State of New Mexico
Oil Conservation Division

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	160 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Environmental Professional .

Signature: Dale Woodall Date: 1/11/2023

email: dale.woodall@dvn.com . Telephone: 575-748-1838

OCD Only

Received by: Jocelyn Harimon Date: 1/11/2023

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

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

[X] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Dale Woodall Title: Environmental Professional

Signature: Dale Woodall Date: 1/11/2023

email: dale.woodall@dvn.com . Telephone: 575-748-1838 .

OCD Only

Received by: Jocelyn Harimon Date: 1/11/2023

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: Scott Rodgers Date: 01/26/2024

Printed Name: Scott Rodgers Title: Environmental Specialist Adv.

June 4, 2020 Vertex Project #: 20E-00141-026

Spill Closure Report: SeaWolf 1-12 CTB 1
Unit A, Section 1, Township 26 South, Range 33 East
County: Lea
Tracking Number(s): NCE2003556136; NRM2004353184

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 two produced water releases that occurred at SeaWolf 1-12 CTB 1 (hereafter referred to as "SeaWolf"). Devon provided notification of the separate incidents to New Mexico Oil Conservation Division (NM OCD) District 1 and the Bureau of Land Management (BLM), who own the land, via submission of initial C-141 Release Notifications on January 27, 2020, and February 10, 2020 (Attachment 1). The NM OCD tracking numbers assigned to these incidents are NCE2003556136 and NRM2004353184.

This letter provides a description of the spill assessments 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 these releases.

Incident Descriptions

On January 23, 2020, a release occurred at Devon's SeaWolf site when a half-inch nipple at a ball valve on the water transfer pump developed a hole. This incident resulted in the release of approximately 780 barrels (bbls) of produced water into a lined secondary containment structure. Upon discovery of the release, a hydrovac truck was dispatched to site to recover free liquids. All fluids were contained within the lined Spill Prevention Control and Countermeasures (SPCC) containment; no produced water was released onto the pad, or into undisturbed areas or waterways. Approximately 780 bbls of produced water were recovered from the SPCC containment and removed for disposal off-site.

On January 23, 2020, a second release occurred at Devon's SeaWolf site when a water dump valve for SeaWolf 86H developed a hole in the housing causing a fluid release onto the wellpad. This incident resulted in the release of approximately 17.65 bbls of produced water onto the compacted pad area. No produced water 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 15 bbls of produced water were recovered from the spill area and removed for disposal off-site.

Site Characterization

The releases at SeaWolf occurred on federally owned land, N 32.077077, W 103.526861, approximately 20 miles west of Jal, New Mexico. The legal description for the site is Unit A, Section 1, Township 26 South, Range 33 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.

SeaWolf 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 environment and ecology in the immediate vicinity of the constructed wellpad where the releases occurred.

The surrounding landscape has historically been associated with upland plains and the tops of low ridges and mesas at elevations of 3,000 to 4,400 feet above sea level. The climate is semiarid, with average annual precipitation ranging between 10 and 16 inches. The plant community has historically been grassland dominated by black grama, with dropseeds and bluestem grasses, and scattered shinnery oak and sand sage. Heavy grazing has led to an increase in shrubs, especially mesquite and creosotebush. Litter and, to a lesser extent, bare ground make up a significant portion of ground cover (United States Department of Agriculture, 2020). Limited to no vegetation is allowed to grow on the compacted wellpad.

The Geological Map of New Mexico indicates the surface geology at SeaWolf is on the border of Qep-Eolian and piedmont deposits (Holocene to middle Pleistecene) characterized by interlayed eolian sand and piedmont deposits, and To – Ogallala Formation (lower Pliocene to middle Miocene) comprised of alluvial and eolian deposits, and petrocalcic soils of the southern High Plains (New Mexico Bureau of Geology and Mineral Resources, 2020). The National Resource Conservation Service (NRCS) Web Soil Survey characterizes the soil at the site as on the cusp of Pyote and Maljamar fine sands and Simona-Upton complex, predominantly found on plains, and comprised of fine sand over deep layers of sandy clay loam and loamy sand. It tends to be well-drained with low runoff and moderate available moisture levels in the soil profile (United States Department of Agriculture, Natural Resources Conservation Service, 2020). There is low potential for karst geology to be present near SeaWolf (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 3.75 miles southwest of the site. A freshwater emergent wetland is located approximately 0.28 miles southeast of the site (United States Fish and Wildlife Service, 2020). There are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features near SeaWolf as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to SeaWolf is a United States Geolgical Survey (USGS)-identified well from 2013 located approximately 1.2 miles east of the site. Depth to groundwater at this well is 360 feet below ground surface (bgs; United States Department of the Interior, United States Geological Survey, 2020). A New Mexico Office of the State Engineer well from 2010, with a depth to groundwater of 140 feet bgs, is in the same vicinity as the USGS well (New Mexico Office of the State Engineer, New Mexico Water Rights Reporting System, 2020). The shallowest depth to groundwater identified near SeaWolf is from a 1995 USGS well located approximately 2 miles northeast of the site with a depth of 165 feet bgs (United States Department of the Interior, United States Geological Survey, 2020). The Chevron Texaco Depth to Ground

Water Map for Lea County confirms that depth to groundwater in the vicinity of SeaWolf is between 100 and 200 feet bgs (Chevron Texaco, 2005). Documentation pertaining to site characterization and depth to groundwater determination is included in Attachment 2.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 2) was completed to determine if the releases were 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 releases at SeaWolf are not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC and the closure criteria for the site is determined to be associated with the following constituent concentration limits based on depth to groundwater.

Table 1. Closure Criteria for Soils Impacted by a Release

Depth to Groundwater	Constituent	Limit
>100 feet	Chloride	20,000 mg/kg
	TPH[1] (GRO + DRO + MRO)	2,500 mg/kg
	GRO + DRO	1,000 mg/kg
	BTEX[2]	50 mg/kg
	Benzene	10 mg/kg

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

[2] Benzene, toluene, ethyl benzene and xylenes (BTEX)

Remedial Actions

An initial spill inspection, completed on February 18, 2020, used field screening methods to identify and map the boundaries of the smaller release outside of containment. An electroconductivity (EC) probe was used to approximate the level of chlorides present in the soil of the release area. The initial data obtained during the field screening process were used to horizontally and vertically delineate the release footprint. The release area was determined to be approximately 48 feet long by 48 feet wide; the total impacted area was approximately 1,700 square feet. An aerial photograph and site schematic for this release are included in Attachment 3. Field screening results are summarized in the Daily Field Report (DFR) associated with the initial inspection visit (Attachment 4). A selection of the initial characterization soil samples was submitted for laboratory analysis to confirm the delineation effort. Based on the field screening and laboratory analyses data presented in Table 2 (Attachment 5), the level of chlorides present on the wellpad did not exceed closure criteria for locations where depth to groundwater is greater than 100 feet bgs. No remediation work to address the smaller release near the heater treaters and flow lines was deemed necessary.

On April 21, 2020, Vertex provided 48-hour notification of confirmation sampling and liner inspection to NM OCD District 1 and the BLM, as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC and Subparagraph (a) of Paragraph (5) of Subsection A 19.15.29.11 NMAC, respectively (Attachment 6). On April 24, 2020, Vertex was on-site to conduct a visual inspection of the production equipment secondary containment liner pertaining to the initial release, and conduct confirmatory sampling at the location of the second release.

The liner inspection involved a thorough examination of the secondary containment liner to verify its integrity and ensure there were no tears, rips or holes that would have impacted its ability to contain the release.

At the heater treaters, Vertex collected nine five-point composite confirmatory samples from the area where the 17-bbl release occurred. Each composite sample was representative of no more than 200 square feet per the alternate sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC, which does not require prior NM OCD approval. The composite samples were placed into laboratory-provided containers, preserved on ice, and submitted to a National Environmental Laboratory Accreditation Program-approved laboratory for chemical analysis.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Confirmatory sample analytical data are summarized in Table 3 (Attachment 5). Laboratory data reports and chain of custody forms are included in Attachment 7.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of each of the five-point composite samples. The confirmatory sampling locations are presented on Figure 2 (Attachment 2). Relevant equipment and prominent features/reference points at the site are mapped as well.

Closure Request

Vertex recommends no additional remediation action to address the two releases at SeaWolf. For incident NCE2003556136, the liner inspection showed that the secondary containment liner was intact and had the ability to contain the release in question, as shown in the inspection photographs included with the DFR (Attachment 4). Laboratory analyses for the confirmatory samples associated with incident NRM2004353184 showed constituent of concern concentration levels below NM OCD Closure Criteria for areas where depth to groundwater is greater than 100 feet bgs as shown in Table 1. There are no anticipated risks to human, ecological or hydrological receptors associated with the release site.

Vertex requests that the two incidents (NCE2003556136 and NRM2004353184) 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 January 23, 2020, releases at SeaWolf.

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

Sincerely,

Natalie Gordon
PROJECT MANAGER

Attachments

Attachment 1. NM OCD C-141 Reports
Attachment 2. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
Attachment 3. Site Schematic and Confirmatory Sample Locations for Incident NRM2004353184
Attachment 4. Daily Field Report(s) with Photographs
Attachment 5. Characterization and Confirmatory Sample Field Screening and Laboratory Results
Attachment 6. Required 48-hr Notification of Liner Inspection and Confirmatory Sampling to Regulatory Agencies
Attachment 7. Laboratory Data Reports/Chain of Custody Forms

References

Chevron Texaco. (2005). *Lea County Depth to Ground Water, Water Wells, Facilities.*

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

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

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

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

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

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

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

Limitations

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

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

ATTACHMENT 1

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

Latitude 32.077077 Longitude -103.526861

(NAD 83 in decimal degrees to 5 decimal places)

Site Name SeaWolf 1-12 CTB 1	Site Type Central Tank Battery
Date Release Discovered 1/23/20	API# *(if applicable)* N/A

Unit Letter	Section	Township	Range	County
C	1	26S	33E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 780	Volume Recovered (bbls) 780
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: A 1/2" nipple at a ball valve on the water transfer pump developed a hole causing fluid to be released into a lined secondary containment. All fluids stayed inside the secondary containment.

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? This release was over 25 bbls.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

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

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

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

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

Printed Name: Kendra DeHoyos Title: EHS Associate

Signature: Kendra DeHoyos Date: 1/27/2020

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

OCD Only

Received by: Cristina Eads Date: 02/04/2020

Received by OCD: 1/11/2023 10:37:30 AM Page 3 of 3

Spills In Lined Containment	
Measurements Of Standing Fluid	
Length(Ft)	130
Width(Ft)	134
Depth(in.)	3.9
Total Capacity without tank displacements (bbls)	1008.35
No. of 500 bbl Tanks In Standing Fluid	21
No. of Other Tanks In Standing Fluid	
OD Of Other Tanks In Standing Fluid(feet)	
Total Volume of standing fluid accounting for tank displacement.	779.10

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NRM2004353184
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

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

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

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)
Cause of Release		

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NRM2004353184
District RP	
Facility ID	
Application ID	

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

Initial Response

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

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

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

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

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

Printed Name: _____ Title: _____

Signature: Kendra DeHoyos Date: _____

email: _____ Telephone: _____

OCD Only

Received by: Ramona Marcus Date: 02/12/2020

Inputs in blue, Outputs in red

NRM2004353184

Contaminated Soil measurement

Length(Ft)	Width(Ft)	Depth(Ft)
50	30.000	0.021
Cubic Feet of Soil Impacted		31.500
Barrels of Soil Impacted		5.61
Soil Type		Clay/Sand
Barrels of Oil Assuming 100% Saturation		0.84
Saturation	Fluid present with shovel/backhoe	
Estimated Barrels of Oil Released		0.84

Free Standing Fluid Only

Length(Ft)	Width(Ft)	Depth(Ft)
50	30.000	0.063
Standing fluid		16.808
Total fluids spilled		17.650

State of New Mexico
Oil Conservation Division

Incident ID	NRM2004353184
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	160 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NRM2004353184
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Environmental Professional .

Signature: Dale Woodall Date: 1/11/2023

email: dale.woodall@dvn.com . Telephone: 575-748-1838

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	NRM2004353184
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

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

[X] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Dale Woodall Title: Environmental Professional

Signature: Dale Woodall Date: 1/11/2023

email: dale.woodall@dvn.com . Telephone: 575-748-1838 .

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	160 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Environmental Professional .

Signature: Dale Woodall Date: 1/11/2023

email: dale.woodall@dvn.com . Telephone: 575-748-1838

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	NCE2003556136
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

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

[X] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Dale Woodall Title: Environmental Professional

Signature: Dale Woodall Date: 1/11/2023

email: dale.woodall@dvn.com . Telephone: 575-748-1838 .

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

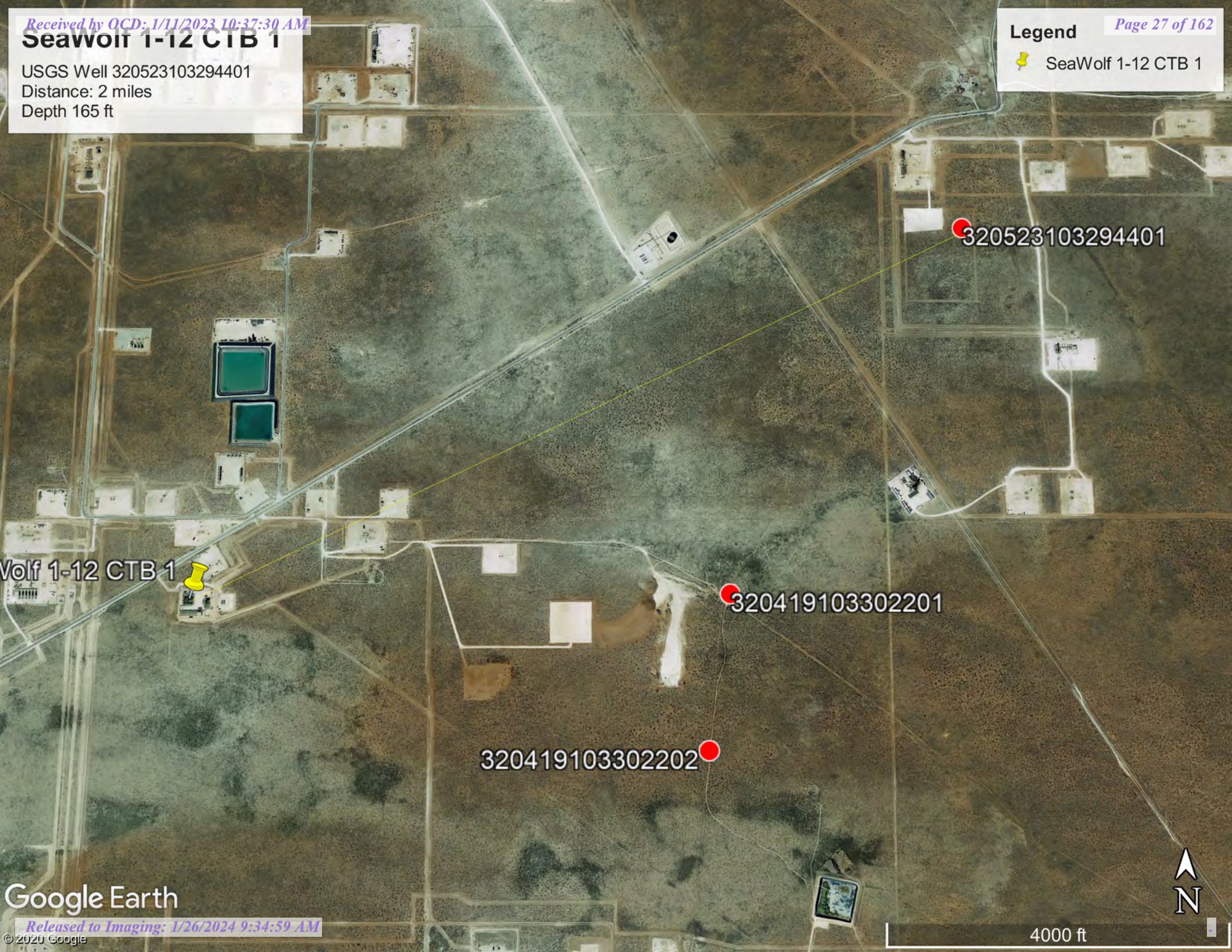
ATTACHMENT 2

Table 1.			
Site Name: Sea Wolf 1-12 CTB			
Spill Coordinates:		**X: 32.077077**	**-103.526861**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**160'**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	20,170	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	24,700	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	11,003	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**	1,801	feet
	ii) Within 1000 feet of any fresh water well or spring	1,801	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	1,491	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Medium	Critical High Medium Low
10	Within a 100-year Floodplain	>100	year
11	Soil Type	Pyote and maljamar fine sands Simona-Upton association	
12	Ecological Classification	Loamy Sand Shallow Sandy/Shallow	
13	Geology		
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

Column1
Critical
High
Medium
Low

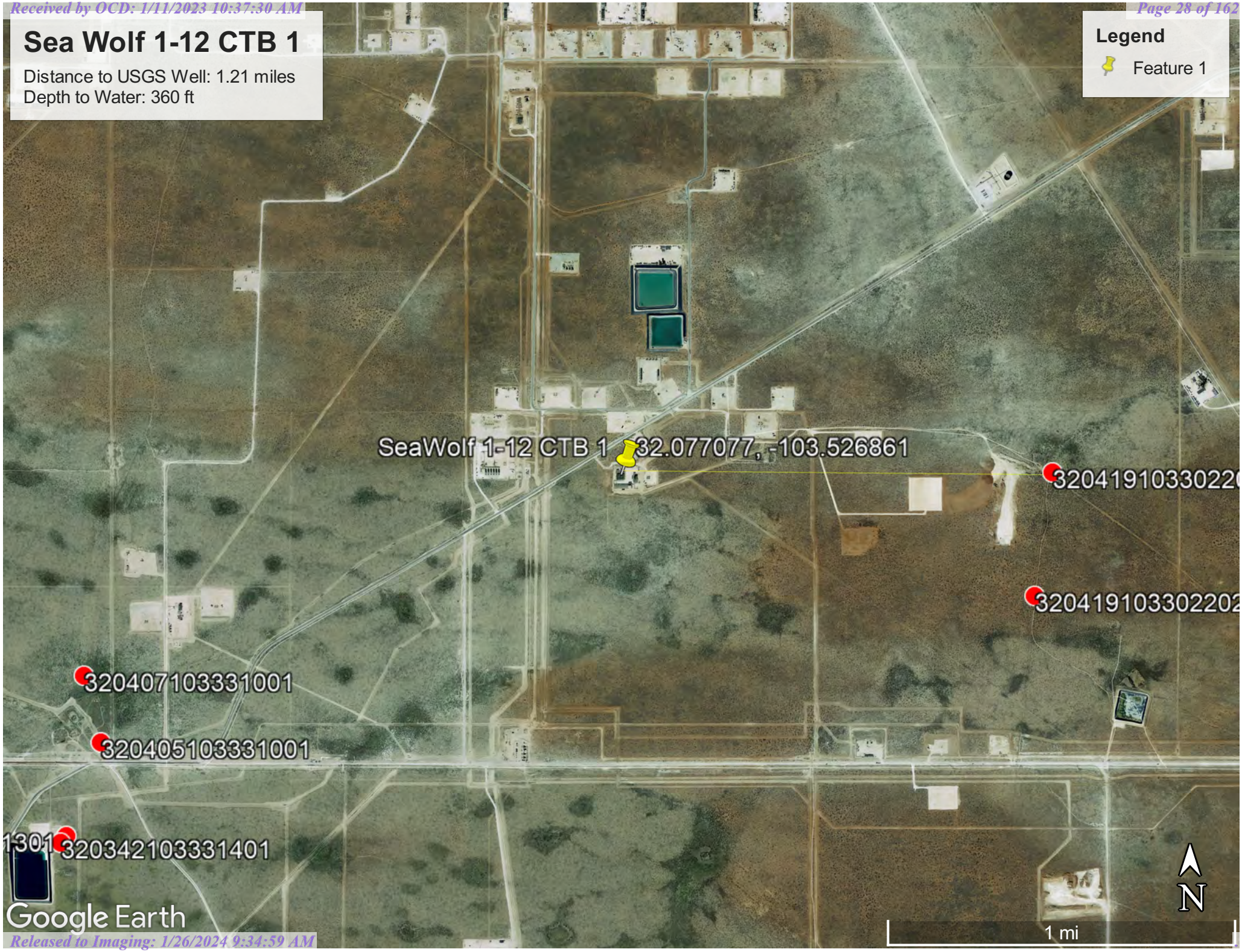
Column1
Yes
No

<50'
51-100'
>100'



Sea Wolf 1-12 CTB 1

Distance to USGS Well: 1.21 miles
Depth to Water: 360 ft



National Water Information System: Web Interface

USGS Water Resources

Data Category: Site Information ▼ Geographic Area: United States ▼ GO

Click to hideNews Bulletins

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

USGS 320419103302201 26S.34E.06.21414

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:

Latitude 32°04'37.9", Longitude 103°30'20.5" NAD83
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 360 feet
Land surface altitude: 3,319.00 feet above NGVD29.
Well completed in "Chinle Formation" (231CHNL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1954-07-23	2013-01-16	6
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center

Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

---

Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Accessibility Plug-Ins FOIA Privacy Policies and Notices

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

Title: NWIS Site Information for USA: Site Inventory
URL: https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=320419103302201

Page Contact Information: New Mexico Water Data Support Team
Page Last Modified: 2020-02-25 15:28:53 EST
0.32 0.29 caww01

Click to hideNews Bulletins

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

USGS 320523103294401 25S.34E.29.343322

Available data for this site SUMMARY OF ALL AVAILABLE DATA ▼ GO

Well Site

DESCRIPTION:
Latitude 32°05'23", Longitude 103°29'44" NAD27
Lea County, New Mexico , Hydrologic Unit 13070007
Well depth: 165 feet
Land surface altitude: 3,321 feet above NAVD88.
Well completed in "Ogallala Formation" (121OGLL) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1970-12-08	1991-06-06	5
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:
Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02291	CUB	LE	1	1	2	06	26S	34E	640825	3550140*	1801	220	160	60
C 03441 POD1	C	LE	4	1	2	06	26S	34E	640971	3550039	1937	250		
C 02292 POD1	CUB	LE	4	1	2	06	26S	34E	640992	3549987	1956	200	140	60
C 03442 POD1	C	LE	4	1	2	06	26S	34E	641056	3550028	2022	251		
C 02295	CUB	LE	2	2	4	12	26S	33E	639850	3547710*	2363	250	200	50
C 02285 POD1	CUB	LE	1	4	4	03	26S	33E	636613	3548855	2650	220	220	0
C 02288	CUB	LE	4	4	4	03	26S	33E	636646	3548758	2661	220	180	40
C 02289	CUB	LE	4	4	4	03	26S	33E	636612	3548675*	2728	200	160	40
C 02290	CUB	LE	4	4	4	03	26S	33E	636538	3548770	2753	200	160	40
C 02286	CUB	LE	3	4	4	03	26S	33E	636470	3548714	2839	220	175	45
C 02287	C	LE	3	4	4	03	26S	33E	636427	3548708	2880	220		
C 02313	CUB	LE	2	3	3	26	25S	33E	636971	3552098*	2995	150	110	40
C 02294	CUB	LE	4	4	3	11	26S	33E	637465	3547003	3320	200	145	55
C 02293	CUB	LE	2	2	1	14	26S	33E	637501	3546975	3328	200	135	65
C 02316	CUB	LE	3	4	3	29	25S	34E	642003	3551967*	3599	100	50	50
C 02317	CUB	LE	3	4	3	29	25S	34E	642003	3551967*	3599	100	50	50

Average Depth to Water: **145 feet**

Minimum Depth: **50 feet**

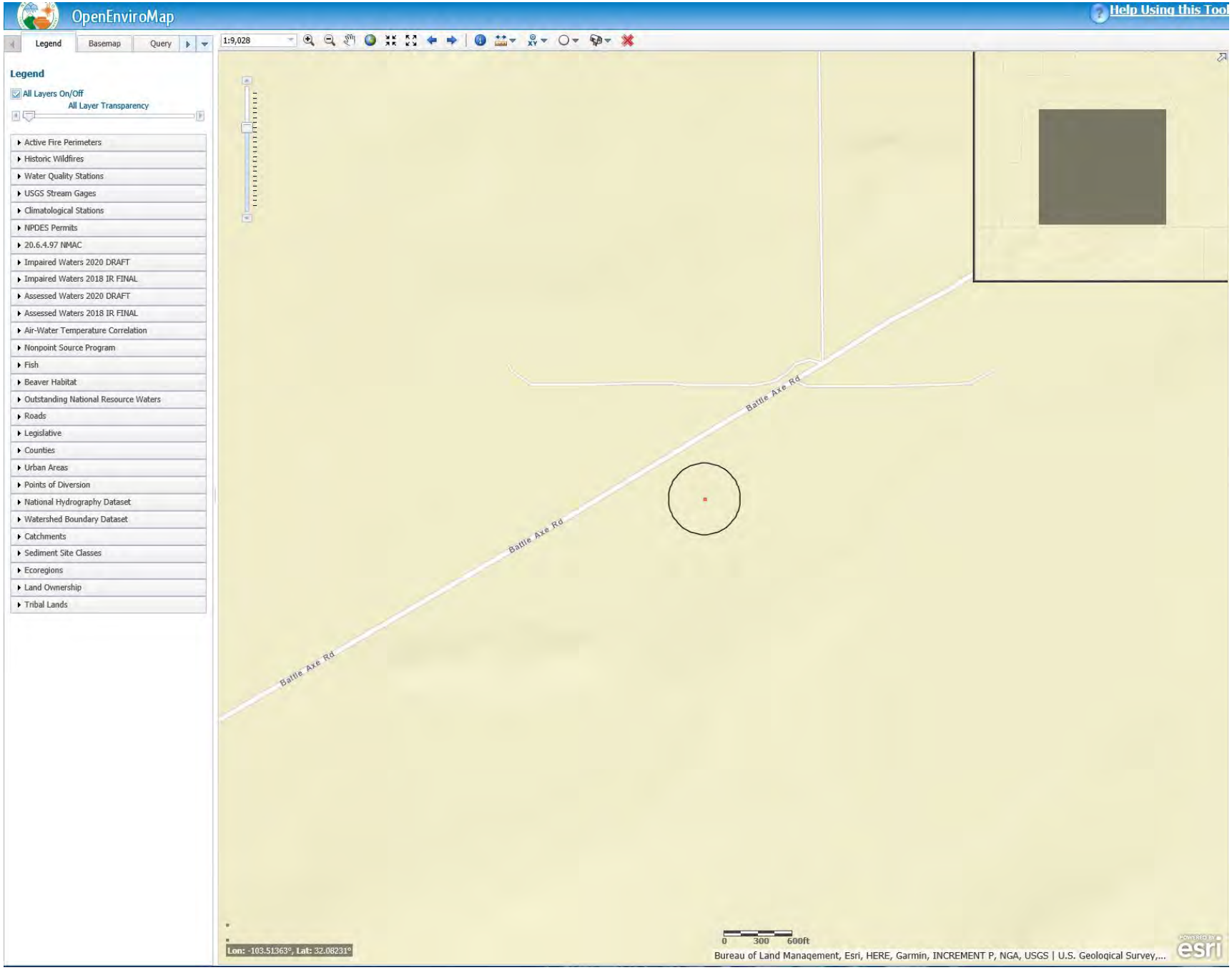
Maximum Depth: **220 feet**

Record Count: 16

UTMNAD83 Radius Search (in meters):

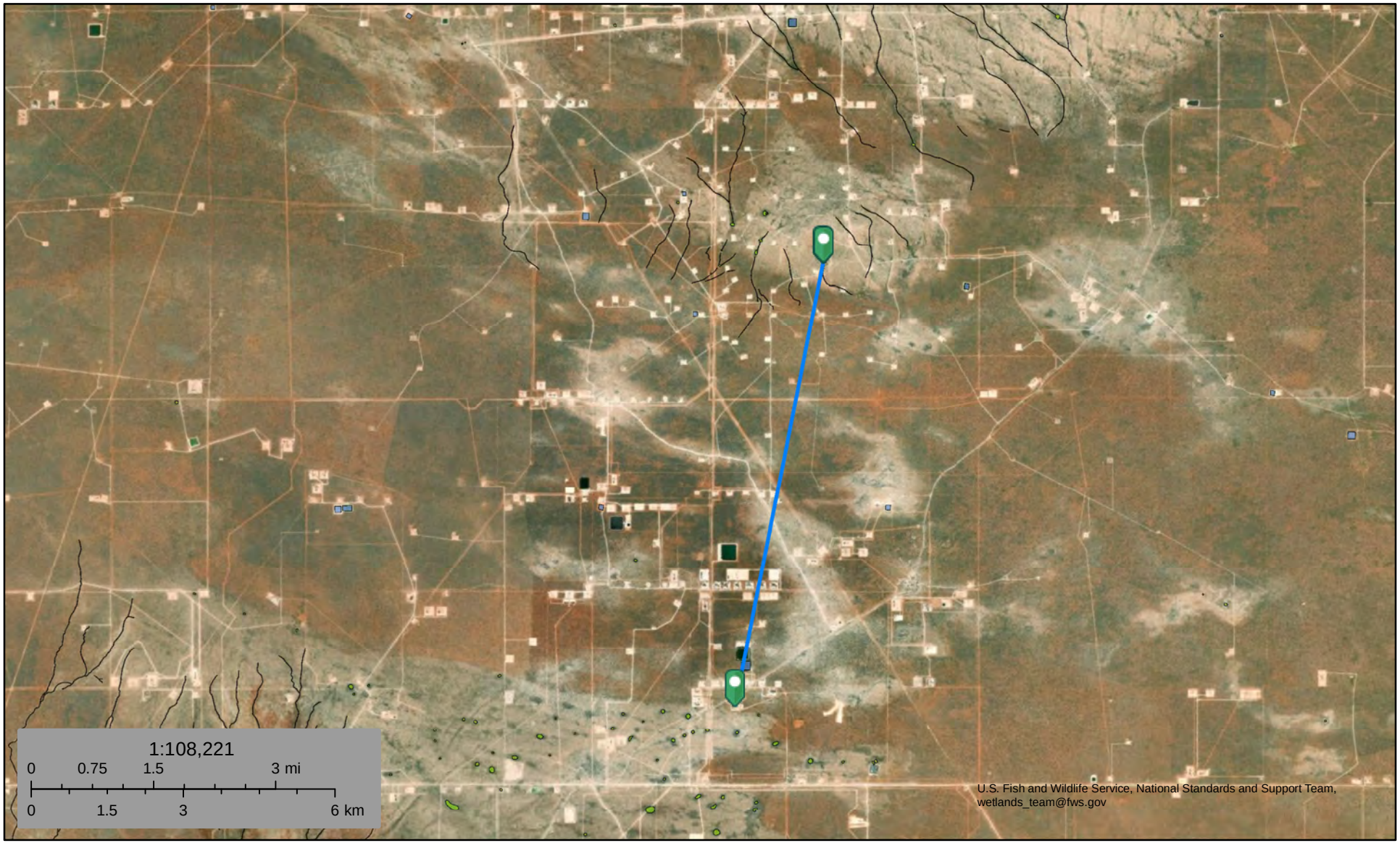
Easting (X): 639036 **Northing (Y):** 3549928.49 **Radius:** 5000

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


OpenEnviroMap
Help Using this Tool
Legend
Basemap
Query
1:9,028
Legend
All Layers On/Off
All Layer Transparency
Active Fire Perimeters
Historic Wildfires
Water Quality Stations
USGS Stream Gages
Climatological Stations
NPDES Permits
20.6.4.97 NMAC
Impaired Waters 2020 DRAFT
Impaired Waters 2018 IR FINAL
Assessed Waters 2020 DRAFT
Assessed Waters 2018 IR FINAL
Air-Water Temperature Correlation
Nonpoint Source Program
Fish
Beaver Habitat
Outstanding National Resource Waters
Roads
Legislative
Counties
Urban Areas
Points of Diversion
National Hydrography Dataset
Watershed Boundary Dataset
Catchments
Sediment Site Classes
Ecoregions
Land Ownership
Tribal Lands
Battle Axe Rd
Battle Axe Rd
Battle Axe Rd
Lon: -103.51363°, Lat: 32.08231°
0 300 600ft
Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, NGA, USGS | U.S. Geological Survey,...
esri

U.S. Fish and Wildlife Service
National Wetlands Inventory

Sea Wolf 1-12 CTB 1 Lake 24,700 ft



February 23, 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.


Nearest Residence
11,003'
Legend
Feature 1
nearest sea wolf well
32.077077, -103.526861
sea wolf
N32.075°
W103.555°
W103.545°
W103.535°
N32.065°
W103.525°
W103.515°
W103.505°
N32.055°
Residence
Google Earth
N
1 km

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q q q 6416	4	Sec	Tws	Rng	X	Y	Distance
C 02291	CUB	PLS	3	INTREPID POTASH NEW MEXICO LLC	LE	C 02291					1 1 2		06	26S	34E	640825	3550140*	1801
C 03441	C	STK	3	INTREPID POTASH NEW MEXICO LLC	LE	C 03441 POD1				Shallow	4 1 2		06	26S	34E	640970	3550039	1937
C 03491	C	PRO	0	EOG RESOURCES, INC	LE	C 03441 POD1				Shallow	4 1 2		06	26S	34E	640970	3550039	1937
C 02292	CUB	PLS	3	DINWIDDIE CATTLE CO.	LE	C 02292 POD1					4 1 2		06	26S	34E	640991	3549987	1956
C 03493	C	PRO	0	EOG RESOURCES, INC.	LE	C 02292 POD1					4 1 2		06	26S	34E	640991	3549987	1956
C 03442	C	STK	3	INTREPID POTASH NEW MEXICO LLC	LE	C 03442 POD1				Shallow	4 1 2		06	26S	34E	641055	3550028	2022
C 03477	C	PRO	0	EOG RESOURCES, INC.	LE	C 03442 POD1				Shallow	4 1 2		06	26S	34E	641055	3550028	2022
C 03492	C	PRO	0	EOG RESOURCES, INC	LE	C 03442 POD1				Shallow	4 1 2		06	26S	34E	641055	3550028	2022
C 02295	CUB	PLS	3	INTREPID POTASH NEW MEXICO LLC	LE	C 02295					2 2 4		12	26S	33E	639850	3547710*	2363
C 02285	CUB	PLS	3	DINWIDDIE CATTLE CO.	LE	C 02285 POD1				Shallow	1 4 4		03	26S	33E	636612	3548855	2650
C 03494	C	PRO	0	EOG RESOURCES, INC.	LE	C 02285 POD1				Shallow	1 4 4		03	26S	33E	636612	3548855	2650
C 02288	CUB	PLS	3	DINWIDDLE CATTLE CO.	LE	C 02288					4 4 4		03	26S	33E	636645	3548758	2661
C 03497	C	PRO	0	EOG RESOURCES, INC.	LE	C 02288					4 4 4		03	26S	33E	636645	3548758	2661
C 02287	C	STK	3	DINWIDDLE CATTLE CO.	LE	C 02287 POD2					4 4 4		03	26S	33E	636612	3548675*	2728
C 02289	CUB	PLS	3	DINWIDDIE CATTLE COMPANY LLC	LE	C 02289					4 4 4		03	26S	33E	636612	3548675*	2728
C 02290	CUB	PLS	3	DINWIDDLE CATTLE CO.	LE	C 02290					4 4 4		03	26S	33E	636538	3548770	2753
C 03498	C	PRO	0	EOG RESOURCES, INC.	LE	C 02290					4 4 4		03	26S	33E	636538	3548770	2753
C 02286	CUB	PLS	3	DINWIDDLE CATTLE CO.	LE	C 02286					3 4 4		03	26S	33E	636469	3548714	2839

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

(acre ft per annum)

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code Grant	Source	q q q 6416	4	Sec	Tws	Rng	X	Y	Distance
C 03495	C	PRO	0	EOG RESOURCES, INC.	LE	C 02286				3 4	4	03	26S	33E	636469	3548714	2839
C 02287	C	STK	3	DINWIDDLE CATTLE CO.	LE	C 02287				3 4	4	03	26S	33E	636427	3548708	2880
C 03496	C	PRO	0	EOG RESOURCES, INC.	LE	C 02287				3 4	4	03	26S	33E	636427	3548708	2880
C 02313	CUB	STK	3	NGL WATER SOLUTIONS PERMIAN	LE	C 02313				2 3	3	26	25S	33E	636971	3552098*	2995
C 04265	CUB	GEO	0	EOG RESOUCES	LE	C 04265 POD1	NA			2 3	1	32	25S	34E	641842	3551281	3115
C 02294	CUB	PLS	3	DINWIDDIE CATTLE CO.	LE	C 02294				4 4	3	11	26S	33E	637465	3547003	3320
C 03500	C	PRO	0	EOG RESOURCES, INC.	LE	C 02294				4 4	3	11	26S	33E	637465	3547003	3320
C 02293	CUB	PLS	3	DINWIDDIE CATTLE CO.	LE	C 02293				2 2	1	14	26S	33E	637500	3546975	3328
C 03499	C	PRO	0	EOG RESOURCES, INC.	LE	C 02293				2 2	1	14	26S	33E	637500	3546975	3328
C 02316	CUB	DOM	6	NGL WATER SOLUTIONS PERMIAN	LE	C 02316				3 4	3	29	25S	34E	642003	3551967*	3599
C 02317	CUB	IRR	6	NGL WATER SOLUTIONS PERMIAN	LE	C 02317				3 4	3	29	25S	34E	642003	3551967*	3599

Record Count: 29

UTMNAD83 Radius Search (in meters):

Easting (X): 639036 **Northing (Y):** 3549928.49 **Radius:** 5000

Sorted by: Distance

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

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

No PODs found.

UTMNAD83 Radius Search (in meters):

Easting (X): 639036 **Northing (Y):** 3549928.49 **Radius:** 1610

U.S. Fish and Wildlife Service
National Wetlands Inventory

SeaWolf 1-12 CTB 1 Wetland 1,491ft

February 23, 2020

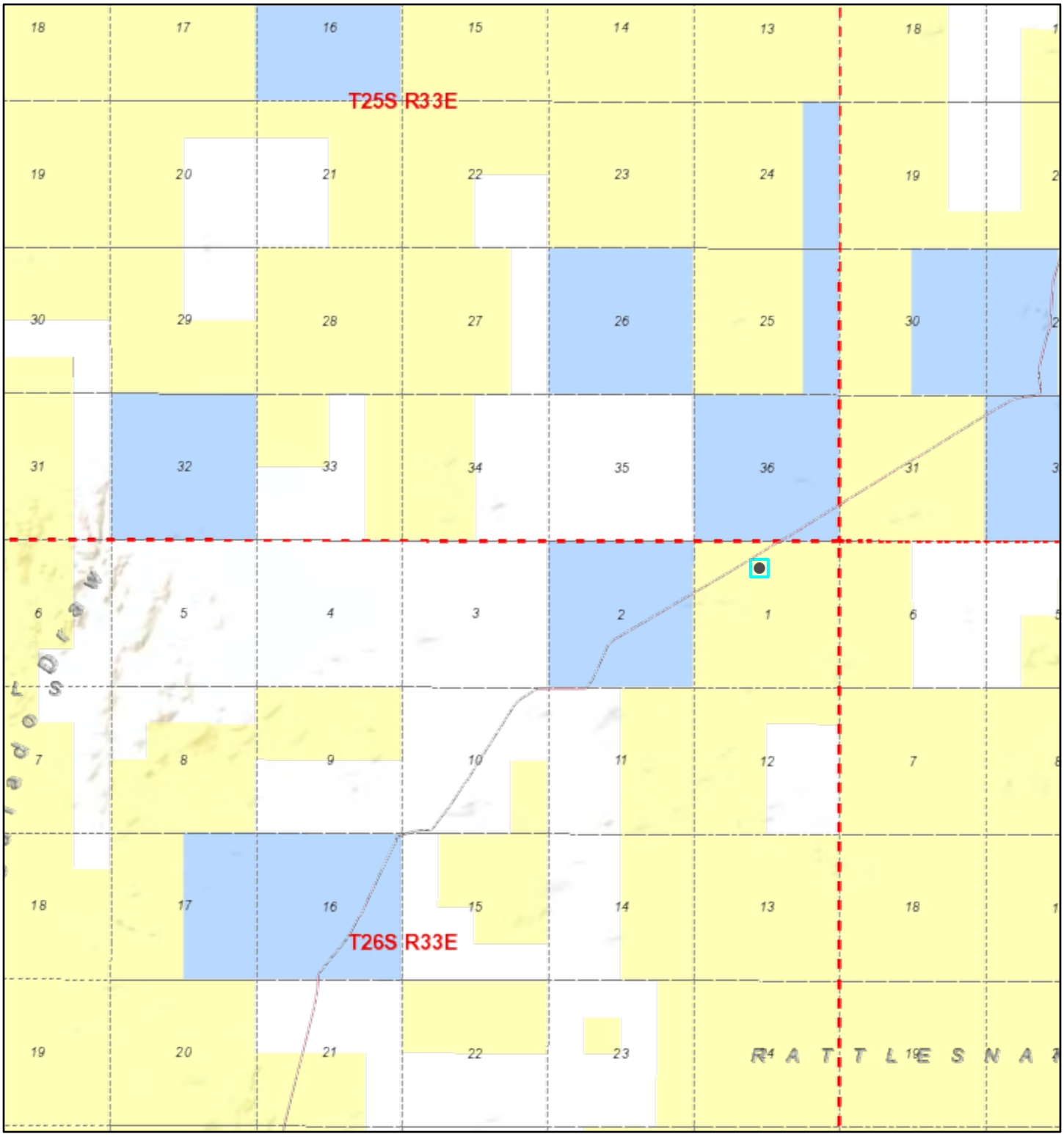
Wetlands

- 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

Active Mines in New Mexico



2020-02-23 11:44:31 AM

1:72,224

0 0.5 1 2 mi

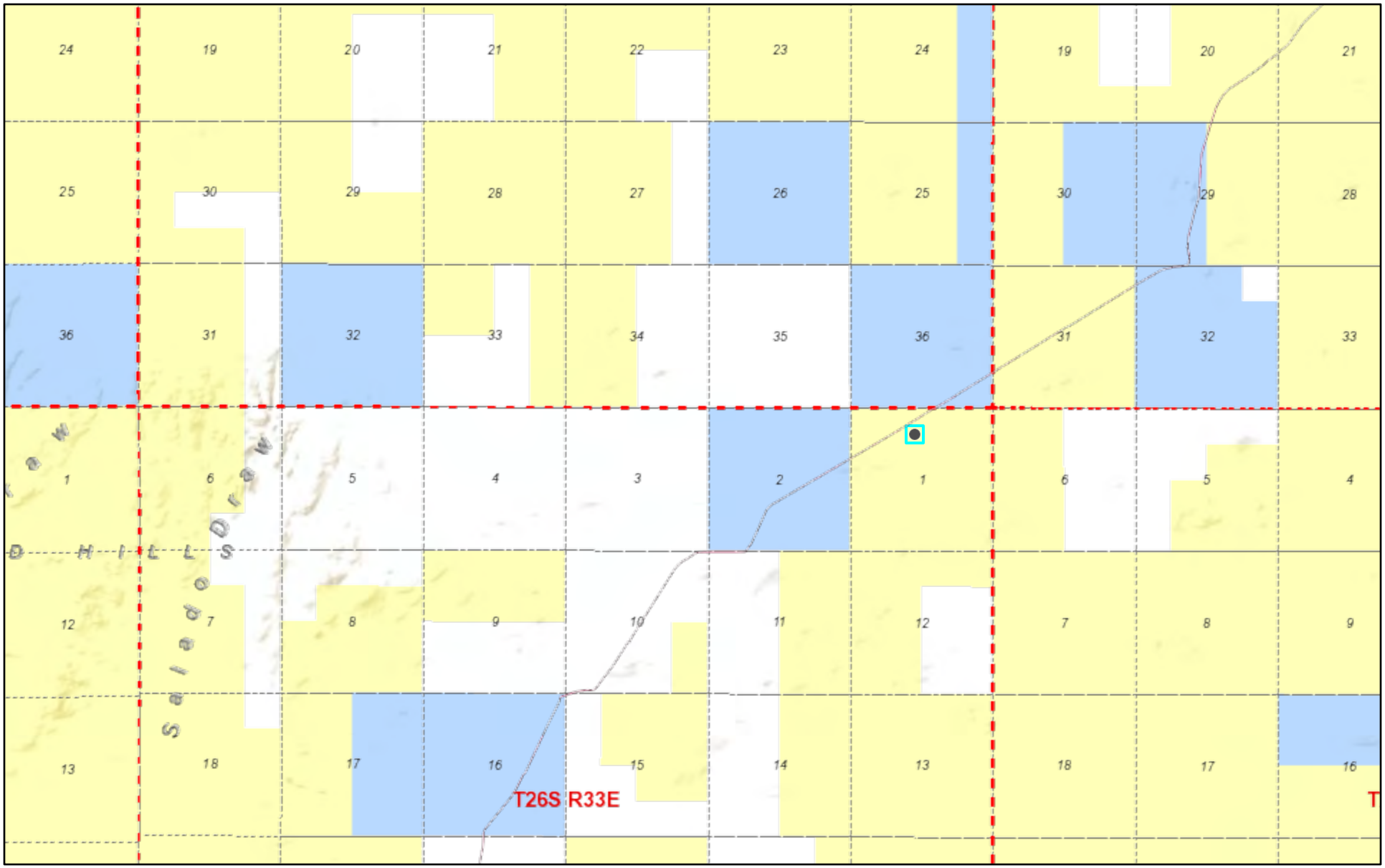
0 0.75 1.5 3 km

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

EMNRD MMD GIS Coordinator

New Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)

Active Mines in New Mexico



2020-02-23 11:44:15 AM

1:72,224

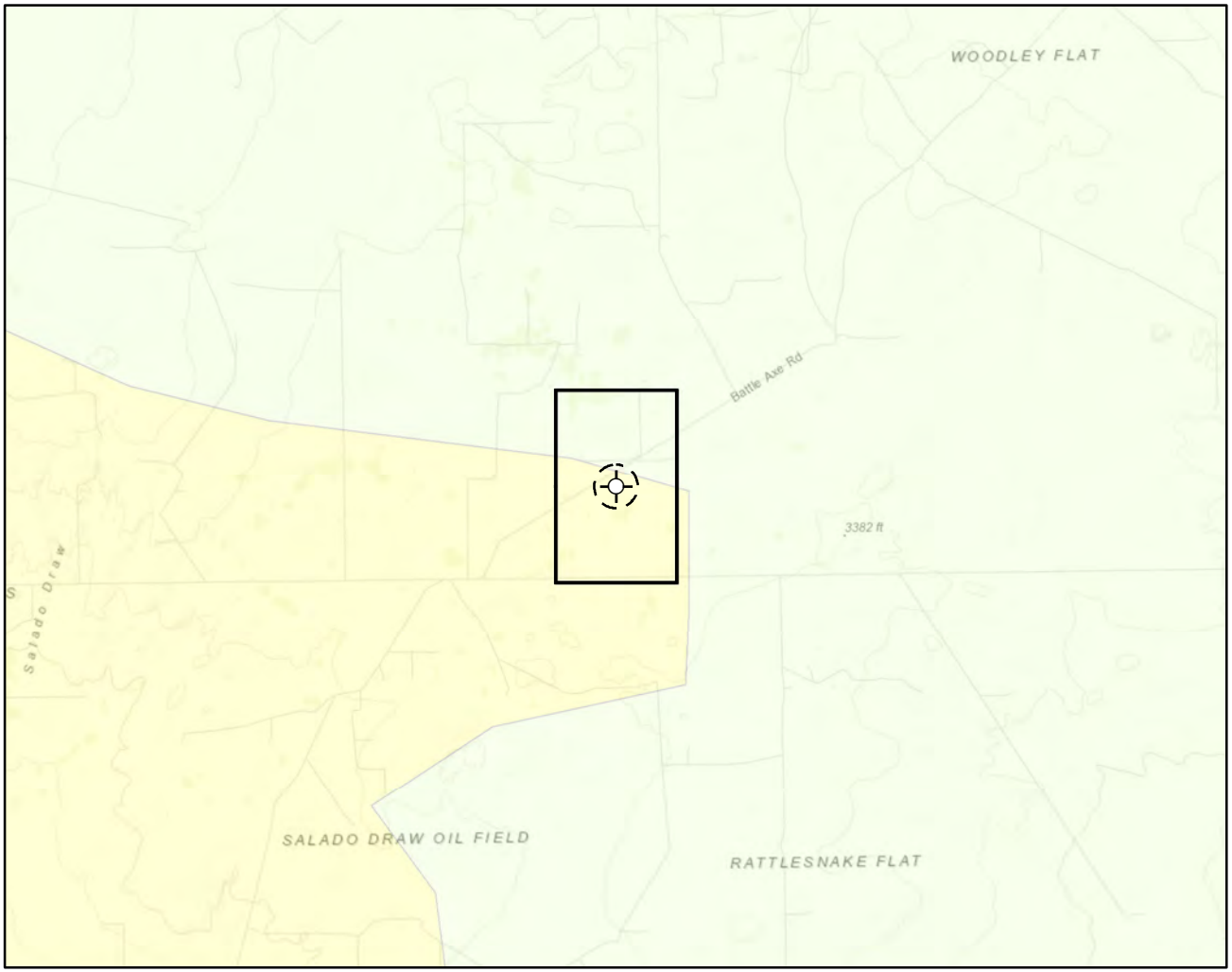
0 0.5 1 2 mi

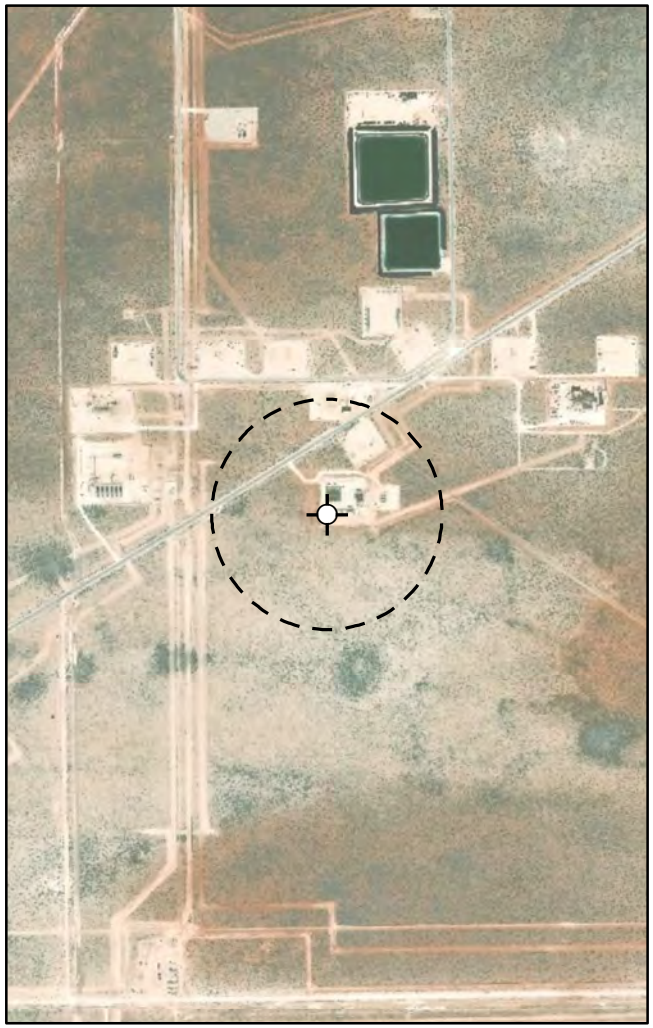
0 0.75 1.5 3 km

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

EMNRD MMD GIS Coordinator

NM Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)





Karst Potential

- Critical
- High
- Medium
- Low

Site

Site Buffer - 1000 ft.

Overview Map

0 0.25 0.5 1 1.5 mi

Detail Map

0 300 600 1,200 ft.

VERTEX

Map Center:
Lat/Long: 32.076608, -103.527142

NAD 1983 UTM Zone 13N
Date: Feb 24/20

N

Karst Potential Map
SeaWolf 1-12 CTB 1

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-001411026 - SeaWolf 1-12 CTB 1\Fig X SeaWolf 1-12 CTB 1 Karst.mxd

National Flood Hazard Layer FIRMette

FEMA

32°4'52.72"N

103°31'55.43"W

103°31'17.97"W

32°4'22.23"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 2/23/2020 at 1:52:13 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Lea County, New Mexico

February 23, 2020

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Lea County, New Mexico.....13
PU—Pyote and maljamar fine sands.....13
SR—Simona-Upton association.....14
References.....17

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

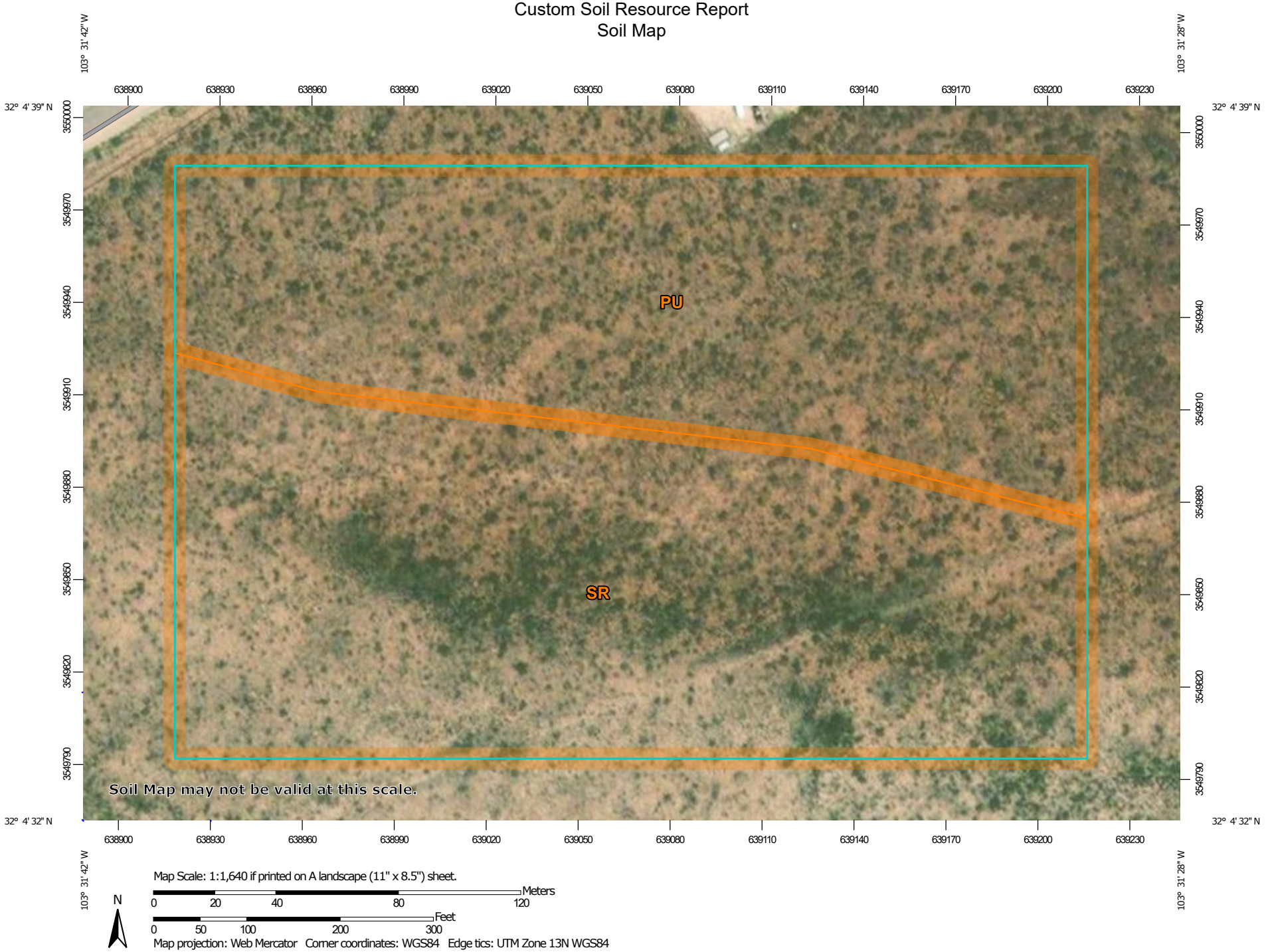
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: 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	6.4	44.9%
SR	Simona-Upton association	7.8	55.1%
Totals for Area of Interest		**14.2**	**100.0%**

Map Unit Descriptions

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

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

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

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

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Lea County, New Mexico

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

SR—Simona-Upton association

Map Unit Setting

National map unit symbol: dmr3
Elevation: 3,000 to 4,400 feet

Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 58 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Simona

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: gravelly fine sandy loam
Bk - 8 to 16 inches: fine sandy loam
Bkm - 16 to 26 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very 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: 50 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Description of Upton

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex

Across-slope shape: Linear
Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: gravelly loam
Bkm - 8 to 18 inches: cemented material
BCk - 18 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 75 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: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow (R042XC025NM)
Hydric soil rating: No

Minor Components

Kimbrough

Percent of map unit: 6 percent
Ecological site: Very Shallow 16-21" PZ (R077CY037TX)
Hydric soil rating: No

Stegall

Percent of map unit: 5 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

Slaughter

Percent of map unit: 4 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

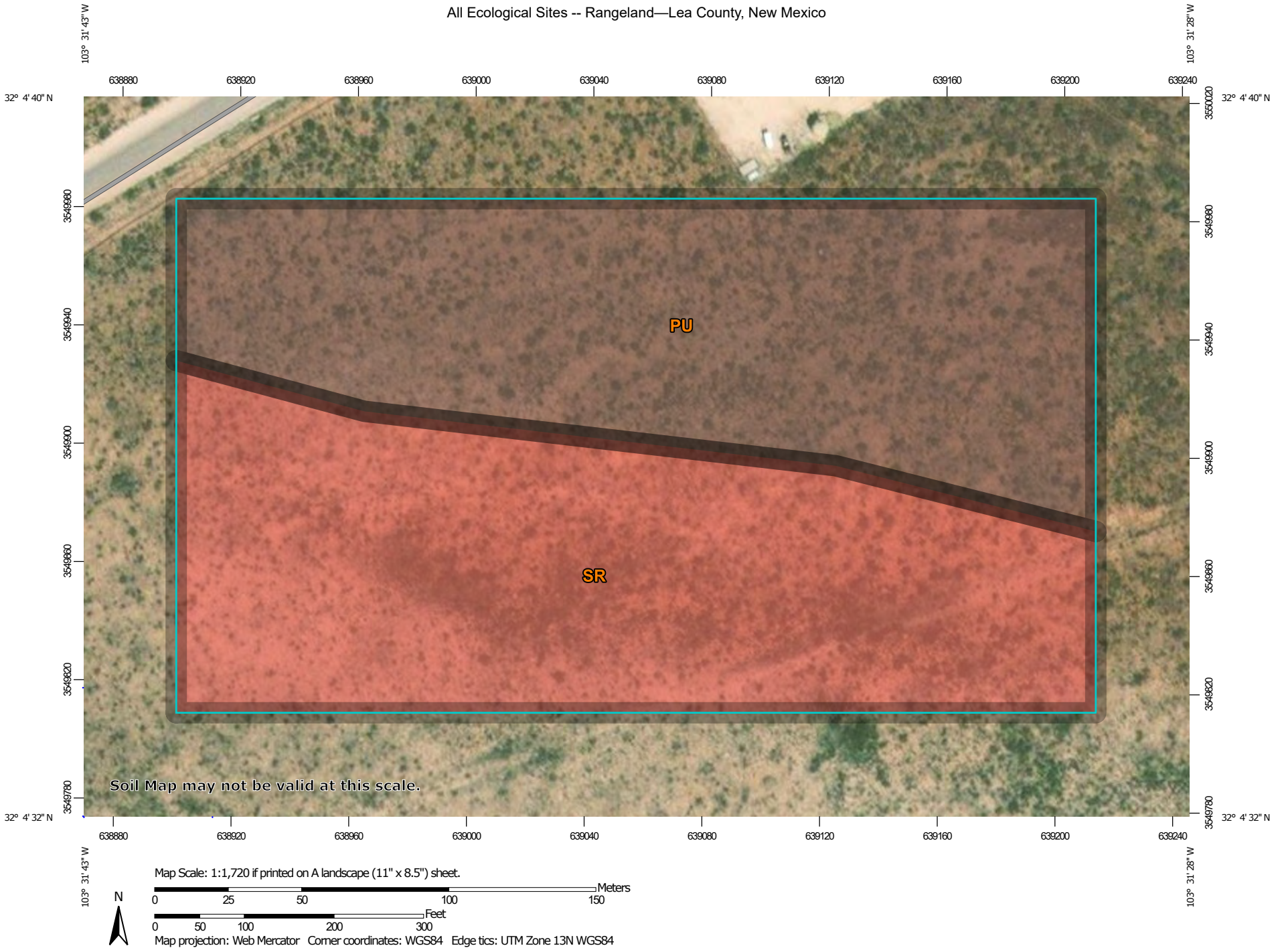
United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

All Ecological Sites -- Rangeland—Lea County, New Mexico



MAP LEGEND

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

Soils

Soil Rating Polygons
- R042XC002NM
- R042XC003NM
- Not rated or not available

Soil Rating Lines
- R042XC002NM
- R042XC003NM
- Not rated or not available

Soil Rating Points
- R042XC002NM
- R042XC003NM
- Not rated or not available

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

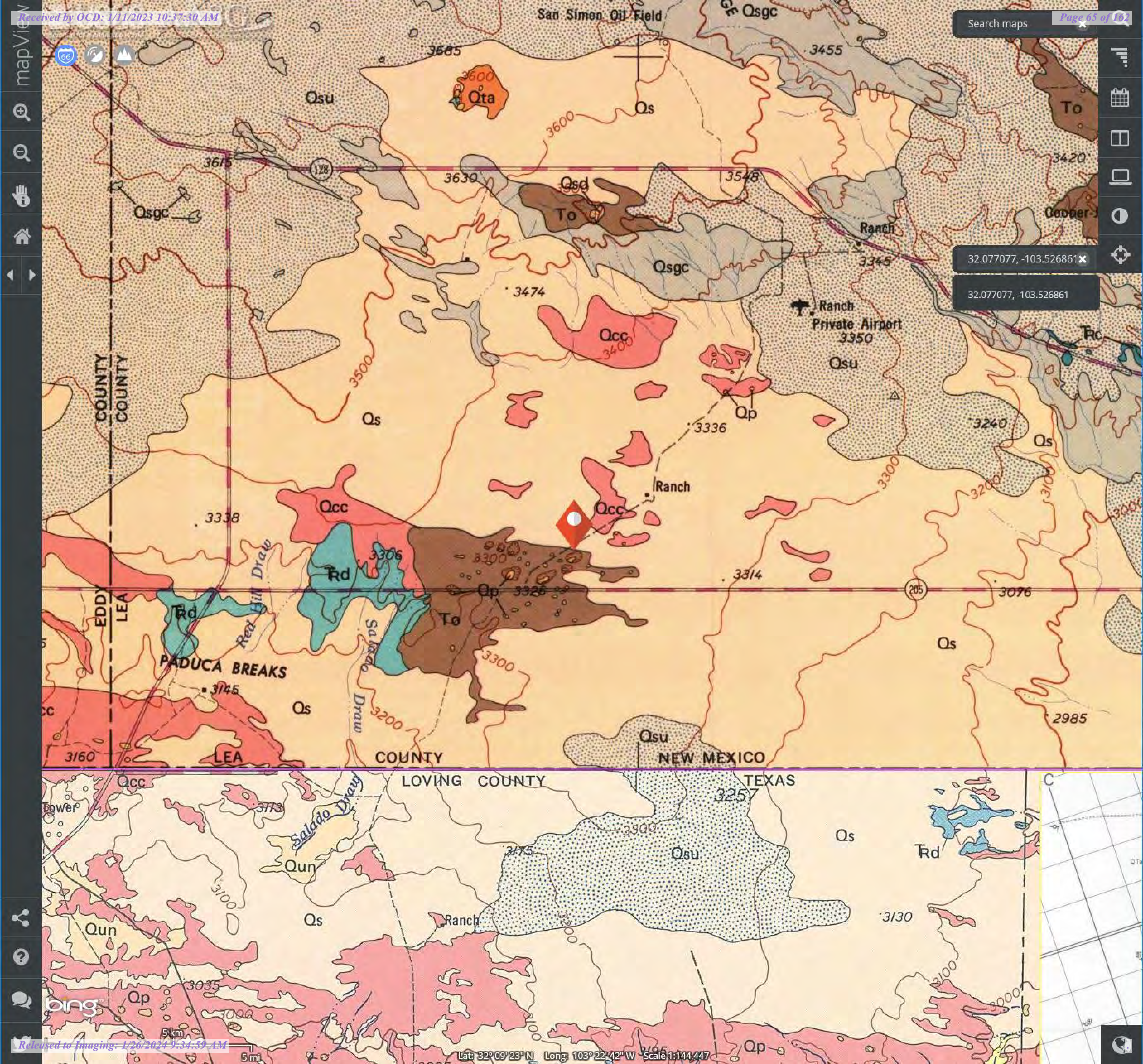
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

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

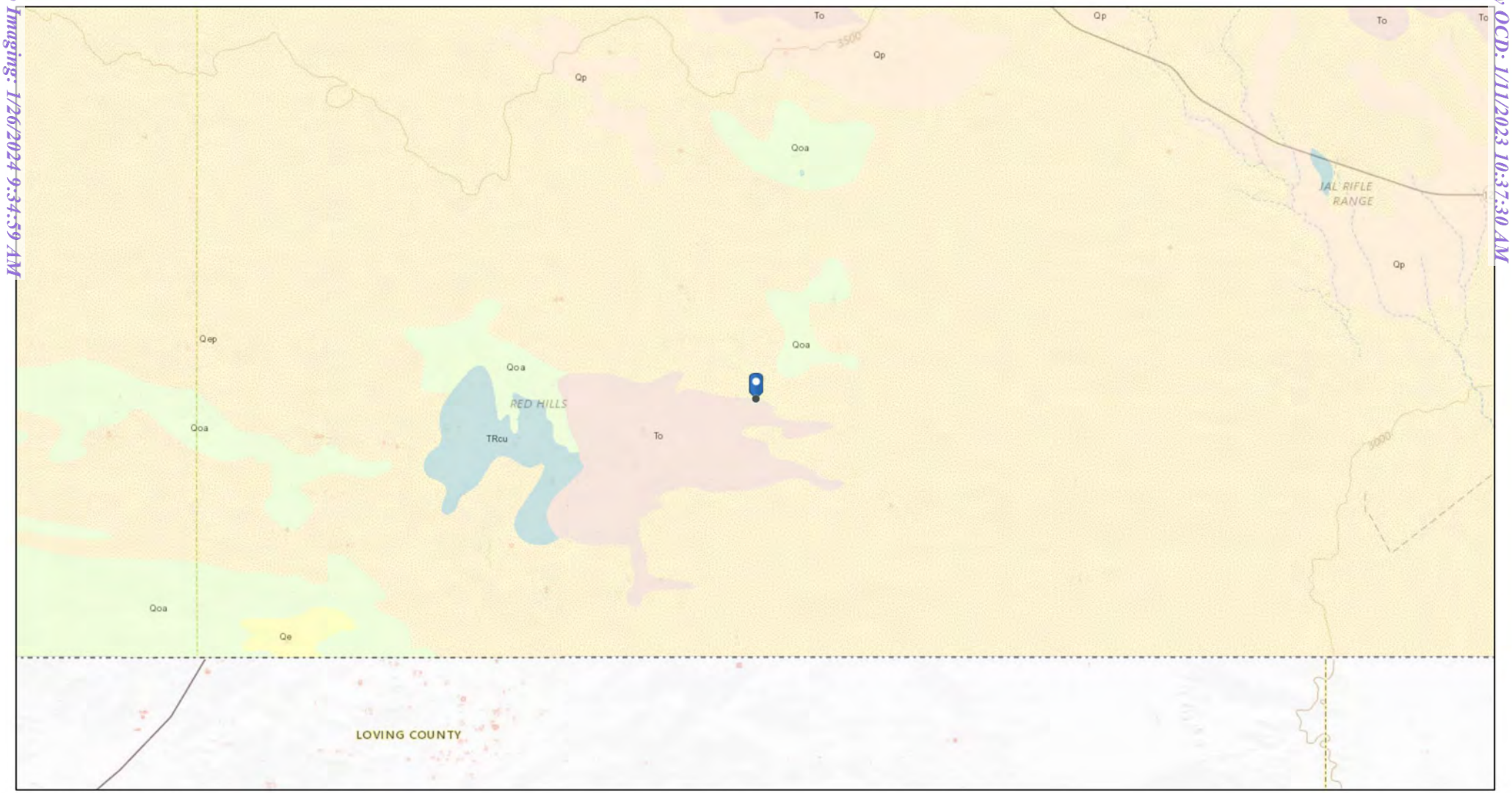
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

All Ecological Sites — Rangeland

Map unit symbol	Map unit name	Component name (percent)	Ecological site	Acres in AOI	Percent of AOI
PU	Pyote and maljamar fine sands	Maljamar (45%)	R042XC003NM — Loamy Sand	6.5	47.9%
		Pyote (45%)	R042XC003NM — Loamy Sand		
		Kermit (10%)	R042XC022NM — Sandhills		
SR	Simona-Upton association	Simona (50%)	R042XC002NM — Shallow Sandy	7.0	52.1%
		Upton (35%)	R042XC025NM — Shallow		
		Kimbrough (6%)	R077CY037TX — Very Shallow 16-21" PZ		
		Stegall (5%)	R077CY028TX — Limy Upland 16-21" PZ		
		Slaughter (4%)	R077CY028TX — Limy Upland 16-21" PZ		
Totals for Area of Interest				**13.5**	**100.0%**


mapView
Search maps
32.077077, -103.526861
32.077077, -103.526861
San Simon Oil Field
Qsgc
Qsu
Qta
Qs
Qsd
To
Qcc
Qp
Qun
Trd
Ranch
Ranch Private Airport
3350
Cooper
Red Hill Draw
Salado Draw
PADUCA BREAKS
EDDY COUNTY
LEA COUNTY
LEA COUNTY
NEW MEXICO
LOVING COUNTY
TEXAS
Tower
bing
5 km
5 mi
Lat: 32°09'23" N Long: 103°22'42" W Scale 1:144,447

SeaWolf 1-12 CTB 1 To Geology



5/26/2020, 10:46:37 AM

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

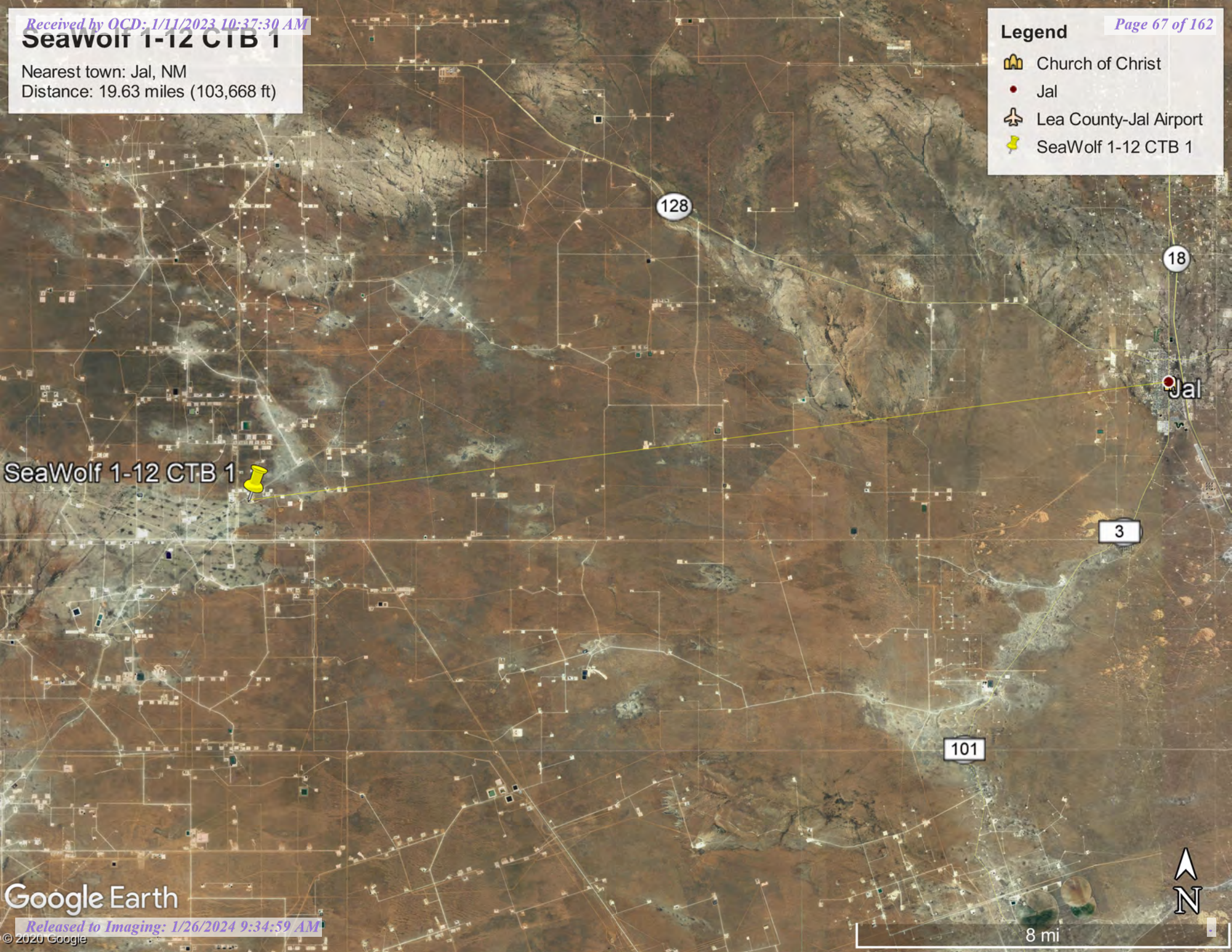
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS

Web AppBuilder for ArcGIS

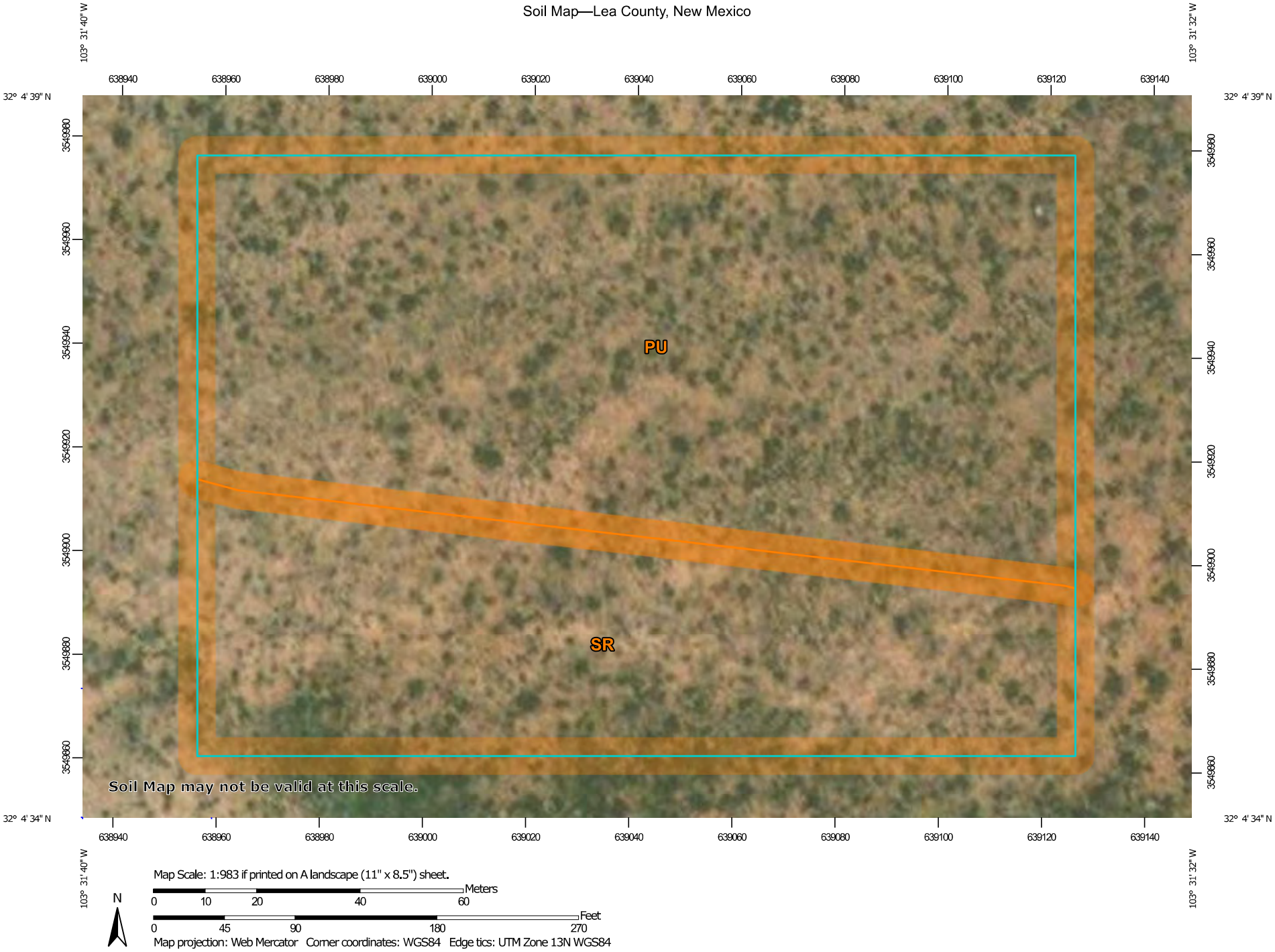
USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line

SeaWolf 1-12 CTB 1

Nearest town: Jal, NM
Distance: 19.63 miles (103,668 ft)



Soil Map—Lea County, New Mexico



Map Scale: 1:983 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PU	Pyote and maljamar fine sands	3.1	63.4%
SR	Simona-Upton association	1.8	36.6%
Totals for Area of Interest		**4.9**	**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

Lea County, New Mexico

SR—Simona-Upton association

Map Unit Setting

National map unit symbol: dmr3
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 58 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Simona

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: gravelly fine sandy loam
Bk - 8 to 16 inches: fine sandy loam
Bkm - 16 to 26 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Very 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: 50 percent
Gypsum, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow Sandy (R042XC002NM)
Hydric soil rating: No

Description of Upton

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: gravelly loam
Bkm - 8 to 18 inches: cemented material
BCk - 18 to 60 inches: very gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 75 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: Very low (about 0.9 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: Shallow (R042XC025NM)
Hydric soil rating: No

Minor Components

Kimbrough

Percent of map unit: 6 percent
Ecological site: Very Shallow 16-21" PZ (R077CY037TX)
Hydric soil rating: No

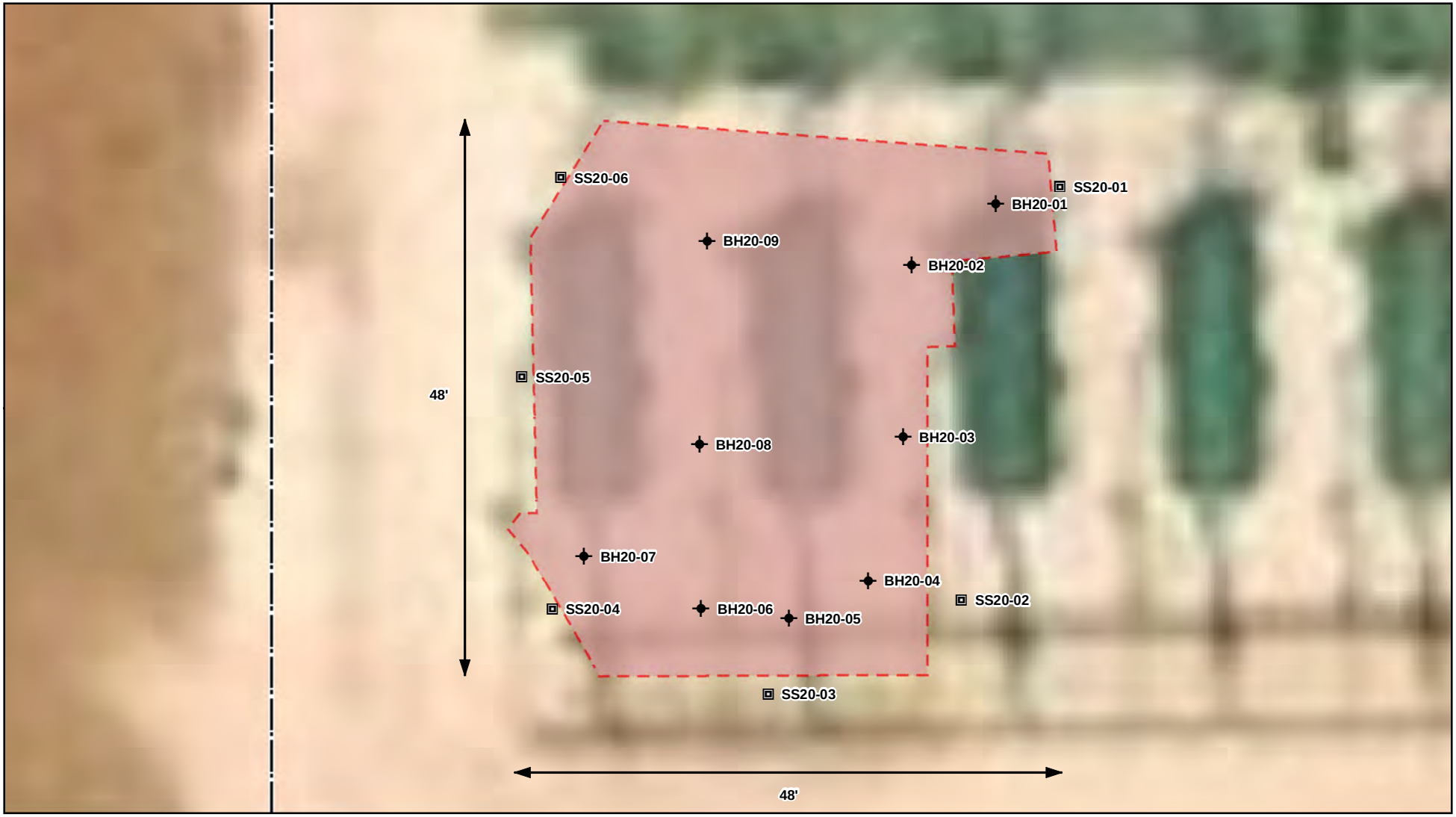
Stegall
Percent of map unit: 5 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

Slaughter
Percent of map unit: 4 percent
Ecological site: Limy Upland 16-21" PZ (R077CY028TX)
Hydric soil rating: No

Data Source Information

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

ATTACHMENT 3



Borehole
Surface Sample
Approximate Lease Boundary
Spill Extent (~ 1700 sq.ft)

VERTEX

0 2.5 5 10 ft

Map Center:
Lat/Long: 32.076612, -103.527205

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

N

Site Schematic and Characterization Sampling Locations - Incident NRM2004353184 SeaWolf 1-12 CTB 1

FIGURE: 1

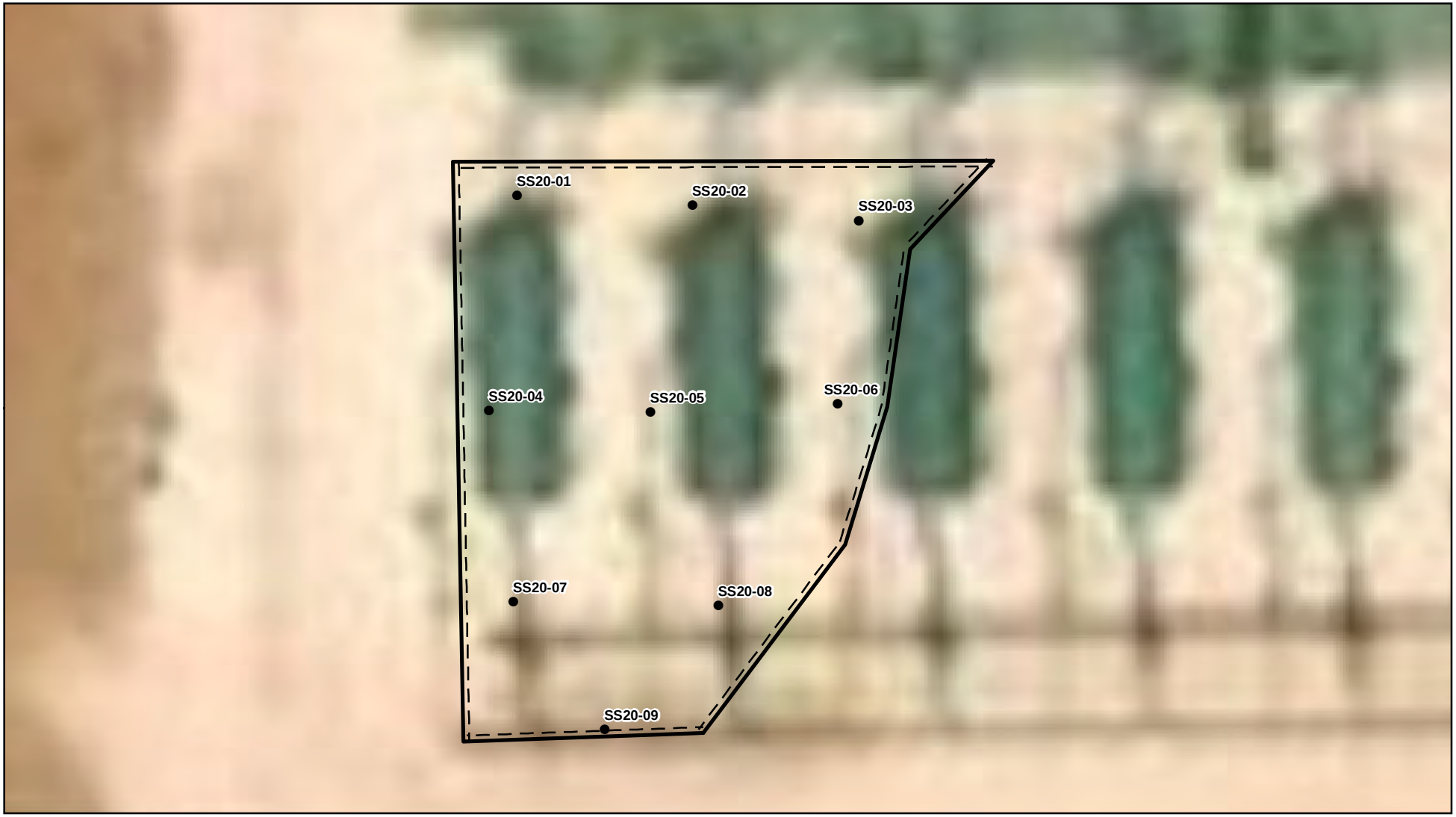
devon

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

Note: Background image from ESRI, 2018.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141026 - SeaWolf 1-12 CTB 1\Fig 1 SeaWolf 1-12 CTB 1 Initial Characterization.mxd



● Soil Sample (0 - 1 feet)

Confirmatory Sampling Area (~1742 sq.ft.)

VERTEX

0 2.5 5 10 ft

Map Center:
Lat/Long: 32.076612, -103.527183

NAD 1983 UTM Zone 13N
Date: Apr 28/20

N

Site Schematic and Confirmatory Sampling Locations - Incident NRM2004353184 SeaWolf 1-12 CTB 1

FIGURE: **2**

devon

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

Note: Background image from ESRI, 2018.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\20E-00141\026 - SeaWolf 1-12 CTB 1\Fig 2 SeaWolf 1-12 CTB 1 Confirmatory Schematic.mxd

ATTACHMENT 4

Daily Site Visit Report

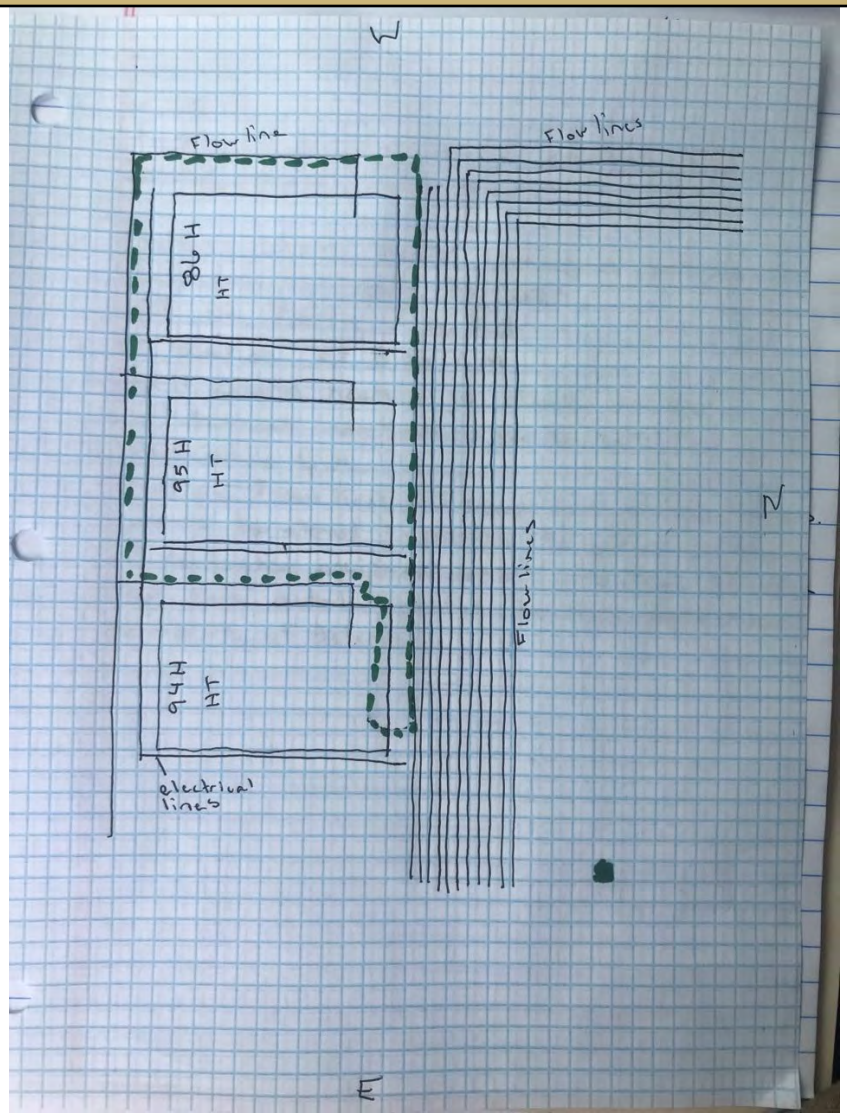
Client:	Devon Energy Corporation	Inspection Date:	2/18/2020
Site Location Name:	SeaWolf 1-12 CTB 1	Report Run Date:	2/19/2020 4:43 PM
Project Owner:	Wes Mathews	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	01/23/2020 - 780 bbl PW Release
Client Contact Phone #:	(575) 748-0176		

Summary of Times	
Left Office	2/18/2020 7:00 AM
Arrived at Site	2/18/2020 8:33 AM
Departed Site	2/18/2020 3:29 PM
Returned to Office	2/18/2020 5:45 AM

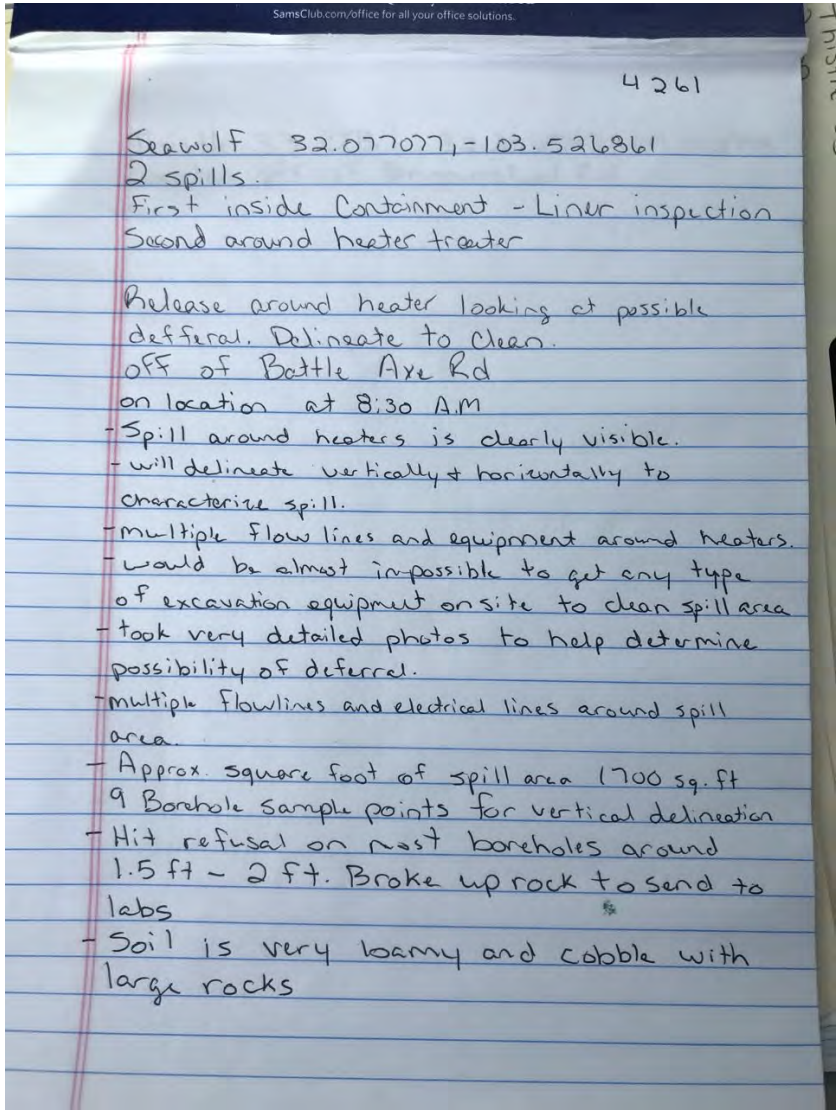
Daily Site Visit Report

VERTEX

Site Sketch

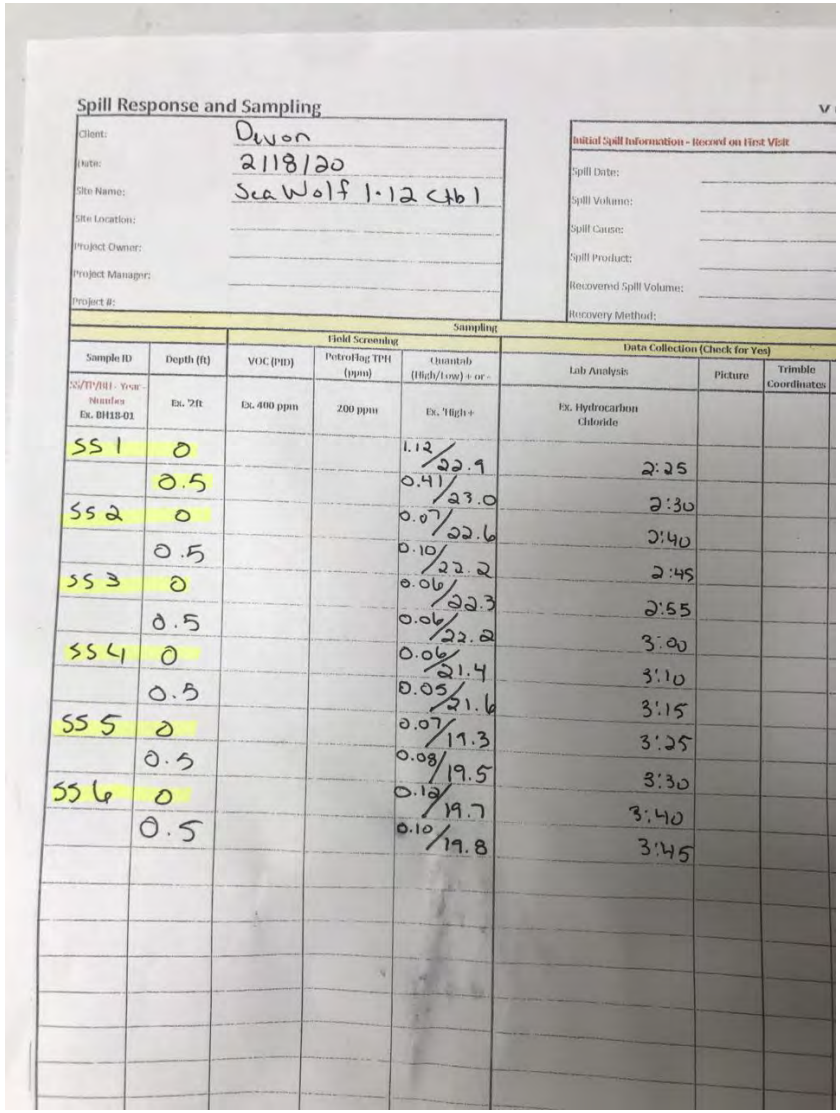


Daily Site Visit Report



Daily Site Visit Report

Daily Site Visit Report



Spill Response and Sampling

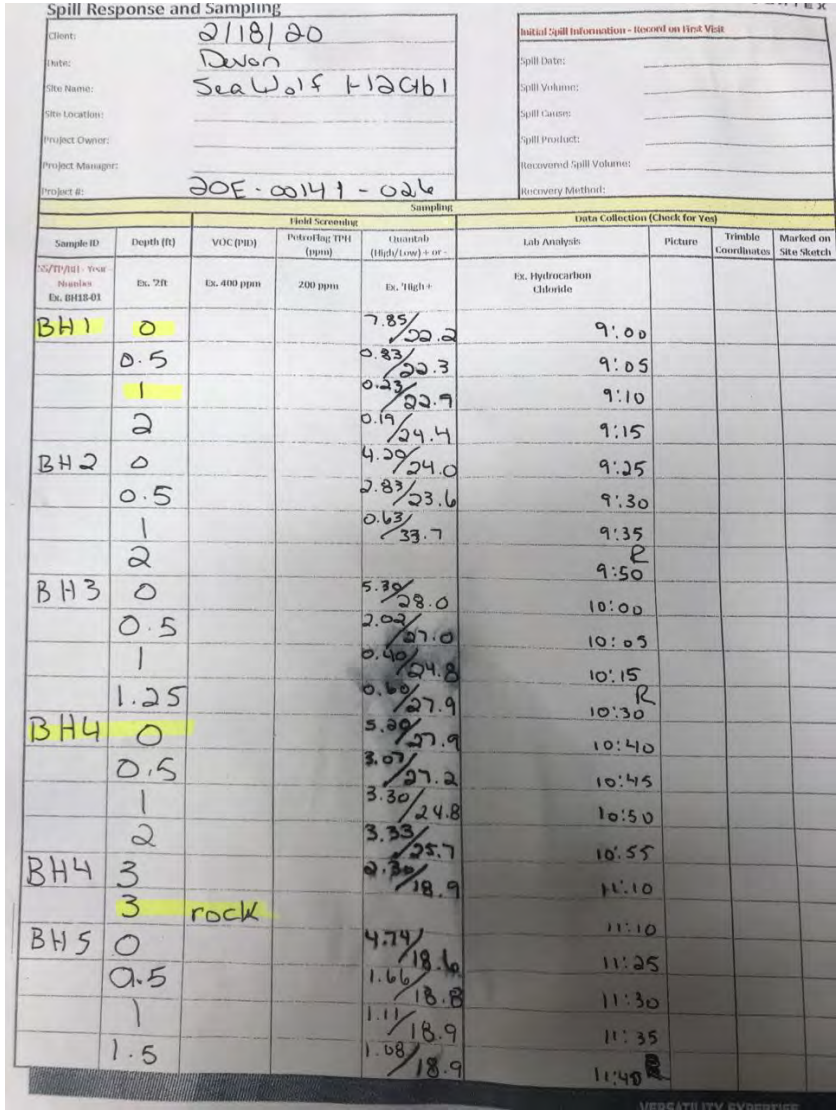
Client: Devon
Date: 2/18/20
Site Name: SeaWolf 1-12 CTB1
Site Location:
Project Owner:
Project Manager:
Project #:

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

Sampling

Sample ID (SS/TP/BH - Year - Number, Ex. BH18-01)	Depth (ft) (Ex. 2ft)	Field Screening: VOC (PID) (Ex. 400 ppm)	Field Screening: PetroFlag TPH (ppm) (200 ppm)	Field Screening: Quantab (High/Low) + or - (Ex. High+)	Data Collection (Check for Yes): Lab Analysis (Ex. Hydrocarbon Chloride)	Data Collection (Check for Yes): Picture	Data Collection (Check for Yes): Trimble Coordinates
SS1	0			1.12/22.9	2:25		
	0.5			0.41/23.0	2:30		
SS2	0			0.07/22.6	2:40		
	0.5			0.10/22.2	2:45		
SS3	0			0.06/22.3	2:55		
	0.5			0.06/22.2	3:00		
SS4	0			0.06/21.4	3:10		
	0.5			0.05/21.6	3:15		
SS5	0			0.07/19.3	3:25		
	0.5			0.08/19.5	3:30		
SS6	0			0.12/19.7	3:40		
	0.5			0.10/19.8	3:45		

Daily Site Visit Report



Spill Response and Sampling

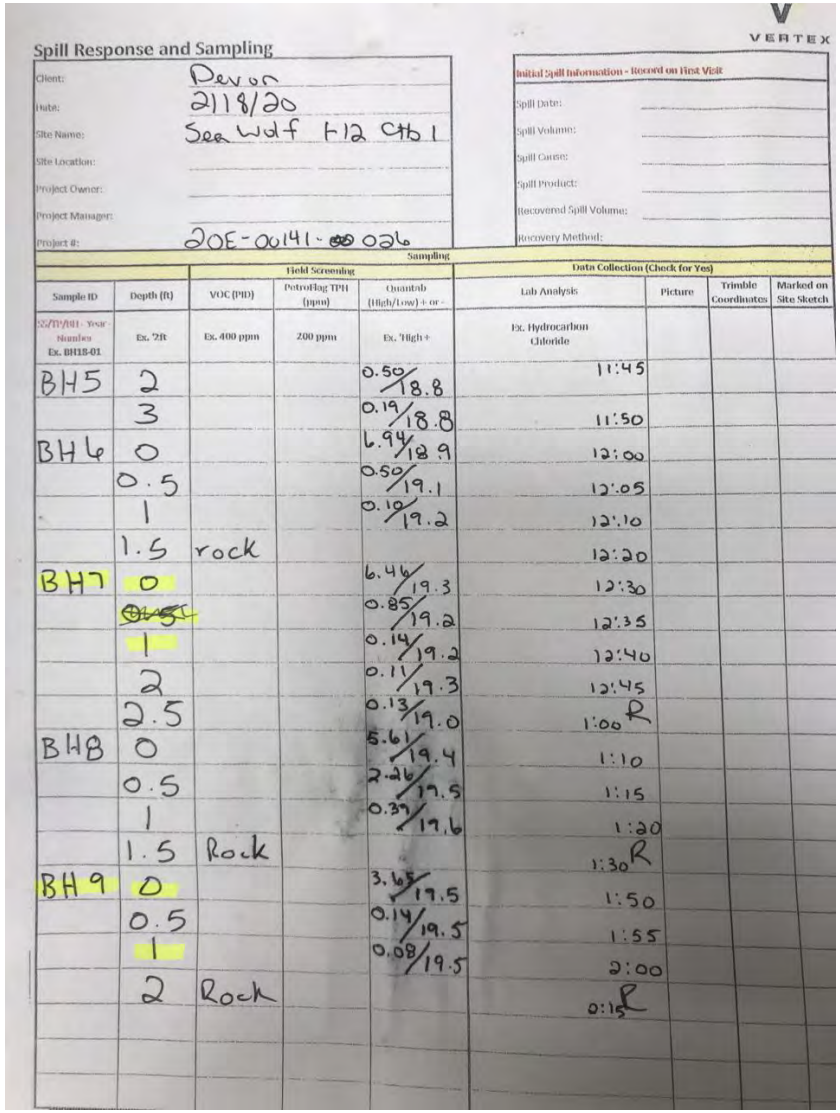
Client: 2/18/20
Date: Devon
Site Name: SeaWolf 1H2H1
Site Location:
Project Owner:
Project Manager:
Project #: 20E-00141-026

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

Sampling

Sample ID	Depth (ft)	Field Screening: VOC (PID)	Field Screening: PetroFlag TPH (ppm)	Field Screening: Quantab (High/Low) + or -	Data Collection (Check for Yes): 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			
BH1	0			7.85/22.2	9:00			
	0.5			0.83/22.3	9:05			
	1			0.23/22.9	9:10			
	2			0.19/24.4	9:15			
BH2	0			4.29/24.0	9:25			
	0.5			2.83/23.6	9:30			
	1			0.63/33.7	9:35			
	2				9:50 R			
BH3	0			5.39/28.0	10:00			
	0.5			2.02/27.0	10:05			
	1			0.40/24.8	10:15			
	1.25			0.60/27.9	10:30 R			
BH4	0			5.09/27.9	10:40			
	0.5			3.07/27.2	10:45			
	1			3.30/24.8	10:50			
	2			3.33/25.7	10:55			
BH4	3			2.30/18.9	11:10			
	3	rock			11:10			
BH5	0			4.74/18.6	11:25			
	0.5			1.66/18.8	11:30			
	1			1.11/18.9	11:35			
	1.5			1.08/18.9	11:40 R			

Daily Site Visit Report



Spill Response and Sampling

VERTEX

Client:	Devon
Date:	2/18/20
Site Name:	See Wdf H12 Ctb 1
Site Location:	
Project Owner:	
Project Manager:	
Project #:	20E-00141-~~00~~026

Initial Spill Information - Record on First Visit

Spill Date:	
Spill Volume:	
Spill Cause:	
Spill Product:	
Recovered Spill Volume:	
Recovery Method:	

Sampling

Sample ID	Depth (ft)	Field Screening: VOC (PID)	Field Screening: PetroFlag TPH (ppm)	Field Screening: Quantab (High/Low) + or -	Data Collection (Check for Yes): Lab Analysis	Picture	Trimble Coordinates	Marked on Site Sketch
S/T/R/M - Year - Number Ex. BH18-01	Ex. '2ft	Ex. 400 ppm	200 ppm	Ex. 'High +	Ex. Hydrocarbon Chloride			
BH5	2			0.50/18.8	11:45			
	3			0.19/18.8	11:50			
BH6	0			6.94/18.9	12:00			
	0.5			0.50/19.1	12:05			
	1			0.10/19.2	12:10			
	1.5	rock			12:20			
BH7	0			6.46/19.3	12:30			
	~~0.5~~			0.85/19.2	12:35			
	1			0.14/19.2	12:40			
	2			0.11/19.3	12:45			
	2.5			0.13/19.0	1:00 R			
BH8	0			5.61/19.4	1:10			
	0.5			2.26/19.5	1:15			
	1			0.39/19.6	1:20			
	1.5	Rock			1:30 R			
BH9	0			3.65/19.5	1:50			
	0.5			0.14/19.5	1:55			
	1			0.08/19.5	2:00			
	2	Rock			0:15 R			

Daily Site Visit Report

Summary of Daily Operations

9:04 Arrive on location safety paperwork Delineation vertically and horizontally around heaters

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: West

Spill area under and around equipment

Viewing Direction: South

Spill area between heaters 95h and 86h

Viewing Direction: South

Spill area between heaters 94h and 95h

Viewing Direction: East

Spill area under flow lines going to heaters in front of heaters

Daily Site Visit Report

Viewing Direction: East	**Viewing Direction**: North
	
Spill area on south side of heaters under equipment	Spill area on south side of heaters and in between heaters

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Monica Peppin

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/22/2020
Site Location Name:	SeaWolf 1-12 CTB 1	Report Run Date:	2/23/2020 2:01 AM
Project Owner:	Wes Mathews	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	01/23/2020 - 780 bbl PW Release
Client Contact Phone #:	(575) 748-0176		

Summary of Times

Left Office	2/22/2020 2:30 PM
Arrived at Site	2/22/2020 3:55 PM
Departed Site	2/22/2020 4:42 PM
Returned to Office	2/22/2020 6:30 PM

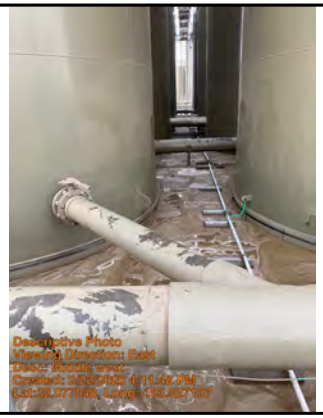
Summary of Daily Operations

Next Steps & Recommendations

1. Await repair and testing
2. This was the Large battery

Daily Site Visit Report

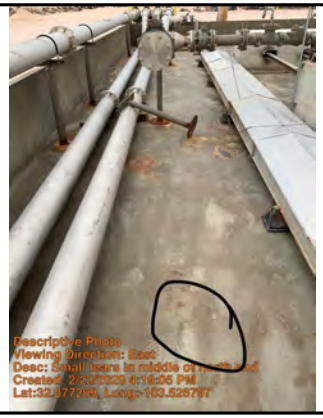
Site Photos

Viewing Direction: North	**Viewing Direction**: East
	
Sw corner	Sw
Viewing Direction: South	**Viewing Direction**: East
	
Middle West	Middle west

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: East
	
Middle west	Crack between 419 and 420
Viewing Direction: South	**Viewing Direction**: East
	
Nw	Nw

Daily Site Visit Report

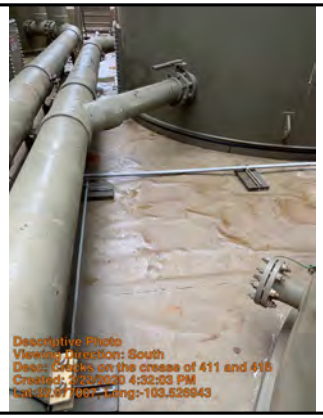
Viewing Direction: East	**Viewing Direction**: East
	
Small tears in Middle of N end	Small tears in middle of north end
Viewing Direction: Northeast	**Viewing Direction**: West
	
Small cracking near 404 and 408 in north per	Ne end

Daily Site Visit Report

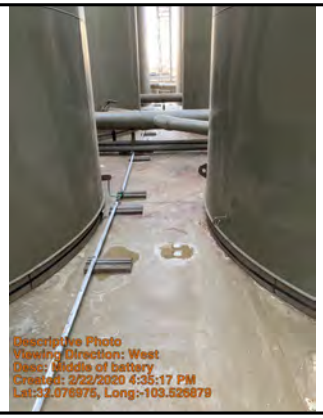
Viewing Direction: South	**Viewing Direction**: North
	
Ne end	Middle East
Viewing Direction: West	**Viewing Direction**: South
	
Middle East	Middle East

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: West
	
Se end	Se

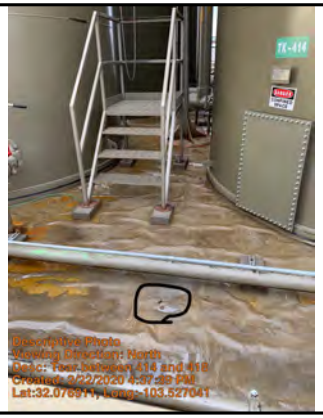
Viewing Direction: Southeast	**Viewing Direction**: South
	
Small cracks by 416 and 420	Cracks on the crease of 411 and 416

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: West
	
Middle of battery	Middle of battery

Viewing Direction: South	**Viewing Direction**: East
	
Middle	Middle

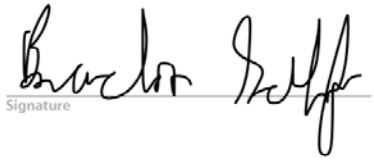
Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
Tear between 414 and 418	Tear through whole liner near 414

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brandon Schafer

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	2/22/2020
Site Location Name:	SeaWolf 1-12 CTB 1	Report Run Date:	2/23/2020 2:01 AM
Project Owner:	Wes Mathews	File (Project) #:	20E-00141
Project Manager:	Natalie Gordon	API #:	
Client Contact Name:	Amanda Davis	Reference	01/23/2020 - 780 bbl PW Release
Client Contact Phone #:	(575) 748-0176		

Summary of Times

Left Office	2/22/2020 4:42 PM
Arrived at Site	2/22/2020 4:42 PM
Departed Site	2/22/2020 5:00 PM
Returned to Office	2/22/2020 6:30 PM

Summary of Daily Operations

16:49 Small liner inspection

Next Steps & Recommendations

1

Daily Site Visit Report

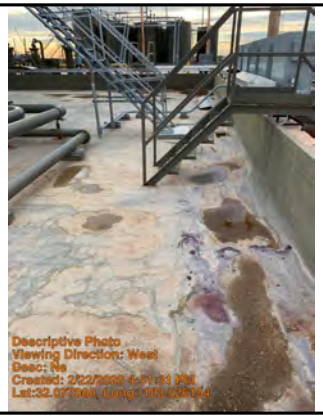
Site Photos

Viewing Direction: North	**Viewing Direction**: East
	
Sw	Sw
Viewing Direction: Northwest	**Viewing Direction**: East
	
Tear near sw corner	Tears near middle South end

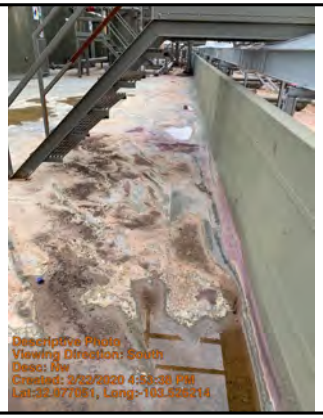
Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: West
	
Se	SE
Viewing Direction: North	**Viewing Direction**: West
	
Middle East	Middle East

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
Middle East	Ne corner
Viewing Direction: West	**Viewing Direction**: East
	
Ne	Tears near middle north

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: East
	
Nw	Nw

Viewing Direction: North	**Viewing Direction**: South
	
Small tear	Potential small tear in crease near middle west side

Daily Site Visit Report

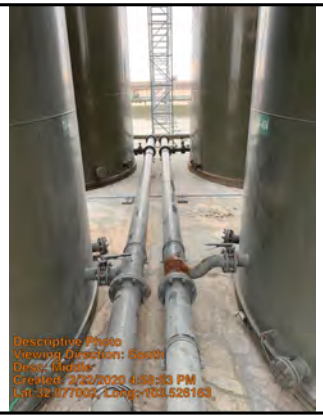
Viewing Direction: North	**Viewing Direction**: East
	
Middle west	Middle west

Viewing Direction: South	**Viewing Direction**: North
	
Middle west	Middle

Daily Site Visit Report

Viewing Direction: East

Middle

Viewing Direction: South

Middle

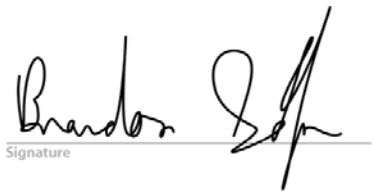
Viewing Direction: West

Middle

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Brandon Schafer

Signature: 

ATTACHMENT 5

Client Name: Devon Energy Production Company
Site Name: Sea Wolf 1-12 CTB 1
NM OCD Incident Tracking Numbers: NCE2003556136; NRM2004353184
Project #: 20E-00141-026
Lab Report: 2002834

Table 2. Characterization Sampling Field Screening and Laboratory Results - Depth to Groundwater >100 ft

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (Petro Flag)	Inorganics (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)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH 20-01	0	February 18, 2020	-	-	11,179	<0.023	<0.211	<4.7	<9.7	<49	<14.4	<63.4	10,000
BH 20-01	0.5	February 18, 2020	-	-	1,042	-	-	-	-	-	-	-	-
BH 20-01	1	February 18, 2020	-	-	151	<0.024	<0.219	<4.8	<9.4	<47	<14.2	<61.2	110
BH 20-01	2	February 18, 2020	-	-	28	-	-	-	-	-	-	-	-
BH 20-02	0	February 18, 2020	-	-	5,833	-	-	-	-	-	-	-	-
BH 20-02	0.5	February 18, 2020	-	-	3,873	-	-	-	-	-	-	-	-
BH 20-02	1	February 18, 2020	-	-	260	-	-	-	-	-	-	-	-
BH 20-02	2	February 18, 2020	-	-	rock	-	-	-	-	-	-	-	-
BH 20-03	0	February 18, 2020	-	-	7,247	-	-	-	-	-	-	-	-
BH 20-03	0.5	February 18, 2020	-	-	2,556	-	-	-	-	-	-	-	-
BH 20-03	1	February 18, 2020	-	-	314	-	-	-	-	-	-	-	-
BH 20-03	1.25	February 18, 2020	-	-	468	-	-	-	-	-	-	-	-
BH 20-04	0	February 18, 2020	-	-	7,107	<0.024	<0.212	<4.7	<9.9	<49	<14.6	<63.6	6,200
BH 20-04	0.5	February 18, 2020	-	-	4,063	-	-	-	-	-	-	-	-
BH 20-04	1	February 18, 2020	-	-	4,499	-	-	-	-	-	-	-	-
BH 20-04	2	February 18, 2020	-	-	4,504	-	-	-	-	-	-	-	-
BH 20-04	3	February 18, 2020	-	-	3,311	<0.025	<0.221	<4.9	<18	<88	<22.9	<110.9	2,100
BH 20-04	3	February 18, 2020	-	-	rock	-	-	-	-	-	-	-	-
BH 20-05	0	February 18, 2020	-	-	6,846	-	-	-	-	-	-	-	-
BH 20-05	0.5	February 18, 2020	-	-	2,392	-	-	-	-	-	-	-	-
BH 20-05	1	February 18, 2020	-	-	1,594	-	-	-	-	-	-	-	-
BH 20-05	1.5	February 18, 2020	-	-	1,551	-	-	-	-	-	-	-	-
BH 20-05	2	February 18, 2020	-	-	718	-	-	-	-	-	-	-	-
BH 20-05	3	February 18, 2020	-	-	270	-	-	-	-	-	-	-	-
BH 20-06	0	February 18, 2020	-	-	10,008	-	-	-	-	-	-	-	-
BH 20-06	0.5	February 18, 2020	-	-	705	-	-	-	-	-	-	-	-
BH 20-06	1	February 18, 2020	-	-	123	-	-	-	-	-	-	-	-
BH 20-06	1.5	February 18, 2020	-	-	rock	-	-	-	-	-	-	-	-
BH 20-07	0	February 18, 2020	-	-	9,298	<0.023	<0.210	<4.7	<9.5	<48	<14.2	<62.2	10,000
BH 20-07	0.5	February 18, 2020	-	-	1,206	-	-	-	-	-	-	-	-
BH 20-07	1	February 18, 2020	-	-	181	<0.025	<0.221	<4.9	<9.1	<45	<14.0	<59.0	<60
BH 20-07	2	February 18, 2020	-	-	133	-	-	-	-	-	-	-	-
BH 20-07	2.5	February 18, 2020	-	-	175	-	-	-	-	-	-	-	-
BH 20-08	0	February 18, 2020	-	-	8,067	-	-	-	-	-	-	-	-
BH 20-08	0.5	February 18, 2020	-	-	3,228	-	-	-	-	-	-	-	-
BH 20-08	1	February 18, 2020	-	-	524	-	-	-	-	-	-	-	-
BH 20-08	1.5	February 18, 2020	-	-	rock	-	-	-	-	-	-	-	-
BH 20-09	0	February 18, 2020	-	-	5,234	<0.024	<0.212	<4.7	490	230	490	720	5,600
BH 20-09	0.5	February 18, 2020	-	-	168	-	-	-	-	-	-	-	-
BH 20-09	1	February 18, 2020	-	-	81	<0.025	<0.222	<4.9	<9.4	<47	<14.3	<61.3	<60
BH 20-09	2	February 18, 2020	-	-	rock	-	-	-	-	-	-	-	-
SS 20-01	0	February 18, 2020	-	-	1,435	<0.024	<0.215	<4.8	<9.1	<45	<13.9	<58.9	1,100
SS 20-01	0.5	February 18, 2020	-	-	406	<0.024	<0.212	<4.7	<9.9	<49	<14.6	<63.6	420
SS 20-02	0	February 18, 2020	-	-	<0	<0.024	<0.213	<4.7	<9.8	<49	<14.5	<63.5	<60
SS 20-02	0.5	February 18, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS 20-03	0	February 18, 2020	-	-	<0	<0.024	<0.216	<4.8	<8.9	<44	<13.7	<57.7	<60
SS 20-03	0.5	February 18, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS 20-04	0	February 18, 2020	-	-	<0	<0.023	<0.207	<4.6	<9.4	<47	<14.0	<61.0	<60
SS 20-04	0.5	February 18, 2020	-	-	<0	-	-	-	-	-	-	-	-
SS 20-05	0	February 18, 2020	-	-	75	<0.023	<0.208	<4.6	<9.2	<46	<13.8	<59.8	<60
SS 20-05	0.5	February 18, 2020	-	-	81	-	-	-	-	-	-	-	-
SS 20-06	0	February 18, 2020	-	-	130	<0.024	<0.213	<4.7	<9.4	<47	<14.1	<61.1	<60
SS 20-06	0.5	February 18, 2020	-	-	97	-	-	-	-	-	-	-	-

"-" - Not applicable/assessed

Bold and shaded indicates exceedance outside of applied action level

Client Name: Devon Energy Production Company
Site Name: Sea Wolf 1-12 CTB 1
NM OCD Incident Tracking Numbers: NCE2003556136; NRM2004353184
Project #: 20E-00141-026
Lab Report: 2004B34

Table 3. Confirmatory Sampling Laboratory Results - Depth to Groundwater >100 ft

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SS20-01	0-1	April 24, 2020	<0.025	<0.222	<4.9	<9.7	<49	<14.6	<63.6	100
SS20-02	0-1	April 24, 2020	<0.024	<0.217	<4.8	<9.9	<50	<14.7	<64.7	5,100
SS20-03	0-1	April 24, 2020	<0.025	<0.224	<5.0	<9.8	<49	<14.8	<63.8	3,700
SS20-04	0-1	April 24, 2020	<0.024	<0.213	<4.7	<9.7	<48	<14.4	<62.4	4,400
SS20-05	0-1	April 24, 2020	<0.025	<0.222	<4.9	<9.8	<49	<14.7	<63.7	4,900
SS20-06	0-1	April 24, 2020	<0.024	<0.217	<4.8	<9.7	<48	<14.5	<62.5	8,400
SS20-07	0-1	April 24, 2020	<0.025	<0.222	<4.9	<9.1	<45	<14	<59.0	2,400
SS20-08	0-1	April 24, 2020	<0.024	<0.219	<4.9	<9.7	<48	<14.6	<62.6	980
SS20-09	0-1	April 24, 2020	<0.024	<0.219	<4.9	<9.2	<46	<14.1	<60.1	2,500

"-" - Not applicable/assessed
Bold and shaded indicates exceedance outside of applied action level

ATTACHMENT 6

Natalie Gordon

From: Natalie Gordon
Sent: Wednesday, February 19, 2020 4:37 PM
To: emnrd-ocd-district1spills@state.nm.us; blm_nm_cfo_spill@blm.gov; jamos@blm.gov; Mike Bratcher (mike.bratcher@state.nm.us); ramona.marcus@state.nm.us
Cc: Bynum, Tom (Contract); Wesley. Mathews@dvn. com (Wesley.Mathews@dvn.com); Dennis Williams (DWilliams@vertex.ca)
Subject: SeaWolf 1-12 CTB 1; DOR 01/23/2020 48-hr notification of liner inspection

All:

Please accept this email as 48-hour notification that Vertex Resource Services will conduct a liner inspection at SeaWolf 1-12 CTB 1 to close out the release incident that occurred on January 23, 2020, where 780 bbls of produced water were released into the tank battery lined secondary containment. The incident tracking number for this release is still to be assigned.

On Saturday, February 22, 2020, at approximately 10:00 a.m., Austin Harris of Vertex will be onsite to perform the liner inspection. He can be reached at (432)250-5003. If you need directions to the site, please do not hesitate to contact him.

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

Thank you,
Natalie

Natalie Gordon

From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Tuesday, April 21, 2020 1:29 PM
To: Natalie Gordon
Subject: Fwd: SeaWolf 1-12 CTB 1 - 48-hr Notification of Liner Inspection/Confirmatory Sampling

---------- Forwarded message ---------
From: **Dhugal Hanton** <vertexresourcegroupusa@gmail.com>
Date: Tue, Apr 21, 2020 at 1:27 PM
Subject: SeaWolf 1-12 CTB 1 - 48-hr Notification of Liner Inspection/Confirmatory Sampling
To: Bratcher, Mike, EMNRD <Mike.Bratcher@state.nm.us>, EMNRD-OCD-District1spills <emnrd-ocd-district1spills@state.nm.us>, <blm_nm_cfo_spill@blm.gov>, Kelsey <KWade@blm.gov>, <Jamos@blm.gov>, <ramona.marcus@state.nm.us>
Cc: <Lupe.Carrasco@dvn.com>, <amanda.davis@dvn.com>, <tom.bynum@dvn.com>, <wesley.mathews@dvn.com>

All,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled confirmatory sampling and a liner inspection to be conducted at SeaWolf 1-12 CTB 1 for the following two release:

NCE2003556136 - DOR: January 23, 2020
NRM2004353184 - DOR: February 9, 2020

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

On Friday, April 24, 2020 at approximately 9:30 a.m., Kevin Smith of Vertex will be onsite to perform a liner inspection and collect confirmatory samples at SeaWolf 1-12 CTB. Kevin can be reached at 575-988-0871. If you need directions to the site, please do not hesitate to contact him. If you have any questions or concerns regarding this notification, please give me a call at 505-506-0040.

Thank you,
Natalie

Natalie Gordon
Project Manager

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

P 575.725.5001 ext 709
C 505.506.0040
F

www.vertex.ca

Natalie Gordon

From: Natalie Gordon
Sent: Thursday, April 16, 2020 4:57 PM
To: Carrasco, Lupe
Cc: Bynum, Tom (Contract); Mathews, Wesley
Subject: RE: [EXTERNAL] RE: Gaucho #006
Attachments: Lea_Devon_Seawolf 1-12 CTB 1_1.23.20_Initial C-141.pdf; Lea_Devon_Seawolf 1-12 CTB 1_2.9.20_Initial C-141.pdf

Lupe,

Will you please request a 30-day extension on the two Sea Wolf projects assigned to Vertex. I don't have any incident numbers as the C-141s have not been saved into the OCD system yet. One incident was a release into containment on January 23, 2020 and the second was a release from the 3-phase on February 9, 2020. See the two attached C-141s.

I just got word from your ops guys the other day that the liner has been repaired and is ready for an inspection. I will have a remediation plan for you for the second spill tomorrow a.m. so that you can bid out the work and we will conduct the inspection and fieldwork/confirmation sampling in one fell swoop.

My apologies on this delay ☹.

Natalie

From: Carrasco, Lupe <Lupe.Carrasco@dvn.com>
Sent: Wednesday, March 4, 2020 2:49 PM
To: Natalie Gordon <ngordon@vertex.ca>
Cc: Bynum, Tom (Contract) <Tom.Bynum@dvn.com>; Mathews, Wesley <Wesley.Mathews@dvn.com>
Subject: RE: [EXTERNAL] RE: Gaucho #006

Will you add these? The comments below is all I have for info. These were given to another contractor whom is no longer in business.
Thanks!

Lupe Carrasco
Environmental Professional
B-Schedule

Devon Energy Corporation
PO Box 250
Artesia, NM 88211
Office: 575-748-0765
Cell: 575-725-0787

devon

From: Natalie Gordon <ngordon@vertex.ca>
Sent: Wednesday, March 4, 2020 2:12 PM
To: Carrasco, Lupe <Lupe.Carrasco@dvn.com>
Cc: Bynum, Tom (Contract) <Tom.Bynum@dvn.com>; Mathews, Wesley <Wesley.Mathews@dvn.com>
Subject: [EXTERNAL] RE: Gaucho #006

Hi Lupe,

Regarding your questions for the Gaucho releases below, Vertex has only received information and assignment on one: 1RP-5507 from 8/12/2018. This release involves a liner inspection and closure report. We are actually waiting on some liner repairs to be completed and I have been in touch with Cory Ochs about that.

I have not seen anything come across my desk for the other three incidents; however, if you want to send the info, we can group them together and try to address the site as a whole. Please just let me know.

Thanks,
Natalie

From: Carrasco, Lupe <Lupe.Carrasco@dvn.com>
Sent: Wednesday, February 26, 2020 1:45 PM
To: Natalie Gordon <ngordon@vertex.ca>
Cc: Bynum, Tom (Contract) <Tom.Bynum@dvn.com>; Mathews, Wesley <Wesley.Mathews@dvn.com>
Subject: Gaucho #006

Natalie,

I believe some of the releases below have been assigned to Vertex? Would you mind looking through your files and letting me know which ones Vertex has or doesn't have on their project list? Just an FYI, we have split up the areas so I will be bugging you for information on the Thistle, Gaucho/Redbull, Seawolf, and Rattlesnake areas. Not sure if it really matters, but I am trying to make sense of things within in this area. Please let me know at your earliest convenience.

Gaucho Unit #006:

8/12/18 1RP-5602 WO#20715639 Vertex
Appears to be a duplicate of 5507
8/12/18 1RP-5507 WO#20715639 Vertex
9/14/17 1RP-4116 WO#20715639 WBE
All 10 BBLS released stayed in containment and occurred at night. There is an open RP-4116 from 1/22/16 (contamination us visible in release area) A Davis told White Buffalo to combine 1/22/16, 9/14/17 and 8/12/18 nOY1727243107. Not sure why there are different release info with same RP?

1/22/16 1RP-4116 WO#20715639
30 BBLS Spilled/20 BBLS Rec. Miscommunication resulting in separator being opened instead of tightened.

Thanks!

Lupe Carrasco
Environmental Professional
B-Schedule

Devon Energy Corporation
PO Box 250
Artesia, NM 88211
Office: 575-748-0765
Cell: 575-725-0787

Natalie Gordon

From: Carrasco, Lupe <Lupe.Carrasco@dvn.com>
Sent: Friday, April 17, 2020 11:06 AM
To: Lea Co Spills (emnrd-ocd-district1spills@state.nm.us)
Cc: Davis, Amanda; Mathews, Wesley; Bynum, Tom (Contract); Natalie Gordon
Subject: Lea_Devon_Seawolf 1-12 CTB
Attachments: Lea_Devon_Seawolf 1-12 CTB 1_1.23.20_Initial C-141.pdf; Lea_Devon_Seawolf 1-12 CTB 1_2.9.20_Initial C-141.pdf

Please accept this email as Devon's request for a 30-day extension for the attached incidents. There was an error on our part when submitting the C-141's for several locations thus our contractors do not have the necessary information to complete their reports. We are in the process of correcting the issue and would like an extension to complete these projects. Please let me know if you have any questions or concerns.

Thanks!

Lupe Carrasco
Environmental Professional
B-Schedule

Devon Energy Corporation
PO Box 250
Artesia, NM 88211
Office: 575-748-0765
Cell: 575-725-0787

ATTACHMENT 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 27, 2020

Amanda Davis

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

RE: Sea Wolf 1 12 CTB 1 OrderNo.: 2002834

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 15 sample(s) on 2/20/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-001 **Matrix:** SOIL

Client Sample ID: BH20-01' 0'
Collection Date: 2/18/2020 9:00:00 AM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	10000	600		mg/Kg	200	2/25/2020 6:36:15 PM	50639
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 12:08:15 AM	50573
Surr: BFB	99.2	70-130		%Rec	1	2/22/2020 12:08:15 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/25/2020 4:42:23 PM	50579
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/25/2020 4:42:23 PM	50579
Surr: DNOP	91.0	55.1-146		%Rec	1	2/25/2020 4:42:23 PM	50579
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.023		mg/Kg	1	2/22/2020 12:08:15 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 12:08:15 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 12:08:15 AM	50573
Xylenes, Total	ND	0.094		mg/Kg	1	2/22/2020 12:08:15 AM	50573
Surr: 1,2-Dichloroethane-d4	86.5	70-130		%Rec	1	2/22/2020 12:08:15 AM	50573
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	2/22/2020 12:08:15 AM	50573
Surr: Dibromofluoromethane	94.4	70-130		%Rec	1	2/22/2020 12:08:15 AM	50573
Surr: Toluene-d8	102	70-130		%Rec	1	2/22/2020 12:08:15 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-002 **Matrix:** SOIL

Client Sample ID: BH20-01 1'
Collection Date: 2/18/2020 9:10:00 AM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	110	60		mg/Kg	20	2/21/2020 2:34:08 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/22/2020 1:35:44 AM	50573
Surr: BFB	104	70-130		%Rec	1	2/22/2020 1:35:44 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/24/2020 2:41:09 PM	50592
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/24/2020 2:41:09 PM	50592
Surr: DNOP	85.3	55.1-146		%Rec	1	2/24/2020 2:41:09 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 1:35:44 AM	50573
Toluene	ND	0.048		mg/Kg	1	2/22/2020 1:35:44 AM	50573
Ethylbenzene	ND	0.048		mg/Kg	1	2/22/2020 1:35:44 AM	50573
Xylenes, Total	ND	0.096		mg/Kg	1	2/22/2020 1:35:44 AM	50573
Surr: 1,2-Dichloroethane-d4	85.9	70-130		%Rec	1	2/22/2020 1:35:44 AM	50573
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/22/2020 1:35:44 AM	50573
Surr: Dibromofluoromethane	94.9	70-130		%Rec	1	2/22/2020 1:35:44 AM	50573
Surr: Toluene-d8	102	70-130		%Rec	1	2/22/2020 1:35:44 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-003 **Matrix:** SOIL

Client Sample ID: BH20-04 0'
Collection Date: 2/18/2020 10:40:00 AM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	6200	300		mg/Kg	100	2/25/2020 6:48:35 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 3:03:05 AM	50573
Surr: BFB	98.9	70-130		%Rec	1	2/22/2020 3:03:05 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/24/2020 3:47:54 PM	50592
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/24/2020 3:47:54 PM	50592
Surr: DNOP	86.3	55.1-146		%Rec	1	2/24/2020 3:47:54 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 3:03:05 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 3:03:05 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 3:03:05 AM	50573
Xylenes, Total	ND	0.094		mg/Kg	1	2/22/2020 3:03:05 AM	50573
Surr: 1,2-Dichloroethane-d4	84.5	70-130		%Rec	1	2/22/2020 3:03:05 AM	50573
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	2/22/2020 3:03:05 AM	50573
Surr: Dibromofluoromethane	91.3	70-130		%Rec	1	2/22/2020 3:03:05 AM	50573
Surr: Toluene-d8	104	70-130		%Rec	1	2/22/2020 3:03:05 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-004 **Matrix:** SOLID

Client Sample ID: BH20-04 3'
Collection Date: 2/18/2020 11:10:00 AM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	2100	61		mg/Kg	20	2/21/2020 3:23:32 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/22/2020 3:32:11 AM	50573
Surr: BFB	98.0	70-130		%Rec	1	2/22/2020 3:32:11 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	18		mg/Kg	1	2/24/2020 4:09:59 PM	50592
Motor Oil Range Organics (MRO)	ND	88		mg/Kg	1	2/24/2020 4:09:59 PM	50592
Surr: DNOP	86.9	55.1-146		%Rec	1	2/24/2020 4:09:59 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.025		mg/Kg	1	2/22/2020 3:32:11 AM	50573
Toluene	ND	0.049		mg/Kg	1	2/22/2020 3:32:11 AM	50573
Ethylbenzene	ND	0.049		mg/Kg	1	2/22/2020 3:32:11 AM	50573
Xylenes, Total	ND	0.098		mg/Kg	1	2/22/2020 3:32:11 AM	50573
Surr: 1,2-Dichloroethane-d4	85.9	70-130		%Rec	1	2/22/2020 3:32:11 AM	50573
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	2/22/2020 3:32:11 AM	50573
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	2/22/2020 3:32:11 AM	50573
Surr: Toluene-d8	101	70-130		%Rec	1	2/22/2020 3:32:11 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-005 **Matrix:** SOIL

Client Sample ID: BH20-07 0'
Collection Date: 2/18/2020 12:30:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	10000	300		mg/Kg	100	2/25/2020 7:00:56 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 4:01:17 AM	50573
Surr: BFB	97.7	70-130		%Rec	1	2/22/2020 4:01:17 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/24/2020 4:32:13 PM	50592
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/24/2020 4:32:13 PM	50592
Surr: DNOP	90.3	55.1-146		%Rec	1	2/24/2020 4:32:13 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.023		mg/Kg	1	2/22/2020 4:01:17 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 4:01:17 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 4:01:17 AM	50573
Xylenes, Total	ND	0.093		mg/Kg	1	2/22/2020 4:01:17 AM	50573
Surr: 1,2-Dichloroethane-d4	85.5	70-130		%Rec	1	2/22/2020 4:01:17 AM	50573
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/22/2020 4:01:17 AM	50573
Surr: Dibromofluoromethane	92.2	70-130		%Rec	1	2/22/2020 4:01:17 AM	50573
Surr: Toluene-d8	103	70-130		%Rec	1	2/22/2020 4:01:17 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-006 **Matrix:** SOIL

Client Sample ID: BH20-07 1'
Collection Date: 2/18/2020 12:40:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 3:48:14 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/22/2020 4:30:23 AM	50573
Surr: BFB	96.1	70-130		%Rec	1	2/22/2020 4:30:23 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/24/2020 4:54:19 PM	50592
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/24/2020 4:54:19 PM	50592
Surr: DNOP	90.5	55.1-146		%Rec	1	2/24/2020 4:54:19 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.025		mg/Kg	1	2/22/2020 4:30:23 AM	50573
Toluene	ND	0.049		mg/Kg	1	2/22/2020 4:30:23 AM	50573
Ethylbenzene	ND	0.049		mg/Kg	1	2/22/2020 4:30:23 AM	50573
Xylenes, Total	ND	0.098		mg/Kg	1	2/22/2020 4:30:23 AM	50573
Surr: 1,2-Dichloroethane-d4	85.3	70-130		%Rec	1	2/22/2020 4:30:23 AM	50573
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	2/22/2020 4:30:23 AM	50573
Surr: Dibromofluoromethane	96.1	70-130		%Rec	1	2/22/2020 4:30:23 AM	50573
Surr: Toluene-d8	100	70-130		%Rec	1	2/22/2020 4:30:23 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-007 **Matrix:** SOIL

Client Sample ID: BH20-09 0'
Collection Date: 2/18/2020 1:50:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	5600	300		mg/Kg	100	2/25/2020 7:13:17 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 4:59:27 AM	50573
Surr: BFB	103	70-130		%Rec	1	2/22/2020 4:59:27 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	490	9.4		mg/Kg	1	2/24/2020 5:16:26 PM	50592
Motor Oil Range Organics (MRO)	230	47		mg/Kg	1	2/24/2020 5:16:26 PM	50592
Surr: DNOP	102	55.1-146		%Rec	1	2/24/2020 5:16:26 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 4:59:27 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 4:59:27 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 4:59:27 AM	50573
Xylenes, Total	ND	0.094		mg/Kg	1	2/22/2020 4:59:27 AM	50573
Surr: 1,2-Dichloroethane-d4	86.3	70-130		%Rec	1	2/22/2020 4:59:27 AM	50573
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	2/22/2020 4:59:27 AM	50573
Surr: Dibromofluoromethane	95.1	70-130		%Rec	1	2/22/2020 4:59:27 AM	50573
Surr: Toluene-d8	104	70-130		%Rec	1	2/22/2020 4:59:27 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-008 **Matrix:** SOIL

Client Sample ID: BH20-09 1'
Collection Date: 2/18/2020 2:00:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 4:37:39 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/22/2020 5:28:33 AM	50573
Surr: BFB	97.1	70-130		%Rec	1	2/22/2020 5:28:33 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/24/2020 5:38:32 PM	50592
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/24/2020 5:38:32 PM	50592
Surr: DNOP	92.4	55.1-146		%Rec	1	2/24/2020 5:38:32 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.025		mg/Kg	1	2/22/2020 5:28:33 AM	50573
Toluene	ND	0.049		mg/Kg	1	2/22/2020 5:28:33 AM	50573
Ethylbenzene	ND	0.049		mg/Kg	1	2/22/2020 5:28:33 AM	50573
Xylenes, Total	ND	0.099		mg/Kg	1	2/22/2020 5:28:33 AM	50573
Surr: 1,2-Dichloroethane-d4	88.0	70-130		%Rec	1	2/22/2020 5:28:33 AM	50573
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	2/22/2020 5:28:33 AM	50573
Surr: Dibromofluoromethane	94.4	70-130		%Rec	1	2/22/2020 5:28:33 AM	50573
Surr: Toluene-d8	103	70-130		%Rec	1	2/22/2020 5:28:33 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-009 **Matrix:** SOIL

Client Sample ID: SS20-01 0'
Collection Date: 2/18/2020 2:25:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	1100	60		mg/Kg	20	2/21/2020 4:49:59 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/22/2020 5:57:36 AM	50573
Surr: BFB	95.4	70-130		%Rec	1	2/22/2020 5:57:36 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/24/2020 6:00:45 PM	50592
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/24/2020 6:00:45 PM	50592
Surr: DNOP	93.2	55.1-146		%Rec	1	2/24/2020 6:00:45 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 5:57:36 AM	50573
Toluene	ND	0.048		mg/Kg	1	2/22/2020 5:57:36 AM	50573
Ethylbenzene	ND	0.048		mg/Kg	1	2/22/2020 5:57:36 AM	50573
Xylenes, Total	ND	0.095		mg/Kg	1	2/22/2020 5:57:36 AM	50573
Surr: 1,2-Dichloroethane-d4	83.9	70-130		%Rec	1	2/22/2020 5:57:36 AM	50573
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	2/22/2020 5:57:36 AM	50573
Surr: Dibromofluoromethane	96.2	70-130		%Rec	1	2/22/2020 5:57:36 AM	50573
Surr: Toluene-d8	107	70-130		%Rec	1	2/22/2020 5:57:36 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-010 **Matrix:** SOIL

Client Sample ID: SS20-01 0.5'
Collection Date: 2/18/2020 2:30:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	420	60		mg/Kg	20	2/21/2020 5:02:20 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 6:26:22 AM	50573
Surr: BFB	103	70-130		%Rec	1	2/22/2020 6:26:22 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/24/2020 6:22:43 PM	50592
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/24/2020 6:22:43 PM	50592
Surr: DNOP	89.5	55.1-146		%Rec	1	2/24/2020 6:22:43 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 6:26:22 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 6:26:22 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 6:26:22 AM	50573
Xylenes, Total	ND	0.094		mg/Kg	1	2/22/2020 6:26:22 AM	50573
Surr: 1,2-Dichloroethane-d4	86.1	70-130		%Rec	1	2/22/2020 6:26:22 AM	50573
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/22/2020 6:26:22 AM	50573
Surr: Dibromofluoromethane	93.2	70-130		%Rec	1	2/22/2020 6:26:22 AM	50573
Surr: Toluene-d8	103	70-130		%Rec	1	2/22/2020 6:26:22 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-011 **Matrix:** SOIL

Client Sample ID: SS20-02 0'
Collection Date: 2/18/2020 2:40:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 5:14:41 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 6:55:25 AM	50573
Surr: BFB	101	70-130		%Rec	1	2/22/2020 6:55:25 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/24/2020 6:44:51 PM	50592
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/24/2020 6:44:51 PM	50592
Surr: DNOP	91.1	55.1-146		%Rec	1	2/24/2020 6:44:51 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 6:55:25 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 6:55:25 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 6:55:25 AM	50573
Xylenes, Total	ND	0.095		mg/Kg	1	2/22/2020 6:55:25 AM	50573
Surr: 1,2-Dichloroethane-d4	84.1	70-130		%Rec	1	2/22/2020 6:55:25 AM	50573
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/22/2020 6:55:25 AM	50573
Surr: Dibromofluoromethane	93.7	70-130		%Rec	1	2/22/2020 6:55:25 AM	50573
Surr: Toluene-d8	103	70-130		%Rec	1	2/22/2020 6:55:25 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-012 **Matrix:** SOIL

Client Sample ID: SS20-03 0'
Collection Date: 2/18/2020 2:55:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 5:27:02 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/22/2020 7:24:29 AM	50573
Surr: BFB	97.8	70-130		%Rec	1	2/22/2020 7:24:29 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	2/24/2020 7:28:43 PM	50592
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/24/2020 7:28:43 PM	50592
Surr: DNOP	93.7	55.1-146		%Rec	1	2/24/2020 7:28:43 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 7:24:29 AM	50573
Toluene	ND	0.048		mg/Kg	1	2/22/2020 7:24:29 AM	50573
Ethylbenzene	ND	0.048		mg/Kg	1	2/22/2020 7:24:29 AM	50573
Xylenes, Total	ND	0.096		mg/Kg	1	2/22/2020 7:24:29 AM	50573
Surr: 1,2-Dichloroethane-d4	86.0	70-130		%Rec	1	2/22/2020 7:24:29 AM	50573
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	2/22/2020 7:24:29 AM	50573
Surr: Dibromofluoromethane	93.9	70-130		%Rec	1	2/22/2020 7:24:29 AM	50573
Surr: Toluene-d8	102	70-130		%Rec	1	2/22/2020 7:24:29 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-013 **Matrix:** SOIL

Client Sample ID: SS20-04 0'
Collection Date: 2/18/2020 3:10:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 5:39:22 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/22/2020 7:53:32 AM	50573
Surr: BFB	100	70-130		%Rec	1	2/22/2020 7:53:32 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/24/2020 7:50:42 PM	50592
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/24/2020 7:50:42 PM	50592
Surr: DNOP	93.9	55.1-146		%Rec	1	2/24/2020 7:50:42 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.023		mg/Kg	1	2/22/2020 7:53:32 AM	50573
Toluene	ND	0.046		mg/Kg	1	2/22/2020 7:53:32 AM	50573
Ethylbenzene	ND	0.046		mg/Kg	1	2/22/2020 7:53:32 AM	50573
Xylenes, Total	ND	0.092		mg/Kg	1	2/22/2020 7:53:32 AM	50573
Surr: 1,2-Dichloroethane-d4	88.7	70-130		%Rec	1	2/22/2020 7:53:32 AM	50573
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	2/22/2020 7:53:32 AM	50573
Surr: Dibromofluoromethane	94.4	70-130		%Rec	1	2/22/2020 7:53:32 AM	50573
Surr: Toluene-d8	103	70-130		%Rec	1	2/22/2020 7:53:32 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Sea Wolf 1 12 CTB 1
Lab ID: 2002834-014 **Matrix:** SOIL

Client Sample ID: SS20-05 0'
Collection Date: 2/18/2020 3:25:00 PM
Received Date: 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 5:51:43 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/22/2020 8:22:44 AM	50573
Surr: BFB	98.1	70-130		%Rec	1	2/22/2020 8:22:44 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/24/2020 8:34:22 PM	50592
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/24/2020 8:34:22 PM	50592
Surr: DNOP	87.8	55.1-146		%Rec	1	2/24/2020 8:34:22 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.023		mg/Kg	1	2/22/2020 8:22:44 AM	50573
Toluene	ND	0.046		mg/Kg	1	2/22/2020 8:22:44 AM	50573
Ethylbenzene	ND	0.046		mg/Kg	1	2/22/2020 8:22:44 AM	50573
Xylenes, Total	ND	0.093		mg/Kg	1	2/22/2020 8:22:44 AM	50573
Surr: 1,2-Dichloroethane-d4	84.0	70-130		%Rec	1	2/22/2020 8:22:44 AM	50573
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	2/22/2020 8:22:44 AM	50573
Surr: Dibromofluoromethane	88.9	70-130		%Rec	1	2/22/2020 8:22:44 AM	50573
Surr: Toluene-d8	99.7	70-130		%Rec	1	2/22/2020 8:22:44 AM	50573

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 **2002834**
Date Reported: **2/27/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-06 0'
Project: Sea Wolf 1 12 CTB 1
Collection Date: 2/18/2020 3:40:00 PM
Lab ID: 2002834-015 **Matrix:** SOIL **Received Date:** 2/20/2020 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **JMT**	
Chloride	ND	60		mg/Kg	20	2/21/2020 6:04:04 PM	50585
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **DJF**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/22/2020 8:51:57 AM	50573
Surr: BFB	98.1	70-130		%Rec	1	2/22/2020 8:51:57 AM	50573
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/24/2020 8:56:17 PM	50592
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/24/2020 8:56:17 PM	50592
Surr: DNOP	91.0	55.1-146		%Rec	1	2/24/2020 8:56:17 PM	50592
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **DJF**	
Benzene	ND	0.024		mg/Kg	1	2/22/2020 8:51:57 AM	50573
Toluene	ND	0.047		mg/Kg	1	2/22/2020 8:51:57 AM	50573
Ethylbenzene	ND	0.047		mg/Kg	1	2/22/2020 8:51:57 AM	50573
Xylenes, Total	ND	0.095		mg/Kg	1	2/22/2020 8:51:57 AM	50573
Surr: 1,2-Dichloroethane-d4	85.4	70-130		%Rec	1	2/22/2020 8:51:57 AM	50573
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	2/22/2020 8:51:57 AM	50573
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	2/22/2020 8:51:57 AM	50573
Surr: Toluene-d8	97.5	70-130		%Rec	1	2/22/2020 8:51:57 AM	50573

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2002834**
27-Feb-20

Client: Devon Energy
Project: Sea Wolf 1 12 CTB 1

Sample ID: **MB-50585** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **50585** RunNo: **66715**
Prep Date: **2/21/2020** Analysis Date: **2/21/2020** SeqNo: **2294149** Units: **mg/Kg**

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

Sample ID: **LCS-50585** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **50585** RunNo: **66715**
Prep Date: **2/21/2020** Analysis Date: **2/21/2020** SeqNo: **2294150** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.6	90	110			

Sample ID: **MB-50639** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **50639** RunNo: **66754**
Prep Date: **2/24/2020** Analysis Date: **2/24/2020** SeqNo: **2295479** Units: **mg/Kg**

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

Sample ID: **LCS-50639** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **50639** RunNo: **66754**
Prep Date: **2/24/2020** Analysis Date: **2/24/2020** SeqNo: **2295481** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2002834**
27-Feb-20

Client: Devon Energy
Project: Sea Wolf 1 12 CTB 1

Sample ID: **2002834-002AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH20-01 1'** Batch ID: **50592** RunNo: **66740**
Prep Date: **2/21/2020** Analysis Date: **2/24/2020** SeqNo: **2295345** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	9.9	49.70	0	98.1	47.4	136			
Surr: DNOP	4.1		4.970		81.5	55.1	146			

Sample ID: **2002834-002AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH20-01 1'** Batch ID: **50592** RunNo: **66740**
Prep Date: **2/21/2020** Analysis Date: **2/24/2020** SeqNo: **2295346** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	9.2	46.08	0	103	47.4	136	3.09	43.4	
Surr: DNOP	3.9		4.608		84.2	55.1	146	0	0	

Sample ID: **LCS-50592** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50592** RunNo: **66740**
Prep Date: **2/21/2020** Analysis Date: **2/24/2020** SeqNo: **2295413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	70	130			
Surr: DNOP	3.6		5.000		71.8	55.1	146			

Sample ID: **MB-50579** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **50579** RunNo: **66740**
Prep Date: **2/21/2020** Analysis Date: **2/25/2020** SeqNo: **2295417** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	6.3		10.00		63.0	55.1	146			

Sample ID: **MB-50592** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **50592** RunNo: **66740**
Prep Date: **2/21/2020** Analysis Date: **2/24/2020** SeqNo: **2295419** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.2		10.00		81.9	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2002834**
27-Feb-20

Client: Devon Energy
Project: Sea Wolf 1 12 CTB 1

Sample ID: **LCS-50579** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **50579** RunNo: **66778**
Prep Date: **2/21/2020** Analysis Date: **2/25/2020** SeqNo: **2295848** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.5	70	130			
Surr: DNOP	4.6		5.000		92.3	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2002834**
27-Feb-20

Client: Devon Energy
Project: Sea Wolf 1 12 CTB 1

Sample ID: **mb-50573** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **50573** RunNo: **66728**
Prep Date: **2/20/2020** Analysis Date: **2/21/2020** SeqNo: **2293910** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.44		0.5000		87.4	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		103	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.7	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			

Sample ID: **lcs-50573** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **50573** RunNo: **66728**
Prep Date: **2/20/2020** Analysis Date: **2/21/2020** SeqNo: **2293911** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.70	0.025	1.000	0	70.4	70	130			
Toluene	0.84	0.050	1.000	0	83.6	70	130			
Ethylbenzene	0.83	0.050	1.000	0	82.9	70	130			
Xylenes, Total	2.8	0.10	3.000	0	93.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.41		0.5000		81.5	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.44		0.5000		87.9	70	130			
Surr: Toluene-d8	0.49		0.5000		98.6	70	130			

Sample ID: **2002834-001ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BH20-01' 0'** Batch ID: **50573** RunNo: **66728**
Prep Date: **2/20/2020** Analysis Date: **2/22/2020** SeqNo: **2293913** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.023	0.9200	0	87.2	70	130			
Toluene	0.89	0.046	0.9200	0	96.6	70	130			
Ethylbenzene	0.90	0.046	0.9200	0	97.6	70	130			
Xylenes, Total	3.1	0.092	2.760	0	111	70	130			
Surr: 1,2-Dichloroethane-d4	0.42		0.4600		92.0	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.4600		105	70	130			
Surr: Dibromofluoromethane	0.44		0.4600		95.8	70	130			
Surr: Toluene-d8	0.47		0.4600		101	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2002834**
27-Feb-20

Client: Devon Energy
Project: Sea Wolf 1 12 CTB 1

Sample ID: **2002834-001amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **BH20-01' 0'** Batch ID: **50573** RunNo: **66728**
Prep Date: **2/20/2020** Analysis Date: **2/22/2020** SeqNo: **2293914** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9718	0	87.3	70	130	5.62	20	
Toluene	0.99	0.049	0.9718	0	102	70	130	10.5	20	
Ethylbenzene	0.98	0.049	0.9718	0	101	70	130	8.46	0	
Xylenes, Total	3.3	0.097	2.915	0	113	70	130	7.94	0	
Surr: 1,2-Dichloroethane-d4	0.42		0.4859		86.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.49		0.4859		102	70	130	0	0	
Surr: Dibromofluoromethane	0.46		0.4859		94.9	70	130	0	0	
Surr: Toluene-d8	0.51		0.4859		106	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2002834**

27-Feb-20

Client: Devon Energy

Project: Sea Wolf 1 12 CTB 1

Sample ID: **2002834-002ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **BH20-01 1'** Batch ID: **50573** RunNo: **66728**

Prep Date: **2/20/2020** Analysis Date: **2/22/2020** SeqNo: **2294246** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.68	0	99.8	70	130			
Surr: BFB	500		493.6		101	70	130			

Sample ID: **2002834-002amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **BH20-01 1'** Batch ID: **50573** RunNo: **66728**

Prep Date: **2/20/2020** Analysis Date: **2/22/2020** SeqNo: **2294247** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.41	0	102	70	130	0.748	20	
Surr: BFB	480		488.3		97.9	70	130	0	0	

Sample ID: **lcs-50573** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **LCSS** Batch ID: **50573** RunNo: **66728**

Prep Date: **2/20/2020** Analysis Date: **2/21/2020** SeqNo: **2294261** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	84.9	70	130			
Surr: BFB	500		500.0		100	70	130			

Sample ID: **mb-50573** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**

Client ID: **PBS** Batch ID: **50573** RunNo: **66728**

Prep Date: **2/20/2020** Analysis Date: **2/21/2020** SeqNo: **2294262** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	500		500.0		101	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **DEVON ENERGY** Work Order Number: **2002834** RcptNo: **1**

Received By: Juan Rojas **2/20/2020 9:00:00 AM**

Completed By: **Leah Baca** **2/20/2020 10:13:02 AM** Leah Baca

Reviewed By: ENM 2/20/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: JR 2/20/20

Special Handling (if applicable)

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

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.1	Good				

Chain-of-Custody Record

Client: Devon

Amanda Davis / Wes Mathews

Mailing Address: 6488 Seven Rivers Hwy

Artesia, NM 88210

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 Day

☑ Standard ☐ Rush

Project Name: Sea Wolf 1-12 CTB 1

Project #: 20E-00141-026

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 5.0+0.1=5.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2002834	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)
2/18	9:00	soil	BH20-01 0'	4oz	ice	-001	✓	✓					✓			
	9:10	soil	BH20-01 1'	4oz		-002	✓	✓					✓			
	10:40	soil	BH20-04 0'	4oz		-003	✓	✓					✓			
	11:10	rock	BH20-04 3'	baggie		-004	✓	✓					✓			
	12:30	soil	BH20-07 0'	4oz		-005	✓	✓					✓			
	12:40	soil	BH20-07 1'	4oz		-006	✓	✓					✓			
	1:50		BH20-09 0'	4oz		-007	✓	✓					✓			
	2:00		BH20-09 1'	4oz		-008	✓	✓					✓			
	2:25		SS20-01 0'	4oz		-009	✓	✓					✓			
	2:30		SS20-01 0.5'	4oz		-010	✓	✓					✓			
	2:40		SS20-02 0'	4oz		-011	✓	✓					✓			
	2:55		SS20-03 0'	4oz		-012	✓	✓					✓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
2/19/20	1400				2/19/20	1400
2/19/20	1900			courier	2/20/20	9:00

Remarks: CC: Natalie Gordon Vertex

Direct Bill Devon

w/o #: 20833951

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

Amanda Davis/ Wes Mathews

Mailing Address: 6488 Seven Rivers Hwy

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: Sea Wolf 1-12 CTB 1

Project #: 20E-00141-026

Project Manager: Natalie Gordon

Sampler: MJP

On Ice: ☑ Yes ☐ No

# of Coolers: ~~8~~ JR 2/20/20 1

Cooler Temp (including CF): 5.0+0.1=5.1 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2002834	(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)						
2/18	3:10	soil	SS20-04 0'	4 oz	ice	-013	✓	✓					✓									
↓	3:25	soil	SS20-05 0'	↓	↓	-014	✓	✓					✓									
↓	3:40	soil	SS20-06 0'	↓	↓	-015	✓	✓					✓									

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
2/19/20	1400	[signature]	[signature]		2/19/20	1400
2/19/20	1900	[signature]	[signature]	courier	2/20/20	9:00

Remarks: Direct Bill Devon

CC: Natalie Gordon Vertex

w/o #: 20833951

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

May 05, 2020

Amanda Davis

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

RE: Seawolf 1 12 CTB 1 OrderNo.: 2004B34

Dear Amanda Davis:

Hall Environmental Analysis Laboratory received 9 sample(s) on 4/28/2020 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-01 0-12"
Project: Seawolf 1 12 CTB 1
Collection Date: 4/24/2020
Lab ID: 2004B34-001 **Matrix:** SOIL **Received Date:** 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/1/2020 7:47:25 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/1/2020 7:47:25 AM
Surr: DNOP	76.8	55.1-146		%Rec	1	5/1/2020 7:47:25 AM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	100	60		mg/Kg	20	5/1/2020 1:55:04 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	4/29/2020 8:48:46 PM
Toluene	ND	0.049		mg/Kg	1	4/29/2020 8:48:46 PM
Ethylbenzene	ND	0.049		mg/Kg	1	4/29/2020 8:48:46 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/29/2020 8:48:46 PM
Surr: 1,2-Dichloroethane-d4	79.6	70-130		%Rec	1	4/29/2020 8:48:46 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	4/29/2020 8:48:46 PM
Surr: Dibromofluoromethane	90.9	70-130		%Rec	1	4/29/2020 8:48:46 PM
Surr: Toluene-d8	95.1	70-130		%Rec	1	4/29/2020 8:48:46 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/29/2020 8:48:46 PM
Surr: BFB	96.5	70-130		%Rec	1	4/29/2020 8:48:46 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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Seawolf 1 12 CTB 1
Lab ID: 2004B34-002 **Matrix:** SOIL

Client Sample ID: SS20-02 0-12"
Collection Date: 4/24/2020
Received Date: 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/30/2020 11:45:41 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/30/2020 11:45:41 AM
Surr: DNOP	58.4	55.1-146		%Rec	1	4/30/2020 11:45:41 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	5100	300		mg/Kg	100	5/4/2020 6:28:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	4/29/2020 9:17:37 PM
Toluene	ND	0.048		mg/Kg	1	4/29/2020 9:17:37 PM
Ethylbenzene	ND	0.048		mg/Kg	1	4/29/2020 9:17:37 PM
Xylenes, Total	ND	0.097		mg/Kg	1	4/29/2020 9:17:37 PM
Surr: 1,2-Dichloroethane-d4	79.2	70-130		%Rec	1	4/29/2020 9:17:37 PM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	4/29/2020 9:17:37 PM
Surr: Dibromofluoromethane	90.8	70-130		%Rec	1	4/29/2020 9:17:37 PM
Surr: Toluene-d8	97.0	70-130		%Rec	1	4/29/2020 9:17:37 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/29/2020 9:17:37 PM
Surr: BFB	98.3	70-130		%Rec	1	4/29/2020 9:17:37 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-03 0-12"
Project: Seawolf 1 12 CTB 1
Collection Date: 4/24/2020
Lab ID: 2004B34-003 **Matrix:** SOIL **Received Date:** 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/1/2020 8:11:15 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/1/2020 8:11:15 AM
Surr: DNOP	82.6	55.1-146		%Rec	1	5/1/2020 8:11:15 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3700	150		mg/Kg	50	5/4/2020 6:40:32 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	4/29/2020 9:46:16 PM
Toluene	ND	0.050		mg/Kg	1	4/29/2020 9:46:16 PM
Ethylbenzene	ND	0.050		mg/Kg	1	4/29/2020 9:46:16 PM
Xylenes, Total	ND	0.099		mg/Kg	1	4/29/2020 9:46:16 PM
Surr: 1,2-Dichloroethane-d4	81.4	70-130		%Rec	1	4/29/2020 9:46:16 PM
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	1	4/29/2020 9:46:16 PM
Surr: Dibromofluoromethane	88.5	70-130		%Rec	1	4/29/2020 9:46:16 PM
Surr: Toluene-d8	93.1	70-130		%Rec	1	4/29/2020 9:46:16 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	4/29/2020 9:46:16 PM
Surr: BFB	98.3	70-130		%Rec	1	4/29/2020 9:46:16 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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Seawolf 1 12 CTB 1
Lab ID: 2004B34-004 **Matrix:** SOIL

Client Sample ID: SS20-04 0-12"
Collection Date: 4/24/2020
Received Date: 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/30/2020 12:33:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/30/2020 12:33:54 PM
Surr: DNOP	62.2	55.1-146		%Rec	1	4/30/2020 12:33:54 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4400	150		mg/Kg	50	5/4/2020 6:52:57 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	4/29/2020 10:15:06 PM
Toluene	ND	0.047		mg/Kg	1	4/29/2020 10:15:06 PM
Ethylbenzene	ND	0.047		mg/Kg	1	4/29/2020 10:15:06 PM
Xylenes, Total	ND	0.095		mg/Kg	1	4/29/2020 10:15:06 PM
Surr: 1,2-Dichloroethane-d4	79.2	70-130		%Rec	1	4/29/2020 10:15:06 PM
Surr: 4-Bromofluorobenzene	98.7	70-130		%Rec	1	4/29/2020 10:15:06 PM
Surr: Dibromofluoromethane	88.8	70-130		%Rec	1	4/29/2020 10:15:06 PM
Surr: Toluene-d8	95.7	70-130		%Rec	1	4/29/2020 10:15:06 PM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	4/29/2020 10:15:06 PM
Surr: BFB	99.0	70-130		%Rec	1	4/29/2020 10:15:06 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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-05 0-12"
Project: Seawolf 1 12 CTB 1
Collection Date: 4/24/2020
Lab ID: 2004B34-005 **Matrix:** SOIL **Received Date:** 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/30/2020 12:57:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/30/2020 12:57:51 PM
Surr: DNOP	58.6	55.1-146		%Rec	1	4/30/2020 12:57:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	4900	300		mg/Kg	100	5/4/2020 7:05:21 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	4/30/2020 2:05:00 AM
Toluene	ND	0.049		mg/Kg	1	4/30/2020 2:05:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/30/2020 2:05:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/30/2020 2:05:00 AM
Surr: 1,2-Dichloroethane-d4	77.6	70-130		%Rec	1	4/30/2020 2:05:00 AM
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	4/30/2020 2:05:00 AM
Surr: Dibromofluoromethane	89.0	70-130		%Rec	1	4/30/2020 2:05:00 AM
Surr: Toluene-d8	96.5	70-130		%Rec	1	4/30/2020 2:05:00 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/30/2020 2:05:00 AM
Surr: BFB	99.1	70-130		%Rec	1	4/30/2020 2:05:00 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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-06 0-12"
Project: Seawolf 1 12 CTB 1
Collection Date: 4/24/2020
Lab ID: 2004B34-006 **Matrix:** SOIL **Received Date:** 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/30/2020 1:22:08 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/30/2020 1:22:08 PM
Surr: DNOP	64.2	55.1-146		%Rec	1	4/30/2020 1:22:08 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	8400	300		mg/Kg	100	5/4/2020 7:17:46 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	4/30/2020 2:33:50 AM
Toluene	ND	0.048		mg/Kg	1	4/30/2020 2:33:50 AM
Ethylbenzene	ND	0.048		mg/Kg	1	4/30/2020 2:33:50 AM
Xylenes, Total	ND	0.097		mg/Kg	1	4/30/2020 2:33:50 AM
Surr: 1,2-Dichloroethane-d4	78.2	70-130		%Rec	1	4/30/2020 2:33:50 AM
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	4/30/2020 2:33:50 AM
Surr: Dibromofluoromethane	91.9	70-130		%Rec	1	4/30/2020 2:33:50 AM
Surr: Toluene-d8	96.6	70-130		%Rec	1	4/30/2020 2:33:50 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	4/30/2020 2:33:50 AM
Surr: BFB	100	70-130		%Rec	1	4/30/2020 2:33:50 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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-07 0-12"
Project: Seawolf 1 12 CTB 1
Collection Date: 4/24/2020
Lab ID: 2004B34-007 **Matrix:** SOIL **Received Date:** 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	4/30/2020 1:22:13 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	4/30/2020 1:22:13 PM
Surr: DNOP	78.6	55.1-146		%Rec	1	4/30/2020 1:22:13 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	2400	60		mg/Kg	20	5/1/2020 3:34:22 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.025		mg/Kg	1	4/30/2020 3:02:39 AM
Toluene	ND	0.049		mg/Kg	1	4/30/2020 3:02:39 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/30/2020 3:02:39 AM
Xylenes, Total	ND	0.099		mg/Kg	1	4/30/2020 3:02:39 AM
Surr: 1,2-Dichloroethane-d4	75.5	70-130		%Rec	1	4/30/2020 3:02:39 AM
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	4/30/2020 3:02:39 AM
Surr: Dibromofluoromethane	88.1	70-130		%Rec	1	4/30/2020 3:02:39 AM
Surr: Toluene-d8	97.9	70-130		%Rec	1	4/30/2020 3:02:39 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/30/2020 3:02:39 AM
Surr: BFB	102	70-130		%Rec	1	4/30/2020 3:02:39 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: SS20-08 0-12"
Project: Seawolf 1 12 CTB 1
Collection Date: 4/24/2020
Lab ID: 2004B34-008 **Matrix:** SOIL **Received Date:** 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **BRM**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	4/30/2020 1:46:25 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/30/2020 1:46:25 PM
Surr: DNOP	108	55.1-146		%Rec	1	4/30/2020 1:46:25 PM
EPA METHOD 300.0: ANIONS						Analyst: **MRA**
Chloride	980	61		mg/Kg	20	5/1/2020 4:11:35 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	4/30/2020 3:31:25 AM
Toluene	ND	0.049		mg/Kg	1	4/30/2020 3:31:25 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/30/2020 3:31:25 AM
Xylenes, Total	ND	0.097		mg/Kg	1	4/30/2020 3:31:25 AM
Surr: 1,2-Dichloroethane-d4	77.2	70-130		%Rec	1	4/30/2020 3:31:25 AM
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	4/30/2020 3:31:25 AM
Surr: Dibromofluoromethane	89.7	70-130		%Rec	1	4/30/2020 3:31:25 AM
Surr: Toluene-d8	97.4	70-130		%Rec	1	4/30/2020 3:31:25 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/30/2020 3:31:25 AM
Surr: BFB	98.2	70-130		%Rec	1	4/30/2020 3:31:25 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 **2004B34**
Date Reported: **5/5/2020**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Seawolf 1 12 CTB 1
Lab ID: 2004B34-009 **Matrix:** SOIL

Client Sample ID: SS20-09 0-12"
Collection Date: 4/24/2020
Received Date: 4/28/2020 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **TOM**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/1/2020 10:42:31 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/1/2020 10:42:31 AM
Surr: DNOP	93.6	55.1-146		%Rec	1	5/1/2020 10:42:31 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	2500	150		mg/Kg	50	5/4/2020 7:30:10 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **JMR**
Benzene	ND	0.024		mg/Kg	1	4/30/2020 4:00:13 AM
Toluene	ND	0.049		mg/Kg	1	4/30/2020 4:00:13 AM
Ethylbenzene	ND	0.049		mg/Kg	1	4/30/2020 4:00:13 AM
Xylenes, Total	ND	0.097		mg/Kg	1	4/30/2020 4:00:13 AM
Surr: 1,2-Dichloroethane-d4	77.1	70-130		%Rec	1	4/30/2020 4:00:13 AM
Surr: 4-Bromofluorobenzene	96.4	70-130		%Rec	1	4/30/2020 4:00:13 AM
Surr: Dibromofluoromethane	87.6	70-130		%Rec	1	4/30/2020 4:00:13 AM
Surr: Toluene-d8	96.2	70-130		%Rec	1	4/30/2020 4:00:13 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **JMR**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/30/2020 4:00:13 AM
Surr: BFB	98.5	70-130		%Rec	1	4/30/2020 4:00:13 AM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B34**

05-May-20

Client: Devon Energy

Project: Seawolf 1 12 CTB 1

Sample ID: **MB-52210**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52210**	RunNo: **68572**							
Prep Date: **5/1/2020**	Analysis Date: **5/1/2020**	SeqNo: **2374227**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52210**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52210**	RunNo: **68572**							
Prep Date: **5/1/2020**	Analysis Date: **5/1/2020**	SeqNo: **2374228**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	90	110			

Sample ID: **MB-52216**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **52216**	RunNo: **68572**							
Prep Date: **5/1/2020**	Analysis Date: **5/1/2020**	SeqNo: **2374259**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-52216**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **52216**	RunNo: **68572**							
Prep Date: **5/1/2020**	Analysis Date: **5/1/2020**	SeqNo: **2374260**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B34**
05-May-20

Client: Devon Energy
Project: Seawolf 1 12 CTB 1

Sample ID: **MB-52159**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **52159**	RunNo: **68543**							
Prep Date: **4/29/2020**	Analysis Date: **4/30/2020**	SeqNo: **2371591**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		105	55.1	146			

Sample ID: **LCS-52159**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52159**	RunNo: **68543**							
Prep Date: **4/29/2020**	Analysis Date: **4/30/2020**	SeqNo: **2371592**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	83.8	70	130			
Surr: DNOP	4.1		5.000		83.0	55.1	146			

Sample ID: **LCS-52196**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **52196**	RunNo: **68578**							
Prep Date: **4/30/2020**	Analysis Date: **5/1/2020**	SeqNo: **2372791**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.5	70	130			
Surr: DNOP	4.5		5.000		89.2	55.1	146			

Sample ID: **MB-52196**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **52196**	RunNo: **68578**							
Prep Date: **4/30/2020**	Analysis Date: **5/1/2020**	SeqNo: **2372792**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.9		10.00		89.1	55.1	146			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B34**
05-May-20

Client: Devon Energy
Project: Seawolf 1 12 CTB 1

Sample ID: **mb-52148** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS** Batch ID: **52148** RunNo: **68529**
Prep Date: **4/28/2020** Analysis Date: **4/29/2020** SeqNo: **2371091** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.40		0.5000		79.9	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		98.1	70	130			
Surr: Dibromofluoromethane	0.45		0.5000		90.1	70	130			
Surr: Toluene-d8	0.48		0.5000		96.2	70	130			

Sample ID: **lcs-52148** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS** Batch ID: **52148** RunNo: **68529**
Prep Date: **4/28/2020** Analysis Date: **4/29/2020** SeqNo: **2371092** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.025	1.000	0	79.0	70	130			
Toluene	0.98	0.050	1.000	0	98.0	70	130			
Ethylbenzene	1.0	0.050	1.000	0	101	70	130			
Xylenes, Total	3.0	0.10	3.000	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	0.38		0.5000		77.0	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	70	130			
Surr: Dibromofluoromethane	0.44		0.5000		87.2	70	130			
Surr: Toluene-d8	0.47		0.5000		95.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2004B34**
05-May-20

Client: Devon Energy
Project: Seawolf 1 12 CTB 1

Sample ID: **mb-52148**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **52148**	RunNo: **68529**							
Prep Date: **4/28/2020**	Analysis Date: **4/29/2020**	SeqNo: **2371128**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		98.2	70	130			

Sample ID: **lcs-52148**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **52148**	RunNo: **68529**							
Prep Date: **4/28/2020**	Analysis Date: **4/29/2020**	SeqNo: **2371130**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.4	70	130			
Surr: BFB	500		500.0		100	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: DEVON ENERGY Work Order Number: 2004B34 RcptNo: 1

Received By: Juan Rojas 4/28/2020 9:15:00 AM

Completed By: Isaiah Ortiz 4/28/2020 9:37:03 AM

Reviewed By: JR 4/28/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

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

Adjusted?

Checked by: SPA 4/28/20

Special Handling (if applicable)

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

Person Notified: Date:

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

Regarding:

Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Not Present			

Chain-of-Custody Record

Client: Devon Energy

Mailing Address: ON FILE

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time: 5 DAY TAT
☒ Standard ☐ Rush

Project Name: SEAWOLF 1-12 CTB 1

Project #: 20833951

Project Manager: Natalie Gordon

Sampler: Kevin Smith

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp(including CF): 3.8+0.1=3.9 (°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. 2004334	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
4/24/20		Soil	SS20-01 0-12"	4oz jar	ICE	-001	X	X					X			
X		X	SS20-02 0-12"	X	X	-002	X	X					X			
X		X	SS20-03 0-12"	X	X	-003	X	X					X			
X		X	SS20-04 0-12"	X	X	-004	X	X					X			
X		X	SS20-05 0-12"	X	X	-005	X	X					X			
X		X	SS20-06 0-12"	X	X	-006	X	X					X			
X		X	SS10-07 0-12"	X	X	-007	X	X					X			
X		X	SS20-08 0-12"	X	X	-008	X	X					X			
X		X	SS20-09 0-12"	X	X	-009	X	X					X			
		X														

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
4/27/20	1430				4/27/20	1430
4/27/20	1900			courier	4/28/20	9:15

Remarks: Send Report to Natalie Gordon
Direct Bill Devon Energy

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

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 175070

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 175070
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	None	1/26/2024