. Decreases in black grama indicate a transition to either a grass/shrub or shrub-dominated state. The grass/shrub state is composed of grasses/honey mesquite (*Prosopis glandulosa*), grasses/broom snakeweed (*Gutierrezia sarothrae*), or grasses/sand sage. The shrub-dominated state occurs after a severe loss of grass cover and a prevalence of sand sage with secondary shinnery oak and mesquite. Heavy grazing intensity and/or drought are influential drivers in decreasing black grama and bluestems and subsequently increasing shrub cover, erosion, and bare patches. Historical fire suppression also

encourages shrub pervasiveness and a competitive advantage over grass species (McPherson 1995). Brush and grazing management, however, may reverse grass/shrub and shrub-dominated states toward the grassland-dominated historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram):



1a. Drought, over grazing, fire suppression.
1b. Brush control, prescribed grazing

2.a Severe loss of grass cover, fire suppression, erosion.
2b. Brush control, seeding, prescribed grazing.

3. Continued loss of grass cover, erosion.

Figure 4.

State 1

Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: The historic plant community is a uniformly distributed grassland dominated by black grama, dropseeds, and bluestems. Sand sage and shinnery oak are evenly dispersed throughout the grassland due to the coarse soil surface texture. Perennial and annual forbs are common but their abundance and distribution are reflective of precipitation. Bluestems initially, followed by black grama, decrease with drought and heavy grazing intensity. Historical fire frequency is unknown but likely occurred enough to remove small shrubs to the competitive advantage of grass species. Fire suppression, drought conditions, and excessive grazing drive most grass species out of competition with shrub species.

Diagnosis: Grassland dominated by black grama, dropseeds, and bluestems. Shrubs, such as sand sage, shinnery oak, and mesquite are dispersed throughout the grassland. Forbs are present and populations fluctuate with precipitation variability.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	442	833	1224
Forb	110	208	306
Shrub/Vine	98	184	270
Total	**650**	**1225**	**1800**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	28%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	22%

Figure 6. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community .

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

Grass/Shrub State: The grass/shrub state is dominated by communities of grasses/mesquite, grasses/snakeweed, or grasses/sand sage. Decreases in black grama and bluestem species lead to an increase in bare patches and mesquite which further competes with grass species. An increase of dropseeds and threeawns occurs. Grass distribution becomes more patchy with an absence or severe decrease in black grama and bluestems. Mesquite provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Mesquite mortality when exposed to fire is low due to aggressive resprouting abilities. Herbicide application combined with subsequent prescribed fire may be more effective in mesquite reduction (Britton and Wright 1971).

Diagnosis: This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Dropseeds and threeawns have a patchy distribution.

Transition to Grass/Shrub State (1a): The historic plant community begins to shift toward the grass/shrub state as drivers such as drought, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by a decrease in black grama with a subsequent increase of dropseeds, threeawns, mesquite, and snakeweed. Snakeweed has been documented to outcompete black grama especially under conditions of fire suppression and drought (McDaniel et al. 1984).
Key indicators of approach to transition:
• Loss of black grama cover
• Surface soil erosion
• Bare patch expansion
• Increased dropseed/threeawn and mesquite, snakeweed, or sand sage abundances

Transition to Historic Plant Community (1b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community.

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

Shrub-Dominated State: The shrub-dominated state results from a severe loss of grass cover. This state's primary species is sand sage. Shinnery oak and mesquite also occur; however, grass cover is limited to intershrub distribution. Sand sage stabilizes light sandy soils from wind erosion, which enhances protected grass/forb cover (Davis and Bonham 1979). However, shinnery oak also responds to the sandy soils with dense stands due to an aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986).

Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state.

Key indicators of approach to transition:

• Severe loss of grass species cover
• Surface soil erosion
• Bare patch expansion
• Increased sand sage, shinnery oak, and mesquite abundance

Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state.

Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite.

Key indicators of approach to transition:

• Continual loss of dropseeds/threeawns cover
• Surface soil erosion
• Bare patch expansion
• Increased sand sage, shinnery oak, and mesquite/dropseed/threeawn and mesquite/snakeweed abundance

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Warm Season**			61–123	
	little bluestem	SCSC	*Schizachyrium scoparium*	61–123	–
2	**Warm Season**			37–61	
	sand bluestem	ANHA	*Andropogon hallii*	37–61	–
3	**Warm Season**			37–61	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	37–61	–
	silver bluestem	BOSA	*Bothriochloa saccharoides*	37–61	–
4	**Warm Season**			123–184	
	black grama	BOER4	*Bouteloua eriopoda*	123–184	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	123–184	–
5	**Warm Season**			123–184	
	thin paspalum	PASE5	*Paspalum setaceum*	123–184	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	123–184	

	plains bristlegrass	SEVU2	*Setaria vulpiseta*	123–184	–
	fringed signalgrass	URCI	*Urochloa ciliatissima*	123–184	–
6	**Warm Season**			123–184	
	spike dropseed	SPCO4	*Sporobolus contractus*	123–184	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	123–184	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	123–184	–
7	**Warm Season**			61–123	
	hooded windmill grass	CHCU2	*Chloris cucullata*	61–123	–
	Arizona cottontop	DICA8	*Digitaria californica*	61–123	–
9	**Other Perennial Grasses**			37–61	
	Grass, perennial	2GP	*Grass, perennial*	37–61	–
Shrub/Vine					
8	**Warm Season**			37–61	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	37–61	–
	giant dropseed	SPGI	*Sporobolus giganteus*	37–61	–
10	**Shrub**			61–123	
	sand sagebrush	ARFI2	*Artemisia filifolia*	61–123	–
	Havard oak	QUHA3	*Quercus havardii*	61–123	–
11	**Shrub**			34–61	
	fourwing saltbush	ATCA2	*Atriplex canescens*	37–61	–
	featherplume	DAFO	*Dalea formosa*	37–61	–
12	**Shrub**			37–61	
	jointfir	EPHED	*Ephedra*	37–61	–
	littleleaf ratany	KRER	*Krameria erecta*	37–61	–
13	**Other Shrubs**			37–61	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	37–61	–
Forb					
14	**Forb**			61–123	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	61–123	–
	Indian blanket	GAPU	*Gaillardia pulchella*	61–123	–
	globemallow	SPHAE	*Sphaeralcea*	61–123	–
15	**Forb**			12–37	
	woolly groundsel	PACA15	*Packera cana*	12–37	–
16	**Forb**			61–123	
	touristplant	DIWI2	*Dimorphocarpa wislizeni*	61–123	–
	woolly plantain	PLPA2	*Plantago patagonica*	61–123	–
17	**Other Forbs**			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	37–61	–

Animal community

This Ecological Site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, desert cottontail, spotted ground squirrel, black-tailed prairie dog, yellow faced pocket gopher, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, roadrunner, meadowlark, burrowing owl, white necked raven, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched

lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake, dusty hognose snake and ornate box turtle.
Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson's hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.
Hydrologic Interpretations
Soil Series Hydrologic Group
Berino B
Kinco A
Maljamar B
Pajarito B
Palomas B
Wink B
Pyote A

Recreational uses

This site offers recreation potential for hiking, borseback riding, nature observation, photography and hunting. During years of abundant spring moisture, this site displays a colorful array of wildflowers during May and June.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all kinds and classes of livestock at any time of year. In cases where this site has been invaded by brush species it is especially suited for goats. Mismanagement of this site will cause a decrease in species such as the bluestems, blsck grama, bush muhly, plains bristlegrass, New Mexico feathergrass, Arizona cottontop and fourwing saltbush. A corresponding increase in the dropseeds, windmill grass, fall witchgrass, silver bluestem, sand sagebrush, shinery oak and ephedra will occur. This will also cause an increase in bare ground which will increase soil erodibility. This site will respond well to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month
Similarity Index Ac/AUM
100 - 76 2.3 – 3.5
75 – 51 3.0 – 4.5
50 – 26 4.6 – 9.0
25 – 0 9.1 +

Inventory data references

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

Other references

Literature Cited:

Ansley, R. J.; Jacoby, P. W. 1998. Manipulation of fire intensity to achieve mesquite management goals in north Texas. In: Pruden, Teresa L.; Brennan, Leonard A., eds. Fire in ecosystem management: shifting the paradigm from suppression to prescription: Proceedings, Tall Timbers fire ecology conference; 1996 May 7-10; Boise, ID. No. 20. Tallahassee, FL: Tall Timbers Research Station: 195-204.

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McPherson, Guy R. 1995. The role of fire in the desert grasslands. In: McClaran, Mitchel P.; Van Devender, Thomas R., eds. The desert grassland. Tucson, AZ: The University of Arizona Press: 130-151.

Pettit, Russell D. 1986. Sand shinnery oak: control and management. Management Note 8. Lubbock, TX: Texas Tech University, College of Agricultural Sciences, Department of Range and Wildlife Management. 5 p.

Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

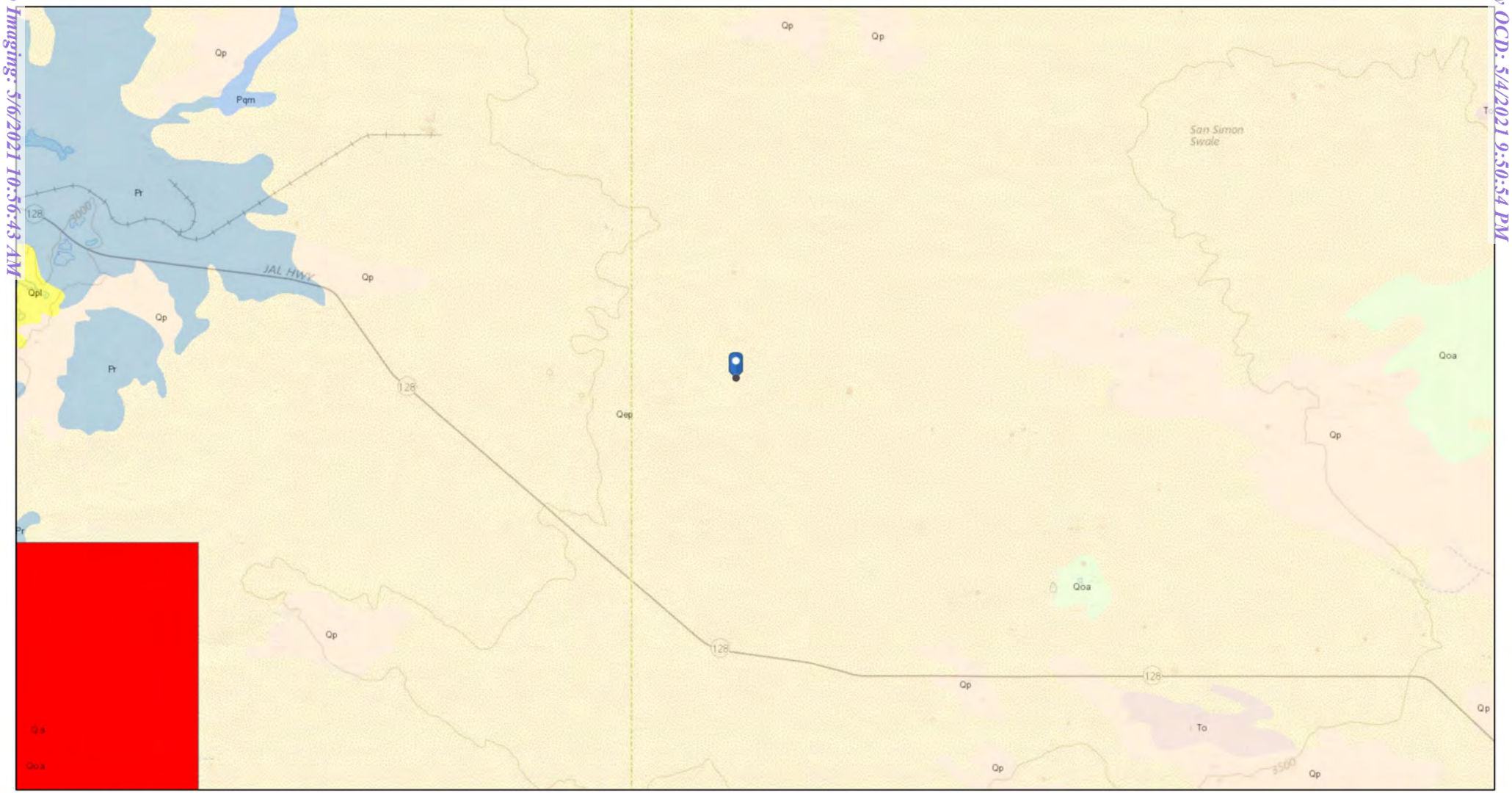
Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative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

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

Indicators

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

Tomcat 16 State 2 Qep



5/28/2020, 7:03:33 PM

1:144,448

0 1.5 3 6 mi

0 2.5 5 10 km

Faults

- Fault, Exposed
- Fault, Intermittent
- Fault, Concealed
- Shere Zone

Dikes

- <all other values>
- Dike
- Dike intruding fault
- Volcanic Vents

STATEMAP (1993 to Present) [Publications]

- Mapping in Complete
- Mapping in Progress

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

Web AppBuilder for ArcGIS

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

ATTACHMENT 4

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	1/25/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	4/19/2021 4:32 PM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	1/25/2021 9:24 AM
Departed Site	1/25/2021 1:08 PM

Field Notes

10:27 Complete delineation of release inside containment where old battery was located

10:31 Apparent staining inside of containment and parts of equipment left behind

11:42 Soil has a very distinct odor of oil and staining with saturation. While collecting samples for vertical delineation depth of 3 ft was skipped due to saturation and odor and went from 2 ft to 4 ft

12:59 Staining on outside of Berm to the east of containment could have been from where old load lines were located

Next Steps & Recommendations

1 Create work plan

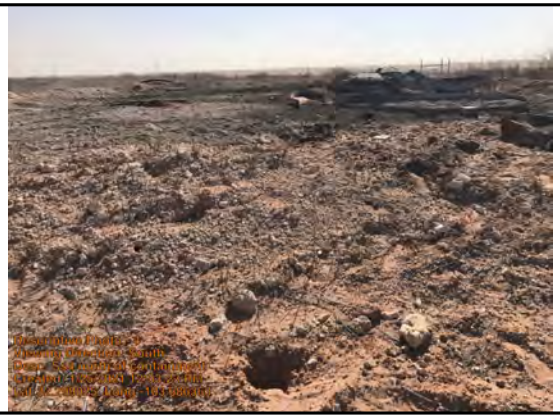
Daily Site Visit Report

Site Photos

Viewing Direction: West	**Viewing Direction**: South
	
Ss1 location on east side of containment	Stained area east of containment
Viewing Direction: North	**Viewing Direction**: East
	
Ss2 on south side of containment	Ss3 on west side of containment

Daily Site Visit Report

Viewing Direction: South



Ss4 north of containment

Viewing Direction: South

Bh2 for northern side of containment horizontal delineation

Viewing Direction: West

Bh2 for south side of containment

Viewing Direction: North

Equipment and staining

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: South
	
Equipment and staining	Containment area

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature:

Signature

VERTEX

Spill Response and Sampling

Client:	1/25/21
Date:	Devon
Site Name:	Tomcat 16 St 2
Site Location:	
Project Owner:	
Project Manager:	
Project #:	

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			
SS1	0-0.5		24	0.06/16.3				
SS2	0-0.5		28	0.06/16.4				
SS3	0-0.5		43	0.04/16.7				
SS4	0-0.5		61	0.05/16.0				
BH1	0		10910	0.05/20.7	strong odor dark	@ 1 gram		
	1			0.12/20.6				
	2		10620	0.08/20.9	strong odor black in color (saturated/oily)	@ 1 gram		
	4		70	0.05/20.7	light odor			
	5		55	0.07/20.8	light odor			
	6		42	~~0.06/17.3~~ 0.06/17.3	no odor			
BH2	0		12450	0.07/20.7	strong odor Dark (oily)	@ 1 gram		
	1			0.08/20.8	Strong odor Dark (oily)			
	2		11080	0.05/20.7	strong odor Black color (oily)	@ 1 gram		
	4		42	0.06/20.8	Light odor ~~Light color~~			
	5			0.05/20.9	Light odor odor Light color			
	6		45	0.06/18.8	Light odor Light color			

1691

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/23/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	2/24/2021 1:14 AM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	2/23/2021 9:00 AM
Departed Site	2/23/2021 4:00 PM

Field Notes

12:37 Arrived on site at 9:00 to behind remediation for spill. One call didn't clear until 12:30. Had to wait to begin digging.

12:37 Beginning excavation on west side of containment and dragging it east.

15:53 Approximately 50-75 yards excavated today.

18:07 Excavation started on the west side all the way across and is being dragged back to the east. Started at 2ft depth and made it 10-15 inside.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South

Beginning exacavation

Viewing Direction: East

Beginning excavation

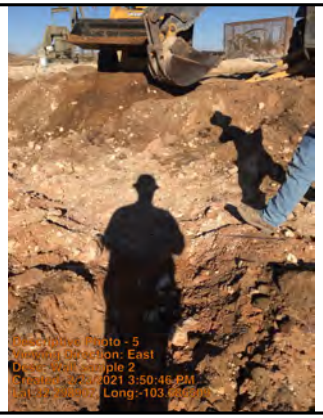
Viewing Direction: Northeast

Wall Sample 1

Viewing Direction: North

Excavated area

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: North
	
Wall sample 2	Stock pile

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

Spill Response and Sampling

VERTEX

Client: Devon

Date: 2/23/21

Site Name: Tomcat 16 St 2

Site Location:

Project Owner:

Project Manager: Monica Peppin

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) Cl or	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/FP/BH + your Number Ex. BH18-01	Ex. 2ft	Ex. 400 ppm	500 ppm	Ex. High Cl	Ex. Hydrocarbon Chloride			
WS21-01	0-1'	0.2	135	0.10/22.8	Dark, Sandy, No odor			
WS21-02	0-1'	0.2	25	0.05/22.9	Dark, Sandy No odor			

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/24/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	2/25/2021 1:35 AM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	2/24/2021 8:50 AM
Departed Site	2/24/2021 5:11 PM

Field Notes

8:55 Arrived on site to continue excavation. One load of contaminated soil has been hauled off.

9:42 Excavation is now dragged back 20-25ft to the east at 2ft

12:25 Entire containment is excavated down 2ft. Backhoes need to catch up on loading dirt

12:51 3 loads of contaminated total have been hauled off so far

14:52 6 loads of contaminated soil have been hauled

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: North

Current excavation

Viewing Direction: Northeast

Base sample 1

Viewing Direction: Northwest

Base sample 2

Viewing Direction: East

Wall sample 3

Daily Site Visit Report

Viewing Direction: West

Area excavated

Viewing Direction: East

Wall sample 4

Viewing Direction: East

Wall sample 5

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

Spill Response and Sampling

VERTEX

Client: Devon

Date: 2/24/21

Site Name: Tomcat 16 St 2

Site Location:

Project Owner:

Project Manager: Monica Peppin

Project #: 20E-00141-41

Initial Spill Information - Record on First Visit

Spill Date: 06/15/18

Spill Volume: 257 bbls.

Spill Cause: Line on Oil Tank.

Spill Product: Oil

Recovered Spill Volume: 61 bbls.

Recovery Method:

Sampling

		Field Screening			Data Collection (Check for Yes)			
Sample ID	Depth (ft)	VOC (PID)	Petroflag TPH (ppm)	Quantab (High/Low) Cl or	Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
SS/IP/AH - Row Number Ex. RH18-01	Ex. 2ft	Ex. 400 ppm	500 ppm	Ex. High Cl	Ex. Hydrocarbon Chloride			
WS21-03	0-1	0.9	56	0.04/18.2	sandy, Dark, No odor	80 ppm		X
WS21-04	0-1	13.0	~~67~~	0.04/22.1	0 ppm			
WS21-05	0-1	203	~~121~~	0.04/22.8	0 ppm			
BS2-01	2	31 600		0.04/18.8	54 ppm			X
BS21-02	2	968		0.05/19.1	69 ppm			X
BS21-03	2	1170		0.05/18.9	64 ppm			X
BS21-04	2	4038	413	0.11/18.9	151 ppm			X
BS21-05	2	19999		0.06/19.2	66 ppm			X

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/25/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	2/26/2021 12:36 AM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	2/25/2021 8:40 AM
Departed Site	2/25/2021 5:33 PM

Field Notes

8:40 Arrived on site to continue excavation. Excavation crew is running late to arrive.

9:27 Excavation crew has arrived on site to continue cleaning out the containment and dig to 4ft for me to collect samples

13:02 120 yards hauled off today

17:33 260 yards hauled off today

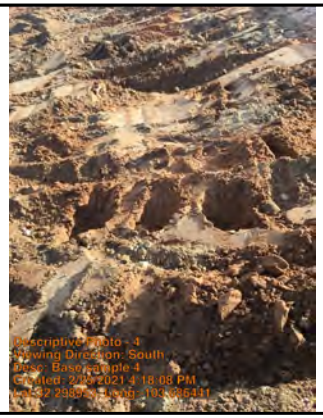
17:33 Entire containment is excavated down to 4ft

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Northeast	**Viewing Direction**: Southeast
	
Current excavation	Current excavation
Viewing Direction: South	**Viewing Direction**: South
	
Base sample 5	Base sample 4

Daily Site Visit Report

Viewing Direction: South

Base sample 6

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	Devon
Date:	2/25/21
Site Name:	Tomcat 16 St 2
Site Location:	
Project Owner:	
Project Manager:	Monica Peppin
Project #:	20E-00141-041

Initial Spill Information - Record on First Visit	
Spill Date:	6/5/18
Spill Volume:	257 bbls
Spill Cause:	Line on oil Tank
Spill Product:	Oil
Recovered Spill Volume:	61 bbls
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)		
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Chloride PPM	Notes	Trimble Coordinates	Marked on Site Sketch
BF/WS/BH - Year Number Ex. BE18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Method: Titration - EC Probe			
BS21-01	4	80	755	0.03 / 19.5	Light color, Light odor, sandy		✓
BS21-02	4	11	33	0.02 / 18.7			✓
BS21-03	4	14	7	0.02 / 22.0			✓
BS21-04	4	77	168	0.07 / 18.5			✓
BS21-05	4		861	0.13 / 17.9			✓
BS21-06	4	78	35	0.03 / 19.8			✓
WS21-06	0.5	4.4		0.01 / 17.6			✓
WS21-07	0.5	4.0	6	0.01 / 18.8			✓

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/26/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	4/20/2021 7:58 PM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	2/26/2021 8:56 AM
Departed Site	2/26/2021 3:45 PM

Field Notes

8:57 Arrived on site to continue excavation. Entire containment is excavated down to 4ft. Working on cleaning it out to get good samples.

15:08 240 yards hauled off today

15:09 Entire spill is excavated to the walls. All that is left is to dig deeper bases to find clean

Next Steps & Recommendations

1

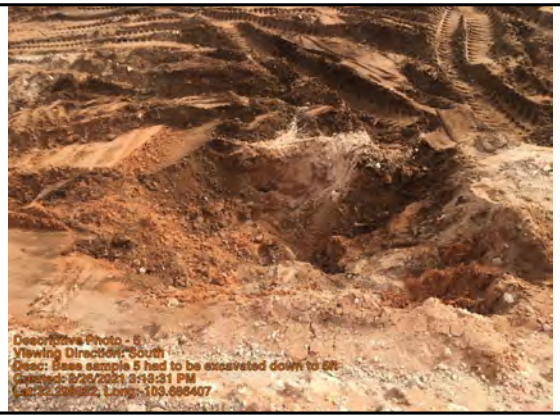
Daily Site Visit Report

Site Photos

Viewing Direction: West	**Viewing Direction**: North
	
Excavation 4ft	East wall excavated 1ft
Viewing Direction: North	**Viewing Direction**: North
	
Most of the stock pile has been hauled off	Base sample 1 had to be excavated down to 8ft

Daily Site Visit Report

Viewing Direction: South



Base sample 5 had to be excavated down to 5ft

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	Devon
Date:	2/26/21
Site Name:	Tomcat 16 St 2
Site Location:	Amanda Davis
Project Owner:	[redacted]
Project Manager:	[redacted] Monica Peppin
Project #:	20E-00141-041

Initial Spill Information - Record on First Visit	
Spill Date:	[redacted] 6/5/18
Spill Volume:	25 bbls
Spill Cause:	Line on oil tank
Spill Product:	oil
Recovered Spill Volume:	6 bbls
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)		
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Chloride PPM	Notes	Trimble Coordinates	Marked on Site Sketch
BE/WS/BH - Year Number Ex. BE18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Method: Titration - EC Probe			
BS21-01	[redacted]8	1.7	62	113			✓
BS21-05	[redacted]5	1.0	27	205			✓
BS21-07	4	19.9	59	438			✓
BS21-09	4	15.3	252	71			✓
BS21-10	4	1025		42			✓
BS21-11	4	NO	24	13			✓
BS21-12	4	15.7	110	ND			✓
BS21-13	4	10.7	22	ND			✓
BS21-14	4	4.1	128	ND			✓
WS21-08	1	3.1	42	ND			✓
WS21-09	1	8.5	43	ND			✓

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	3/1/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	3/1/2021 6:31 PM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	3/1/2021 8:03 AM
Departed Site	3/1/2021 11:22 AM

Field Notes

11:05 Arrived on site to finish remediation. Going to run BS4, BS8,BS9, and BS10. Waiting on hand from pecos river services to arrive to help finish excavation.

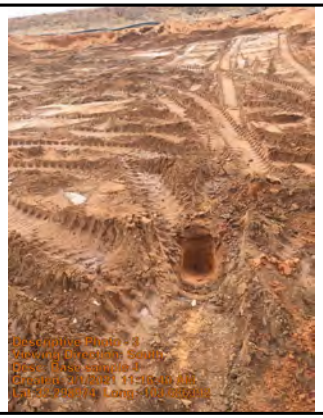
11:04 All samples have come back clean. BS8 and BS10 had to be excavated down to 8ft.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South	**Viewing Direction**: East
	
Base sample 8	Base sample 10
Viewing Direction: South	**Viewing Direction**: East
	
Base sample 4	Base sample 9

Daily Site Visit Report

Viewing Direction: South

Wall sample 6

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client:	Devon
Date:	3/1/21
Site Name:	Tomcat 16 St 2
Site Location:	
Project Owner:	
Project Manager:	Monica Peppin
Project #:	20E-00141-041

Initial Spill Information - Record on First Visit	
Spill Date:	6/5/18
Spill Volume:	257 bbls
Spill Cause:	Line on oil Tank
Spill Product:	Oil
Recovered Spill Volume:	61 bbls
Recovery Method:	

Sampling

		Field Screening			Data Collection (Check for Yes)		
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	Chloride PPM	Notes	Trimble Coordinates	Marked on Site Sketch
BF/WS/BH Year Number Ex. BE18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Method: Titration - EC Probe			
BS21-04	4	0.6	42	338	Light color, light odor		✓
BS21-08	8	24.8	60	126			✓
BS21-09	4	0.2	32	109			✓
BS21-10	8	20.7	38	148			✓
NS21-06	0-0.5	0.6	6	88			✓

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	3/18/2021
Site Location Name:	Tomcat 16 State 2	Report Run Date:	3/18/2021 9:09 PM
Client Contact Name:	Amanda Davis	API #:	30-025-34306
Client Contact Phone #:	(575) 748-0176		
Unique Project ID	-Tomcat 16 State 2	Project Owner:	Amanda Davis
Project Reference #	BS&W Line	Project Manager:	Natalie Gordon

Summary of Times

Arrived at Site	3/18/2021 8:50 AM
Departed Site	3/18/2021 3:06 PM

Field Notes

9:02 Arrived on site to collect samples WS1, WS2, and WS3 and backfill containment.

9:02 Crew from pecos river is here and are beginning to unload trucks to backfill

9:03 Going to leave west wall uncovered to recollect samples and send them to lab. Will leave it about 5ft away from the wall

10:37 All three samples came back clean on chlorides and hydrocarbons and are ready to send to lab.

10:38 Now working on backfilling the containment.

11:25 120 yards have been back filled. Waiting for more trucks to show up to fill the rest

14:16 220 yards of clean dirt were dropped into the containment.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Southwest

Backfilling

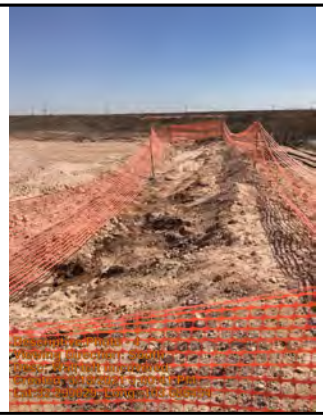
Viewing Direction: West

Current backfill

Viewing Direction: Southwest

Backfilled area. 220 yards

Viewing Direction: South



Wall left uncovered

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: East
	
Backfill	Backfill

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 

Signature

VERTEX

Spill Response and Sampling

Client: DEVON

Date: 3/19/21

Site Name: TOMCAT 16 SEC 2

Site Location:

Client Contact:

Project Manager: MONICA PEPPIN

Project #: 20E-00141-001

API:

Site Wide Picture: Yes/No (Circle)

Initial Spill Information - Record on First Visit

Spill Date: 6/5/18

Spill Volume: 257 bbls

Spill Cause: LINE ON OIL TANK

Spill Product: OIL

Recovered Spill Volume: 61 bbls

Recovery Method:

On Lease/Off Lease:

Site Placard Picture: Yes/No (Circle)

Sampling											
		Field Screening								Data Collection (Check for Yes)	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	PetroFlag TPH (ppm)	EC Reading (dS/cm)	Temp (°C)	Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis		Picture	Marked on Site Sketch
SS/TP/BH - Year - Number Ex. BH18-01	Ex. '2ft	400.0	200.0	0.006	25	0		BTEX TPH None			
WS21-01	0-1	7.7	10	0.06	17.9	122					
WS21-02	"	0.1	42	0.29	17.5	467					
WS21-03	"	5.5	57	0.11	17.2	224					

VERSATILITY. EXPERTISE.

ATTACHMENT 5

Lakin Pullman

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: February 26, 2021 5:25 PM
To: Monica Peppin
Subject: Fwd: nCH1817040776: Tomcat 16 State 2-48 HR notice

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Fri, Feb 26, 2021 at 4:24 PM
Subject: nCH1817040776: Tomcat 16 State 2-48 HR notice
To: EMNRD-OCD-District1spills <emnrd-ocd-district1spills@state.nm.us>, Enviro, OCD, EMNRD <OCD.Enviro@state.nm.us>, <rmann@slo.state.nm.us>, <spills@slo.state.nm.us>

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled confirmatory sampled to be conducted at Tomcat 16 State 2, API 30-025-34306 for the following release:

nCH1817040776 DOR: June 5, 2018

On Monday, March 1, 2021 at approximately 8:00 AM, Chance Dixon will be onsite to complete confirmatory sampling while excavation is ongoing. He can be reached at 575-988-1472, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 575-361-9880.

Thank you,
Monica

Monica Peppin
Project Manager in Training

Vertex Resource Group Ltd.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

Lakin Pullman

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: March 16, 2021 8:57 AM
To: Enviro, OCD, EMNRD; EMNRD-OCD-District1spills; rmann@slo.state.nm.us; spills@slo.state.nm.us; Griswold, Jim, EMNRD; Bratcher, Mike, EMNRD; Monica Peppin; Billings, Bradford, EMNRD
Subject: nCH1817040776 Tomcat 16 State 2 48HR notification

All,

Please accept this email as 48-hour notification that Vertex Resource Services has scheduled additional confirmatory sampling to be conducted at Tomcat 16 State 2, API 30-025-34306 for the following release:

nCH1817040776 DOR: June 5, 2018

On Thursday, March 18, 2021 at approximately 8:00 AM, Chance Dixon will be onsite to complete confirmatory sampling with the possibility of additional excavation. He can be reached at 575-988-1472, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 575-361-9880.

Thank you,
Monica

Monica Peppin
Project Manager in Training

Vertex Resource Group Ltd.
3101 Boyd Drive,
Carlsbad, NM 88220

P 575.725.5001 Ext. 711
C 575.361.9880
F

www.vertex.ca

ATTACHMENT 6

Client Name: Devon Energy Production Company
Site Name: Tomcat 16 State 2
NM OCD Incident Tracking Number: NCH1817040776
Project #: 20E-00141-041
Lab Report: 2101961

Table 2. Characterization Sampling Laboratory Results - Depth to Groundwater <50 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 (Electroconductivity)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SS21-01	0-0.5	January 25, 2021	-	24	191	<0.025	<0.224	<5.0	<9.4	<47	<14.4	<61.4	<60
SS21-02	0-0.5	January 25, 2021	-	28	187	<0.025	<0.225	<5.0	<9.1	<46	<14.1	<60.1	<60
SS21-03	0-0.5	January 25, 2021	-	43	145	<0.024	<0.22	<4.9	<8.9	<44	<13.8	<57.8	<60
SS21-04	0-0.5	January 25, 2021	-	61	189	<0.025	<0.221	<4.9	<8.4	<42	<13.3	<55.3	<61
BH21-01	0	January 25, 2021	-	10,910	-13	<0.12	1.110	160	3,900	4,800	**4,060**	**8,860**	<60
BH21-01	2	January 25, 2021	-	10,620	21	<0.12	8	470	2,400	3,500	**2,870**	**6,370**	<60
BH21-01	4	January 25, 2021	-	70	-13	<0.12	1.12	<25	<9.4	<47	<34.4	<81.4	<60
BH21-01	6	January 25, 2021	-	42	148	-	-	-	-	-	-	-	-
BH21-02	0	January 25, 2021	-	12,450	15	<0.12	<1.22	32	4,000	5,800	**4,032**	**9,832**	<60
BH21-02	2	January 25, 2021	-	11,080	-13	<0.12	2.1	320	2,600	4,800	**2,920**	**7,720**	<60
BH21-02	4	January 25, 2021	-	42	-3	<0.12	<1.11	<25	<8.9	<44	<33.9	<77.9	<59
BH21-02	6	January 25, 2021	-	45	83	-	-	-	-	-	-	-	-

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

Client Name: Devon Energy Production Company
Site Name: Tomcat 16 State 2
Project #: 20E-00141-041
Lab Reports: 2103057, 2102B08, 2103A08 and 2103148

Table 3. Release Confirmatory Sampling Laboratory Results - Depth to Groundwater <50 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 (Quantab - High/Low)	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(ppm)	(ppm)	(+/-)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BS21-01	8	February 26, 2021	1.7	62	113	ND	ND	ND	ND	ND	ND	ND	ND
BS21-02	4	February 26, 2021	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND
BS21-03	4	February 26, 2021	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND
BS21-04	4	February 26, 2021	-	-	-	ND	ND	ND	28	64	28	92	71
BS21-04	4	March 1,2021	0.6	42	338	ND	ND	ND	ND	ND	ND	ND	87
BS21-05	5	February 26, 2021	1.0	27	205	ND	ND	ND	ND	ND	ND	ND	65
BS21-06	4	February 26, 2021	-	-	-	ND	ND	ND	12	ND	12	12	ND
BS21-07	4	February 26, 2021	19.9	59	438	ND	ND	ND	24	ND	24	24	390
BS21-08	8	March 1, 2021	24.8	60	126	ND	ND	ND	27	ND	27	27	ND
BS21-09	4	March 1, 2021	0.2	32	109	ND	ND	ND	ND	ND	ND	ND	ND
BS21-10	8	March 1, 2021	20.7	38	148	ND	ND	ND	ND	ND	ND	ND	ND
BS21-11	4	February 26, 2021	110.0	24	13	ND	ND	ND	ND	ND	ND	ND	ND
BS21-12	4	February 26, 2021	15.7	110	ND	ND	ND	ND	12	ND	12	12	ND
BS21-13	4	February 26, 2021	10.7	22	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS21-14	4	February 26, 2021	4.1	128	ND	ND	ND	ND	28	ND	28	28	ND
WS21-01	0-4	March 18, 2021	7.7	10	122	ND	ND	ND	12	ND	12	12	ND
WS21-02	0-4	February 23, 2021	0.2	25	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS21-02	0-4	March 18, 2021	0.1	42	467	ND	ND	ND	ND	ND	ND	ND	ND
WS21-03	0-4	March 1, 2021	-	-	-	ND	ND	ND	110	110	**110**	**220**	71
WS21-03	0-4	March 18, 2021	5.5	87	224	ND	ND	ND	17	ND	**17**	**17**	ND
WS21-04	0-4	March 1, 2021	-	-	-	ND	ND	ND	12	ND	12	12	ND
WS21-05	0-4	March 1, 2021	-	-	-	ND	ND	ND	12	ND	12	12	ND
WS21-06	0-4	March 1, 2021	0.6	6	88	ND	ND	ND	ND	ND	ND	ND	ND
WS21-07	0-4	February 26, 2021	-	-	-	ND	ND	ND	ND	ND	ND	ND	ND
WS21-08	0-4	February 26, 2021	3.1	42	ND	ND	ND	ND	ND	ND	ND	ND	ND
WS21-09	0-4	February 26, 2021	8.5	43	ND	ND	ND	ND	21	ND	21	21	ND

"-" indicates not sampled/analyzed
"ND" Not Detected at the Reporting Limit
Bold and grey-shaded indicates exceedance outside of NM OCD Closure Criteria
Bold and green-shaded indicates re-collection of sample previously in exceedance of NM OCD Closure Criteria

VERTEX

ATTACHMENT 7

Analytical Report
Lab Order **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2101961-001 **Matrix:** SOIL

Client Sample ID: SS21-01 0-0.5
Collection Date: 1/25/2021 10:00:00 AM
Received Date: 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/28/2021 2:13:31 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/28/2021 2:13:31 PM
Surr: DNOP	84.2	30.4-154		%Rec	1	1/28/2021 2:13:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/28/2021 9:02:41 AM
Surr: BFB	94.5	75.3-105		%Rec	1	1/28/2021 9:02:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	1/28/2021 9:02:41 AM
Toluene	ND	0.050		mg/Kg	1	1/28/2021 9:02:41 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/28/2021 9:02:41 AM
Xylenes, Total	ND	0.099		mg/Kg	1	1/28/2021 9:02:41 AM
Surr: 4-Bromofluorobenzene	98.9	80-120		%Rec	1	1/28/2021 9:02:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 3:41:26 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS21-02 0-0.5
Project: Tomcat 16 State 2
Collection Date: 1/25/2021 10:10:00 AM
Lab ID: 2101961-002 **Matrix:** SOIL **Received Date:** 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	1/28/2021 3:24:57 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	1/28/2021 3:24:57 PM
Surr: DNOP	93.0	30.4-154		%Rec	1	1/28/2021 3:24:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/28/2021 10:12:49 AM
Surr: BFB	96.3	75.3-105		%Rec	1	1/28/2021 10:12:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	1/28/2021 10:12:49 AM
Toluene	ND	0.050		mg/Kg	1	1/28/2021 10:12:49 AM
Ethylbenzene	ND	0.050		mg/Kg	1	1/28/2021 10:12:49 AM
Xylenes, Total	ND	0.10		mg/Kg	1	1/28/2021 10:12:49 AM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	1/28/2021 10:12:49 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 3:53:50 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2101961-003 **Matrix:** SOIL

Client Sample ID: SS21-03 0-0.5
Collection Date: 1/25/2021 10:20:00 AM
Received Date: 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	1/28/2021 3:48:47 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/28/2021 3:48:47 PM
Surr: DNOP	96.9	30.4-154		%Rec	1	1/28/2021 3:48:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/28/2021 11:23:22 AM
Surr: BFB	96.4	75.3-105		%Rec	1	1/28/2021 11:23:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	1/28/2021 11:23:22 AM
Toluene	ND	0.049		mg/Kg	1	1/28/2021 11:23:22 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/28/2021 11:23:22 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/28/2021 11:23:22 AM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	1	1/28/2021 11:23:22 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 4:06:15 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 **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS21-04 0-0.5
Project: Tomcat 16 State 2
Collection Date: 1/25/2021 10:30:00 AM
Lab ID: 2101961-004 **Matrix:** SOIL **Received Date:** 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	1/28/2021 4:12:34 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	1/28/2021 4:12:34 PM
Surr: DNOP	91.9	30.4-154		%Rec	1	1/28/2021 4:12:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/28/2021 11:47:07 AM
Surr: BFB	95.3	75.3-105		%Rec	1	1/28/2021 11:47:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	1/28/2021 11:47:07 AM
Toluene	ND	0.049		mg/Kg	1	1/28/2021 11:47:07 AM
Ethylbenzene	ND	0.049		mg/Kg	1	1/28/2021 11:47:07 AM
Xylenes, Total	ND	0.098		mg/Kg	1	1/28/2021 11:47:07 AM
Surr: 4-Bromofluorobenzene	99.4	80-120		%Rec	1	1/28/2021 11:47:07 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	61		mg/Kg	20	1/29/2021 4:18:40 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2101961-005 **Matrix:** SOIL

Client Sample ID: BH21-01 0
Collection Date: 1/25/2021 10:45:00 AM
Received Date: 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	3900	940		mg/Kg	100	1/28/2021 8:31:27 AM
Motor Oil Range Organics (MRO)	4800	4700		mg/Kg	100	1/28/2021 8:31:27 AM
Surr: DNOP	0	30.4-154	S	%Rec	100	1/28/2021 8:31:27 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	160	25		mg/Kg	5	1/28/2021 12:10:39 PM
Surr: BFB	202	75.3-105	S	%Rec	5	1/28/2021 12:10:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	1/28/2021 12:10:39 PM
Toluene	ND	0.25		mg/Kg	5	1/28/2021 12:10:39 PM
Ethylbenzene	ND	0.25		mg/Kg	5	1/28/2021 12:10:39 PM
Xylenes, Total	0.50	0.49		mg/Kg	5	1/28/2021 12:10:39 PM
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	5	1/28/2021 12:10:39 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 4:31:05 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2101961-006 **Matrix:** SOIL

Client Sample ID: BH21-01 2
Collection Date: 1/25/2021 10:55:00 AM
Received Date: 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	2400	89		mg/Kg	10	1/28/2021 3:32:39 PM
Motor Oil Range Organics (MRO)	3500	440		mg/Kg	10	1/28/2021 3:32:39 PM
Surr: DNOP	0	30.4-154	S	%Rec	10	1/28/2021 3:32:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	470	25		mg/Kg	5	1/29/2021 11:40:58 AM
Surr: BFB	464	75.3-105	S	%Rec	5	1/29/2021 11:40:58 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	1/29/2021 11:40:58 AM
Toluene	0.30	0.25		mg/Kg	5	1/29/2021 11:40:58 AM
Ethylbenzene	1.7	0.25		mg/Kg	5	1/29/2021 11:40:58 AM
Xylenes, Total	6.0	0.49		mg/Kg	5	1/29/2021 11:40:58 AM
Surr: 4-Bromofluorobenzene	117	80-120		%Rec	5	1/29/2021 11:40:58 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 4:43:29 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 **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH21-01 4
Project: Tomcat 16 State 2
Collection Date: 1/25/2021 11:05:00 AM
Lab ID: 2101961-007 **Matrix:** SOIL **Received Date:** 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	1/28/2021 4:36:18 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	1/28/2021 4:36:18 PM
Surr: DNOP	94.2	30.4-154		%Rec	1	1/28/2021 4:36:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	1/28/2021 12:58:11 PM
Surr: BFB	95.7	75.3-105		%Rec	5	1/28/2021 12:58:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	1/28/2021 12:58:11 PM
Toluene	ND	0.25		mg/Kg	5	1/28/2021 12:58:11 PM
Ethylbenzene	ND	0.25		mg/Kg	5	1/28/2021 12:58:11 PM
Xylenes, Total	ND	0.50		mg/Kg	5	1/28/2021 12:58:11 PM
Surr: 4-Bromofluorobenzene	100	80-120		%Rec	5	1/28/2021 12:58:11 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 4:55:54 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2101961-008 **Matrix:** SOIL

Client Sample ID: BH21-02 0
Collection Date: 1/25/2021 11:15:00 AM
Received Date: 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	4000	90		mg/Kg	10	1/28/2021 2:44:43 PM
Motor Oil Range Organics (MRO)	5800	450		mg/Kg	10	1/28/2021 2:44:43 PM
Surr: DNOP	0	30.4-154	S	%Rec	10	1/28/2021 2:44:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	32	24		mg/Kg	5	1/28/2021 1:21:52 PM
Surr: BFB	114	75.3-105	S	%Rec	5	1/28/2021 1:21:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	1/28/2021 1:21:52 PM
Toluene	ND	0.24		mg/Kg	5	1/28/2021 1:21:52 PM
Ethylbenzene	ND	0.24		mg/Kg	5	1/28/2021 1:21:52 PM
Xylenes, Total	ND	0.49		mg/Kg	5	1/28/2021 1:21:52 PM
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	5	1/28/2021 1:21:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 6:35:11 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 **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2101961-009 **Matrix:** SOIL

Client Sample ID: BH21-02 2
Collection Date: 1/25/2021 11:25:00 AM
Received Date: 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	2600	85		mg/Kg	10	1/28/2021 4:20:33 PM
Motor Oil Range Organics (MRO)	4800	430		mg/Kg	10	1/28/2021 4:20:33 PM
Surr: DNOP	0	30.4-154	S	%Rec	10	1/28/2021 4:20:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	320	25		mg/Kg	5	1/29/2021 12:28:02 PM
Surr: BFB	269	75.3-105	S	%Rec	5	1/29/2021 12:28:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	1/29/2021 12:28:02 PM
Toluene	ND	0.25		mg/Kg	5	1/29/2021 12:28:02 PM
Ethylbenzene	0.70	0.25		mg/Kg	5	1/29/2021 12:28:02 PM
Xylenes, Total	1.4	0.49		mg/Kg	5	1/29/2021 12:28:02 PM
Surr: 4-Bromofluorobenzene	108	80-120		%Rec	5	1/29/2021 12:28:02 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	1/29/2021 6:47:36 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 **2101961**
Date Reported: **2/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH21-02 4
Project: Tomcat 16 State 2
Collection Date: 1/25/2021 11:35:00 AM
Lab ID: 2101961-010 **Matrix:** SOIL **Received Date:** 1/27/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	1/28/2021 4:59:58 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	1/28/2021 4:59:58 PM
Surr: DNOP	112	30.4-154		%Rec	1	1/28/2021 4:59:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	1/28/2021 2:09:09 PM
Surr: BFB	94.3	75.3-105		%Rec	5	1/28/2021 2:09:09 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.12		mg/Kg	5	1/28/2021 2:09:09 PM
Toluene	ND	0.25		mg/Kg	5	1/28/2021 2:09:09 PM
Ethylbenzene	ND	0.25		mg/Kg	5	1/28/2021 2:09:09 PM
Xylenes, Total	ND	0.49		mg/Kg	5	1/28/2021 2:09:09 PM
Surr: 4-Bromofluorobenzene	98.0	80-120		%Rec	5	1/28/2021 2:09:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	1/29/2021 7:00:00 PM

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

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2101961** RcptNo: **1**

Received By: **Isaiah Ortiz** **1/27/2021 7:35:00 AM** I-OK

Completed By: **Isaiah Ortiz** **1/27/2021 7:42:25 AM** I-OK

Reviewed By: JR 1/27/21

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 ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SGL 1/27/21

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	0.3	Good	Not Present			

Chain-of-Custody Record

Client: 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: Tomcat 16 State 2

Project #: 20E-00141

Project Manager: Natalie Gordon

Sampler: MJP / CD

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 0.3+0 (°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. 2101961	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
1/25	10:00	Soil	SS21-01 0-0.5	402	ice	001	✓	✓					✓			
	10:10		SS21-02 0-0.5			002										
	10:20		SS21-03 0-0.5			003										
	10:30		SS21-04 0-0.5			004										
	10:45		BH21-01 0			005										
	10:55		BH21-01 2			006										
	11:05		BH21-01 4			007										
	11:15		BH21-02 0			008										
	11:25		BH21-02 2			009										
	11:35		BH21-02 4			010	✓	✓					✓			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
1/26/21	1230				1/26/21	1230
1/26/21	1800		In Our courier		1/27/21	0735

Remarks: CC: Monica Peppin + Dennis Williams / permian@vert...
Direct bill Devon
w/o#: 20715495

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.

Analytical Report
Lab Order **2102B08**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-01
Project: Tomcat 165-2
Collection Date: 2/23/2021 1:00:00 PM
Lab ID: 2102B08-001 **Matrix:** SOIL **Received Date:** 2/25/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	33	8.9		mg/Kg	1	2/27/2021 4:10:33 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/27/2021 4:10:33 PM
Surr: DNOP	100	70-130		%Rec	1	2/27/2021 4:10:33 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/1/2021 12:50:15 PM
Surr: BFB	95.2	75.3-105		%Rec	1	3/1/2021 12:50:15 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	3/1/2021 12:50:15 PM
Toluene	ND	0.048		mg/Kg	1	3/1/2021 12:50:15 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/1/2021 12:50:15 PM
Xylenes, Total	ND	0.096		mg/Kg	1	3/1/2021 12:50:15 PM
Surr: 4-Bromofluorobenzene	96.5	80-120		%Rec	1	3/1/2021 12:50:15 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	62	60		mg/Kg	20	3/2/2021 2:26:45 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 **2102B08**
Date Reported: **3/2/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 165-2
Lab ID: 2102B08-002 **Matrix:** SOIL

Client Sample ID: WS21-02
Collection Date: 2/23/2021 1:30:00 PM
Received Date: 2/25/2021 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/27/2021 4:20:23 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/27/2021 4:20:23 PM
Surr: DNOP	105	70-130		%Rec	1	2/27/2021 4:20:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/1/2021 1:13:52 PM
Surr: BFB	97.0	75.3-105		%Rec	1	3/1/2021 1:13:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.024		mg/Kg	1	3/1/2021 1:13:52 PM
Toluene	ND	0.047		mg/Kg	1	3/1/2021 1:13:52 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/1/2021 1:13:52 PM
Xylenes, Total	ND	0.094		mg/Kg	1	3/1/2021 1:13:52 PM
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	3/1/2021 1:13:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/2/2021 2:39:10 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2102B08** RcptNo: 1

Received By: **Juan Rojas** **2/25/2021 7:35:00 AM**

Completed By: **Desiree Dominguez** **2/25/2021 9:08:19 AM**

Reviewed By: SGL 2/25/21

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: CM 2/25/21

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	1.2	Good				
2	1.8	Good				
3	0.3	Good				

Chain-of-Custody Record

Client: Devon

Mailing Address: on File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5-Day
☑ Standard ☐ Rush

Project Name: Tomcat 16 SE 2

Project #: 20E-00141-041

Project Manager: Monica Peppin

Sampler: CD

On Ice: ☑ Yes ☐ No

# of Coolers: 4

Cooler Temp(including CF): See checklist (°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. 2102B08	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
2/23	1:00	Soil	WS21-01	4oz	Ice	-001	✓	✓					✓			
1	1:30	1	WS21-02	1	1	-002	1	1					1			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					2/24/21	1045
Date: 2/24/21	Time: 1900	Relinquished by:	Received by:	Via: courier	Date 2/25/21	Time 7:35

Remarks: CC: Monica Peppin
Direct Bill Devon
W/O #: 207154 95

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.

Analytical Report
Lab Order **2103A08**
Date Reported: **3/29/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-01
Project: Tomcat 16 St 2
Collection Date: 3/18/2021 10:00:00 AM
Lab ID: 2103A08-001 **Matrix:** SOIL **Received Date:** 3/20/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	12	8.5		mg/Kg	1	3/24/2021 4:40:30 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	3/24/2021 4:40:30 PM
Surr: DNOP	93.0	70-130		%Rec	1	3/24/2021 4:40:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/23/2021 8:45:00 PM
Surr: BFB	89.1	75.3-105		%Rec	1	3/23/2021 8:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	3/23/2021 8:45:00 PM
Toluene	ND	0.049		mg/Kg	1	3/23/2021 8:45:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/23/2021 8:45:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/23/2021 8:45:00 PM
Surr: 4-Bromofluorobenzene	80.9	80-120		%Rec	1	3/23/2021 8:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	59		mg/Kg	20	3/26/2021 1:29:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2103A08**
Date Reported: **3/29/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-02
Project: Tomcat 16 St 2
Collection Date: 3/18/2021 10:15:00 AM
Lab ID: 2103A08-002 **Matrix:** SOIL **Received Date:** 3/20/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/24/2021 4:50:05 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/24/2021 4:50:05 PM
Surr: DNOP	85.5	70-130		%Rec	1	3/24/2021 4:50:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/23/2021 9:05:00 PM
Surr: BFB	89.2	75.3-105		%Rec	1	3/23/2021 9:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	3/23/2021 9:05:00 PM
Toluene	ND	0.049		mg/Kg	1	3/23/2021 9:05:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/23/2021 9:05:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/23/2021 9:05:00 PM
Surr: 4-Bromofluorobenzene	82.3	80-120		%Rec	1	3/23/2021 9:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/26/2021 2:06:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2103A08**
Date Reported: **3/29/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-03
Project: Tomcat 16 St 2
Collection Date: 3/18/2021 10:30:00 AM
Lab ID: 2103A08-003 **Matrix:** SOIL **Received Date:** 3/20/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	17	9.5		mg/Kg	1	3/24/2021 4:59:39 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/24/2021 4:59:39 PM
Surr: DNOP	83.7	70-130		%Rec	1	3/24/2021 4:59:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **CCM**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/23/2021 9:24:00 PM
Surr: BFB	90.7	75.3-105		%Rec	1	3/23/2021 9:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **CCM**
Benzene	ND	0.025		mg/Kg	1	3/23/2021 9:24:00 PM
Toluene	ND	0.049		mg/Kg	1	3/23/2021 9:24:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/23/2021 9:24:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/23/2021 9:24:00 PM
Surr: 4-Bromofluorobenzene	85.9	80-120		%Rec	1	3/23/2021 9:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/26/2021 2:18:23 PM

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

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2103A08** RcptNo: 1

Received By: **Sean Livingston** **3/20/2021 8:50:00 AM** Sean Livingston

Completed By: **Sean Livingston** **3/20/2021 9:58:25 AM** Sean Livingston

Reviewed By: @ 03/20/2021

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: Sean 3/20/21

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.1	Good				
2	9.2	Good				

Send all lab reports to permian@vertex.ca

Chain-of-Custody Record

Client: Devon

Mailing Address: On File

Phone #:

email or Fax#:

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

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

Turn-Around Time: 5-Day
☑ Standard ☐ Rush

Project Name: Tomcat 16 St 2

Project #: 20E-00141-041

Project Manager: Monica Peppin

Sampler: CD

On Ice: ☑ Yes ☐ No

# of Coolers: 2

Cooler Temp(including CF): 4.3-0.2=4.1 (°C)

9.4-0.2=9.2°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. Z103A08	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)
3/18	10:00	Soil	WS21-01	4oz	ICE	001	✓	✓					✓			
"	10:15	"	WS21-02	"	"	002	"	"					"			
"	10:30	"	WS21-03	"	"	003	"	"					"			

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			Cummings		3/19/21	845
Date: 3/19/21	Time: 1900	Relinquished by: Cummings	Received by:	Via: SGL courier	Date 3/20/21	Time 8:50

Remarks: Direct Bill Devon
CC: Monica and Dennis
W/O #: 20715495

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.

Analytical Report
Lab Order **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103057-001 **Matrix:** SOIL

Client Sample ID: BS21-01
Collection Date: 2/26/2021 9:00:00 AM
Received Date: 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/5/2021 10:02:52 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/5/2021 10:02:52 AM
Surr: DNOP	83.8	70-130		%Rec	1	3/5/2021 10:02:52 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/5/2021 4:48:42 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	3/3/2021 8:07:30 PM
Toluene	ND	0.047		mg/Kg	1	3/3/2021 8:07:30 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/3/2021 8:07:30 PM
Xylenes, Total	ND	0.094		mg/Kg	1	3/3/2021 8:07:30 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	3/3/2021 8:07:30 PM
Surr: 4-Bromofluorobenzene	99.6	70-130		%Rec	1	3/3/2021 8:07:30 PM
Surr: Dibromofluoromethane	98.1	70-130		%Rec	1	3/3/2021 8:07:30 PM
Surr: Toluene-d8	105	70-130		%Rec	1	3/3/2021 8:07:30 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/3/2021 8:07:30 PM
Surr: BFB	101	70-130		%Rec	1	3/3/2021 8:07:30 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-02
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 9:15:00 AM
Lab ID: 2103057-002 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	3/5/2021 12:01:53 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/5/2021 12:01:53 PM
Surr: DNOP	88.1	70-130		%Rec	1	3/5/2021 12:01:53 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/5/2021 5:01:06 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/3/2021 9:33:10 PM
Toluene	ND	0.049		mg/Kg	1	3/3/2021 9:33:10 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/3/2021 9:33:10 PM
Xylenes, Total	ND	0.098		mg/Kg	1	3/3/2021 9:33:10 PM
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%Rec	1	3/3/2021 9:33:10 PM
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	3/3/2021 9:33:10 PM
Surr: Dibromofluoromethane	93.1	70-130		%Rec	1	3/3/2021 9:33:10 PM
Surr: Toluene-d8	102	70-130		%Rec	1	3/3/2021 9:33:10 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/3/2021 9:33:10 PM
Surr: BFB	97.5	70-130		%Rec	1	3/3/2021 9:33:10 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-03
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 9:30:00 AM
Lab ID: 2103057-003 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/5/2021 12:31:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/5/2021 12:31:08 PM
Surr: DNOP	86.3	70-130		%Rec	1	3/5/2021 12:31:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/5/2021 5:13:30 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/3/2021 10:59:11 PM
Toluene	ND	0.049		mg/Kg	1	3/3/2021 10:59:11 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/3/2021 10:59:11 PM
Xylenes, Total	ND	0.098		mg/Kg	1	3/3/2021 10:59:11 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%Rec	1	3/3/2021 10:59:11 PM
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	3/3/2021 10:59:11 PM
Surr: Dibromofluoromethane	98.6	70-130		%Rec	1	3/3/2021 10:59:11 PM
Surr: Toluene-d8	104	70-130		%Rec	1	3/3/2021 10:59:11 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/3/2021 10:59:11 PM
Surr: BFB	98.5	70-130		%Rec	1	3/3/2021 10:59:11 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-04
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 9:45:00 AM
Lab ID: 2103057-004 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	28	8.9		mg/Kg	1	3/8/2021 12:17:56 PM
Motor Oil Range Organics (MRO)	64	45		mg/Kg	1	3/8/2021 12:17:56 PM
Surr: DNOP	98.5	70-130		%Rec	1	3/8/2021 12:17:56 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	71	59		mg/Kg	20	3/5/2021 5:25:54 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	3/3/2021 11:27:49 PM
Toluene	ND	0.047		mg/Kg	1	3/3/2021 11:27:49 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/3/2021 11:27:49 PM
Xylenes, Total	ND	0.093		mg/Kg	1	3/3/2021 11:27:49 PM
Surr: 1,2-Dichloroethane-d4	91.3	70-130		%Rec	1	3/3/2021 11:27:49 PM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	3/3/2021 11:27:49 PM
Surr: Dibromofluoromethane	93.6	70-130		%Rec	1	3/3/2021 11:27:49 PM
Surr: Toluene-d8	101	70-130		%Rec	1	3/3/2021 11:27:49 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/3/2021 11:27:49 PM
Surr: BFB	99.1	70-130		%Rec	1	3/3/2021 11:27:49 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

Analytical Report
Lab Order **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-05
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 10:00:00 AM
Lab ID: 2103057-005 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/5/2021 1:18:51 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/5/2021 1:18:51 PM
Surr: DNOP	88.8	70-130		%Rec	1	3/5/2021 1:18:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	65	60		mg/Kg	20	3/5/2021 5:38:19 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/3/2021 11:56:28 PM
Toluene	ND	0.048		mg/Kg	1	3/3/2021 11:56:28 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/3/2021 11:56:28 PM
Xylenes, Total	ND	0.096		mg/Kg	1	3/3/2021 11:56:28 PM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%Rec	1	3/3/2021 11:56:28 PM
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	3/3/2021 11:56:28 PM
Surr: Dibromofluoromethane	95.7	70-130		%Rec	1	3/3/2021 11:56:28 PM
Surr: Toluene-d8	98.7	70-130		%Rec	1	3/3/2021 11:56:28 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/3/2021 11:56:28 PM
Surr: BFB	95.6	70-130		%Rec	1	3/3/2021 11:56:28 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-06
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 10:15:00 AM
Lab ID: 2103057-006 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	12	9.6		mg/Kg	1	3/5/2021 1:42:50 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/5/2021 1:42:50 PM
Surr: DNOP	88.1	70-130		%Rec	1	3/5/2021 1:42:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/5/2021 5:50:43 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 12:59:38 PM
Toluene	ND	0.048		mg/Kg	1	3/4/2021 12:59:38 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/4/2021 12:59:38 PM
Xylenes, Total	ND	0.097		mg/Kg	1	3/4/2021 12:59:38 PM
Surr: 1,2-Dichloroethane-d4	89.5	70-130		%Rec	1	3/4/2021 12:59:38 PM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	3/4/2021 12:59:38 PM
Surr: Dibromofluoromethane	96.0	70-130		%Rec	1	3/4/2021 12:59:38 PM
Surr: Toluene-d8	104	70-130		%Rec	1	3/4/2021 12:59:38 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/4/2021 12:59:38 PM
Surr: BFB	100	70-130		%Rec	1	3/4/2021 12:59:38 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103057-007 **Matrix:** SOIL

Client Sample ID: BS21-07
Collection Date: 2/26/2021 10:30:00 AM
Received Date: 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	24	9.2		mg/Kg	1	3/5/2021 2:06:55 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/5/2021 2:06:55 PM
Surr: DNOP	89.1	70-130		%Rec	1	3/5/2021 2:06:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	390	59		mg/Kg	20	3/5/2021 6:03:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 1:28:08 PM
Toluene	ND	0.049		mg/Kg	1	3/4/2021 1:28:08 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/4/2021 1:28:08 PM
Xylenes, Total	ND	0.098		mg/Kg	1	3/4/2021 1:28:08 PM
Surr: 1,2-Dichloroethane-d4	88.7	70-130		%Rec	1	3/4/2021 1:28:08 PM
Surr: 4-Bromofluorobenzene	93.0	70-130		%Rec	1	3/4/2021 1:28:08 PM
Surr: Dibromofluoromethane	94.0	70-130		%Rec	1	3/4/2021 1:28:08 PM
Surr: Toluene-d8	101	70-130		%Rec	1	3/4/2021 1:28:08 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/4/2021 1:28:08 PM
Surr: BFB	95.8	70-130		%Rec	1	3/4/2021 1:28:08 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-11
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 10:45:00 AM
Lab ID: 2103057-008 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/5/2021 2:30:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/5/2021 2:30:56 PM
Surr: DNOP	88.7	70-130		%Rec	1	3/5/2021 2:30:56 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/6/2021 3:45:28 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	3/4/2021 12:25:10 AM
Toluene	ND	0.049		mg/Kg	1	3/4/2021 12:25:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/4/2021 12:25:10 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/4/2021 12:25:10 AM
Surr: 1,2-Dichloroethane-d4	92.4	70-130		%Rec	1	3/4/2021 12:25:10 AM
Surr: 4-Bromofluorobenzene	95.3	70-130		%Rec	1	3/4/2021 12:25:10 AM
Surr: Dibromofluoromethane	98.4	70-130		%Rec	1	3/4/2021 12:25:10 AM
Surr: Toluene-d8	99.7	70-130		%Rec	1	3/4/2021 12:25:10 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/4/2021 12:25:10 AM
Surr: BFB	94.8	70-130		%Rec	1	3/4/2021 12:25:10 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103057-009 **Matrix:** SOIL

Client Sample ID: BS21-12
Collection Date: 2/26/2021 11:00:00 AM
Received Date: 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	12	10		mg/Kg	1	3/4/2021 6:35:24 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/4/2021 6:35:24 PM
Surr: DNOP	88.2	70-130		%Rec	1	3/4/2021 6:35:24 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	61		mg/Kg	20	3/6/2021 3:57:52 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 12:53:49 AM
Toluene	ND	0.047		mg/Kg	1	3/4/2021 12:53:49 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/4/2021 12:53:49 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/4/2021 12:53:49 AM
Surr: 1,2-Dichloroethane-d4	94.9	70-130		%Rec	1	3/4/2021 12:53:49 AM
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	3/4/2021 12:53:49 AM
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	3/4/2021 12:53:49 AM
Surr: Toluene-d8	107	70-130		%Rec	1	3/4/2021 12:53:49 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/4/2021 12:53:49 AM
Surr: BFB	103	70-130		%Rec	1	3/4/2021 12:53:49 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103057-010 **Matrix:** SOIL

Client Sample ID: BS21-13
Collection Date: 2/26/2021 11:15:00 AM
Received Date: 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/4/2021 6:47:27 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/4/2021 6:47:27 PM
Surr: DNOP	88.3	70-130		%Rec	1	3/4/2021 6:47:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/6/2021 4:35:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 1:56:49 PM
Toluene	ND	0.047		mg/Kg	1	3/4/2021 1:56:49 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/4/2021 1:56:49 PM
Xylenes, Total	ND	0.095		mg/Kg	1	3/4/2021 1:56:49 PM
Surr: 1,2-Dichloroethane-d4	97.7	70-130		%Rec	1	3/4/2021 1:56:49 PM
Surr: 4-Bromofluorobenzene	94.9	70-130		%Rec	1	3/4/2021 1:56:49 PM
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	3/4/2021 1:56:49 PM
Surr: Toluene-d8	107	70-130		%Rec	1	3/4/2021 1:56:49 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/4/2021 1:56:49 PM
Surr: BFB	102	70-130		%Rec	1	3/4/2021 1:56:49 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

Analytical Report
Lab Order **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103057-011 **Matrix:** SOIL

Client Sample ID: BS21-14
Collection Date: 2/26/2021 11:30:00 AM
Received Date: 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	28	9.7		mg/Kg	1	3/5/2021 10:26:43 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/5/2021 10:26:43 AM
Surr: DNOP	88.0	70-130		%Rec	1	3/5/2021 10:26:43 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/6/2021 4:47:31 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 1:22:28 AM
Toluene	ND	0.049		mg/Kg	1	3/4/2021 1:22:28 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/4/2021 1:22:28 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/4/2021 1:22:28 AM
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	1	3/4/2021 1:22:28 AM
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	1	3/4/2021 1:22:28 AM
Surr: Dibromofluoromethane	103	70-130		%Rec	1	3/4/2021 1:22:28 AM
Surr: Toluene-d8	100	70-130		%Rec	1	3/4/2021 1:22:28 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/4/2021 1:22:28 AM
Surr: BFB	96.5	70-130		%Rec	1	3/4/2021 1:22:28 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-07
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 11:45:00 AM
Lab ID: 2103057-012 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/4/2021 6:59:30 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/4/2021 6:59:30 PM
Surr: DNOP	90.0	70-130		%Rec	1	3/4/2021 6:59:30 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/6/2021 4:59:56 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 1:51:05 AM
Toluene	ND	0.048		mg/Kg	1	3/4/2021 1:51:05 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/4/2021 1:51:05 AM
Xylenes, Total	ND	0.097		mg/Kg	1	3/4/2021 1:51:05 AM
Surr: 1,2-Dichloroethane-d4	90.9	70-130		%Rec	1	3/4/2021 1:51:05 AM
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	3/4/2021 1:51:05 AM
Surr: Dibromofluoromethane	95.9	70-130		%Rec	1	3/4/2021 1:51:05 AM
Surr: Toluene-d8	99.8	70-130		%Rec	1	3/4/2021 1:51:05 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/4/2021 1:51:05 AM
Surr: BFB	95.2	70-130		%Rec	1	3/4/2021 1:51:05 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-08
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 12:00:00 PM
Lab ID: 2103057-013 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/4/2021 7:11:27 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/4/2021 7:11:27 PM
Surr: DNOP	89.0	70-130		%Rec	1	3/4/2021 7:11:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/6/2021 5:12:20 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.023		mg/Kg	1	3/4/2021 2:19:41 AM
Toluene	ND	0.047		mg/Kg	1	3/4/2021 2:19:41 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/4/2021 2:19:41 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/4/2021 2:19:41 AM
Surr: 1,2-Dichloroethane-d4	93.4	70-130		%Rec	1	3/4/2021 2:19:41 AM
Surr: 4-Bromofluorobenzene	95.1	70-130		%Rec	1	3/4/2021 2:19:41 AM
Surr: Dibromofluoromethane	98.2	70-130		%Rec	1	3/4/2021 2:19:41 AM
Surr: Toluene-d8	104	70-130		%Rec	1	3/4/2021 2:19:41 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/4/2021 2:19:41 AM
Surr: BFB	98.0	70-130		%Rec	1	3/4/2021 2:19:41 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 **2103057**
Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-09
Project: Tomcat 16 State 2
Collection Date: 2/26/2021 12:15:00 PM
Lab ID: 2103057-014 **Matrix:** SOIL **Received Date:** 3/2/2021 10:43:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	21	9.5		mg/Kg	1	3/5/2021 11:14:14 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/5/2021 11:14:14 AM
Surr: DNOP	89.1	70-130		%Rec	1	3/5/2021 11:14:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/6/2021 5:24:45 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/4/2021 2:48:23 AM
Toluene	ND	0.047		mg/Kg	1	3/4/2021 2:48:23 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/4/2021 2:48:23 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/4/2021 2:48:23 AM
Surr: 1,2-Dichloroethane-d4	90.0	70-130		%Rec	1	3/4/2021 2:48:23 AM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	3/4/2021 2:48:23 AM
Surr: Dibromofluoromethane	96.9	70-130		%Rec	1	3/4/2021 2:48:23 AM
Surr: Toluene-d8	101	70-130		%Rec	1	3/4/2021 2:48:23 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/4/2021 2:48:23 AM
Surr: BFB	101	70-130		%Rec	1	3/4/2021 2:48:23 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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2103057** RcptNo: 1

Received By: **Isaiah Ortiz** **3/2/2021 10:43:00 AM** I-OK

Completed By: **Desiree Dominguez** **3/2/2021 10:51:10 AM** DD

Reviewed By: JR 3/2/21

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 ☑	TO 3/2/21
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by:

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good				
2	3.0	Good				

Chain-of-Custody Record

Client: Devon

Mailing Address: On File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

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

Project Name: Tomcat 16 State 2

Project #: 20E-001141-041

Project Manager: Monica Peppin

Sampler: Chance Dixon

On Ice: ☒ Yes ☐ No

# of Coolers: 2 2.8°C ±0°C

Cooler Temp(including CF): 3.0°C ±0°C (°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. 2103057	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
2/26	9:00	soil	BS21-01	4oz	Ice	-001	✓	✓					✓			
	9:15		BS21-02			-002										
	9:30		BS21-03			-003										
	9:45		BS21-04			-004										
	~~10:00~~ 10:00		BS21-05			-005										
	10:15		BS21-06			-006										
	10:30		BS21-07			-007										
	10:45		BS21-11			-008										
	11:00		BS21-12			-009										
	11:15		BS21-13			-010										
	11:30		BS21-14			-011										
	11:45		WS21-07			-012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					3/1/21	1720
3/1/21	1900					

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					3/2/21	1043

Remarks: Direct Bill: Devon
CC: Monica Peppin and Dennis Williams
W/O #: 20715495

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.

Chain-of-Custody Record

Client: Devon

Mailing Address: On File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 - Day
☑ Standard ☐ Rush

Project Name: Tomcat 16 state 2

Project #: 20E-00141-0111

Project Manager: Monica Peppin

Sampler: Chance Dixon
On Ice: ▣ Yes ☐ No
# of Coolers: 2 2.8°C ±0°C
Cooler Temp(including CF): 3.0°C ±0°C (°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. 2103057	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
2/26	12:00	soil	WS21-08	4oz	Ice	-013	✓	✓					✓			
2/26	12:15	soil	WS21-09	4oz	Ice	-014	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					3/1/21	1130
3/1/21	1900				3/2/21	1043

Remarks: Direct Bill Devon
CC: Monica Peppin and Dennis Williams
W/O #: 20715495

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.

Analytical Report
Lab Order **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-03
Project: Tomcat 16 State 2
Collection Date: 3/1/2021 8:30:00 AM
Lab ID: 2103148-001 **Matrix:** SOIL **Received Date:** 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	110	9.8		mg/Kg	1	3/4/2021 9:28:28 AM
Motor Oil Range Organics (MRO)	110	49		mg/Kg	1	3/4/2021 9:28:28 AM
Surr: DNOP	95.1	70-130		%Rec	1	3/4/2021 9:28:28 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	71	60		mg/Kg	20	3/9/2021 6:54:40 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 2:24:24 AM
Toluene	ND	0.049		mg/Kg	1	3/5/2021 2:24:24 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/5/2021 2:24:24 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/5/2021 2:24:24 AM
Surr: 1,2-Dichloroethane-d4	90.3	70-130		%Rec	1	3/5/2021 2:24:24 AM
Surr: 4-Bromofluorobenzene	89.8	70-130		%Rec	1	3/5/2021 2:24:24 AM
Surr: Dibromofluoromethane	98.0	70-130		%Rec	1	3/5/2021 2:24:24 AM
Surr: Toluene-d8	103	70-130		%Rec	1	3/5/2021 2:24:24 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/5/2021 2:24:24 AM
Surr: BFB	98.1	70-130		%Rec	1	3/5/2021 2:24:24 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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103148-002 **Matrix:** SOIL

Client Sample ID: WS21-04
Collection Date: 3/1/2021 8:45:00 AM
Received Date: 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	12	9.9		mg/Kg	1	3/4/2021 11:02:48 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/4/2021 11:02:48 AM
Surr: DNOP	95.1	70-130		%Rec	1	3/4/2021 11:02:48 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/9/2021 7:07:05 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 3:50:19 AM
Toluene	ND	0.048		mg/Kg	1	3/5/2021 3:50:19 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/5/2021 3:50:19 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/5/2021 3:50:19 AM
Surr: 1,2-Dichloroethane-d4	89.1	70-130		%Rec	1	3/5/2021 3:50:19 AM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	3/5/2021 3:50:19 AM
Surr: Dibromofluoromethane	92.8	70-130		%Rec	1	3/5/2021 3:50:19 AM
Surr: Toluene-d8	104	70-130		%Rec	1	3/5/2021 3:50:19 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/5/2021 3:50:19 AM
Surr: BFB	103	70-130		%Rec	1	3/5/2021 3:50:19 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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-05
Project: Tomcat 16 State 2
Collection Date: 3/1/2021 9:00:00 AM
Lab ID: 2103148-003 **Matrix:** SOIL **Received Date:** 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	12	9.5		mg/Kg	1	3/4/2021 11:36:30 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/4/2021 11:36:30 AM
Surr: DNOP	95.4	70-130		%Rec	1	3/4/2021 11:36:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/9/2021 7:19:30 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 5:16:15 AM
Toluene	ND	0.047		mg/Kg	1	3/5/2021 5:16:15 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/5/2021 5:16:15 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/5/2021 5:16:15 AM
Surr: 1,2-Dichloroethane-d4	83.8	70-130		%Rec	1	3/5/2021 5:16:15 AM
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	3/5/2021 5:16:15 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	3/5/2021 5:16:15 AM
Surr: Toluene-d8	100	70-130		%Rec	1	3/5/2021 5:16:15 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/5/2021 5:16:15 AM
Surr: BFB	97.1	70-130		%Rec	1	3/5/2021 5:16:15 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: WS21-06
Project: Tomcat 16 State 2
Collection Date: 3/1/2021 9:15:00 AM
Lab ID: 2103148-004 **Matrix:** SOIL **Received Date:** 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	3/4/2021 12:00:09 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/4/2021 12:00:09 PM
Surr: DNOP	93.7	70-130		%Rec	1	3/4/2021 12:00:09 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/9/2021 7:31:54 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 5:44:53 AM
Toluene	ND	0.048		mg/Kg	1	3/5/2021 5:44:53 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/5/2021 5:44:53 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/5/2021 5:44:53 AM
Surr: 1,2-Dichloroethane-d4	93.0	70-130		%Rec	1	3/5/2021 5:44:53 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	3/5/2021 5:44:53 AM
Surr: Dibromofluoromethane	93.8	70-130		%Rec	1	3/5/2021 5:44:53 AM
Surr: Toluene-d8	102	70-130		%Rec	1	3/5/2021 5:44:53 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/5/2021 5:44:53 AM
Surr: BFB	102	70-130		%Rec	1	3/5/2021 5:44:53 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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103148-005 **Matrix:** SOIL

Client Sample ID: BS21-04
Collection Date: 3/1/2021 9:30:00 AM
Received Date: 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/4/2021 12:23:55 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/4/2021 12:23:55 PM
Surr: DNOP	94.6	70-130		%Rec	1	3/4/2021 12:23:55 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	87	60		mg/Kg	20	3/9/2021 7:44:18 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 6:13:34 AM
Toluene	ND	0.048		mg/Kg	1	3/5/2021 6:13:34 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/5/2021 6:13:34 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/5/2021 6:13:34 AM
Surr: 1,2-Dichloroethane-d4	90.5	70-130		%Rec	1	3/5/2021 6:13:34 AM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	3/5/2021 6:13:34 AM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	3/5/2021 6:13:34 AM
Surr: Toluene-d8	97.5	70-130		%Rec	1	3/5/2021 6:13:34 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/5/2021 6:13:34 AM
Surr: BFB	98.6	70-130		%Rec	1	3/5/2021 6:13:34 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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Tomcat 16 State 2
Lab ID: 2103148-006 **Matrix:** SOIL

Client Sample ID: BS21-08
Collection Date: 3/1/2021 9:45:00 AM
Received Date: 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	27	9.2		mg/Kg	1	3/4/2021 12:52:50 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/4/2021 12:52:50 PM
Surr: DNOP	102	70-130		%Rec	1	3/4/2021 12:52:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/9/2021 7:56:43 AM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 6:42:10 AM
Toluene	ND	0.048		mg/Kg	1	3/5/2021 6:42:10 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/5/2021 6:42:10 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/5/2021 6:42:10 AM
Surr: 1,2-Dichloroethane-d4	93.3	70-130		%Rec	1	3/5/2021 6:42:10 AM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	3/5/2021 6:42:10 AM
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	3/5/2021 6:42:10 AM
Surr: Toluene-d8	102	70-130		%Rec	1	3/5/2021 6:42:10 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/5/2021 6:42:10 AM
Surr: BFB	99.3	70-130		%Rec	1	3/5/2021 6:42:10 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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-09
Project: Tomcat 16 State 2
Collection Date: 3/1/2021 10:00:00 AM
Lab ID: 2103148-007 **Matrix:** SOIL **Received Date:** 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	3/4/2021 1:40:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/4/2021 1:40:28 PM
Surr: DNOP	97.8	70-130		%Rec	1	3/4/2021 1:40:28 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/9/2021 3:22:48 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	3/5/2021 7:10:56 AM
Toluene	ND	0.050		mg/Kg	1	3/5/2021 7:10:56 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/5/2021 7:10:56 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/5/2021 7:10:56 AM
Surr: 1,2-Dichloroethane-d4	86.2	70-130		%Rec	1	3/5/2021 7:10:56 AM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	3/5/2021 7:10:56 AM
Surr: Dibromofluoromethane	92.7	70-130		%Rec	1	3/5/2021 7:10:56 AM
Surr: Toluene-d8	105	70-130		%Rec	1	3/5/2021 7:10:56 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/5/2021 7:10:56 AM
Surr: BFB	104	70-130		%Rec	1	3/5/2021 7:10:56 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 **2103148**
Date Reported: **3/10/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BS21-10
Project: Tomcat 16 State 2
Collection Date: 3/1/2021 10:15:00 AM
Lab ID: 2103148-008 **Matrix:** SOIL **Received Date:** 3/3/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **mb**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/4/2021 2:04:16 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/4/2021 2:04:16 PM
Surr: DNOP	95.6	70-130		%Rec	1	3/4/2021 2:04:16 PM
EPA METHOD 300.0: ANIONS						Analyst: **VP**
Chloride	ND	60		mg/Kg	20	3/9/2021 3:35:12 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	3/5/2021 7:39:32 AM
Toluene	ND	0.047		mg/Kg	1	3/5/2021 7:39:32 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/5/2021 7:39:32 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/5/2021 7:39:32 AM
Surr: 1,2-Dichloroethane-d4	90.1	70-130		%Rec	1	3/5/2021 7:39:32 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	3/5/2021 7:39:32 AM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	3/5/2021 7:39:32 AM
Surr: Toluene-d8	101	70-130		%Rec	1	3/5/2021 7:39:32 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/5/2021 7:39:32 AM
Surr: BFB	96.2	70-130		%Rec	1	3/5/2021 7:39:32 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		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Devon Energy** Work Order Number: **2103148** RcptNo: **1**

Received By: **Juan Rojas** **3/3/2021 7:50:00 AM**

Completed By: **Desiree Dominguez** **3/3/2021 8:18:50 AM**

Reviewed By: ENM 3/3/21

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: 3/3/21 (<2 or >12 unless noted)

Adjusted?

Checked by:

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good				

Chain-of-Custody Record

Client: Devon

Mailing Address: On File

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5-Day
☑ Standard ☐ Rush

Project Name: Tomcat 16 State 2

Project #: 20E-001411-041

Project Manager: Monica Peppin

Sampler: CD

On Ice: ☒ Yes ☐ No

# of Coolers: 1 DAD 3/3/21

Cooler Temp(including CF): 2.1 - 0.1 = 2.0 (°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. 2103148	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)
3/1	8:30	Soil	W521-03	4oz	Ice	-001	✓	✓								
	8:45		W521-04			-002										
	9:00		W521-05			-003										
	9:15		W521-06			-004										
	9:30		B521-04			-005										
	9:45		B521-08			-006										
	10:00		B521-09			-007										
	10:15		B521-10			-008										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			Ashley Gallegos		3/2/21	1145
Date: 3/2/21	Time: 1900	Relinquished by:	Received by:	Via: Courier	Date 3/3/21	Time 7:50

Remarks: Direct Bill: Devon
CC: Monica Peppin and Dennis Williams
AFE #: 20715495

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.

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	NCH1817040776
District RP	1RP-5102
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.***

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ 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)

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

☑ 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: Amanda Trujillo Davis Title: Environmental Professional

Signature: Amanda T Davis Date: 5/4/2021

email: amanda.davis@dvn.com Telephone: 575-748-0176

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: Bradford Billings Date: 05/05/2021

Printed Name: Bradford Billings Title: E.Spec.A

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 26989

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
DEVON ENERGY PRODUCTION COMPAN	333 West Sheridan Ave.	Oklahoma City, OK73102	6137	26989	C-141

OCD Reviewer	Condition
bbillings	None