Incident Number: nAB1810133480

Remediation Closure Report

Spud 16 State #010H

Section 16, Township 23 South, Range 29 East

API 30-015-29691

County: Eddy

Vertex File Number: 23E-02857

Prepared for:

Devon Energy Production Company, LP

Prepared by:

Vertex Resource Services Inc.

Date:

November 2024

Remediation Closure Report
Devon Energy
Section 16, Township 23 South, Range 29 East
API: 30-015-29691
County: Eddy

Prepared for:
Devon Energy
5315 Buena Vista Dr
Carlsbad, NM, 88220

New Mexico Oil Conservation Division
506 W. Texas Avenue
Artesia, New Mexico 88210

Prepared by:
Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, New Mexico 88220

Riley Plogger — 11/26/24

Riley Plogger
Field Technician, REPORTING

Date

11/26/2024

Chad Hensley B.Sc. GCNR
Senior Project Manager, REPORT REVIEW

Date

Table of Contents

In-text Tables

List of Figures

List of Tables

List of Appendices

1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to complete a remediation closure report for a produced water release that occurred on March 19, 2018, at Spud 16 State #010H API 30-015-29691 (hereafter referred to as the "site"). Devon submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) on April 2, 2018. Incident ID number NAB1810133480 (Appendix A) was assigned to this incident.

This report provides a description of the release assessment and remediation activities associated with the site. The information presented demonstrates that closure criteria established in Table I of 19.15.29.12 of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD has been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release, with the understanding that restoration of the release site is completed following remediation activities as per NMAC 19.15.29.13.

2.0 Incident Description

The release occurred on March 19, 2018, due to equipment failure when a flowline transferring produced water to a SWD ruptured causing a release. The incident was reported on April 2, 2018, and involved the release of approximately 47 barrels (bbl.) of produced water off pad Approximately 0 bbl. of free fluid was removed during initial clean-up. Additional details relevant to the release are presented in the C-141 Report.

3.0 Site Characteristics

The site is located approximately 22 miles southeast of Carlsbad, New Mexico (Google Inc, 2024). The legal location for the site is Section 16, Township 23 South and Range 29 East in Eddy, County, New Mexico. The release area is located on private property. An aerial photograph and site schematic are presented on Figure 1.

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2024) indicates the site's surface geology primarily comprises Qpl- Lacustrine and playa deposits (Holocene) and is characterized as sedimentary rock formation. The predominant soil texture on the site is loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam.

The location was typical of oil and gas exploration and production sites in the Permian Basin. All oil and gas activities have been terminated and the equipment has been removed. The following sections specifically describe the release area on the northern portion of the constructed pad that remains. (Figure 1).

The surrounding landscape is associated with fan piedmont, alluvial fan and dunes with elevations ranging between 2,800 and 5,000 feet. The climate is semiarid with average annual precipitation ranging between 8 and 13 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be trees, shrub, and herbaceous. Black grama (Bouteloua eriopoda), dropseeds (Sporobolus flexuosus, S. contractus, S. cryptandrus), and bluestems (Schizachyrium scoparium, and Andropogon, hallii), with scattered shinnery oak (Quercus havardii) and sand sage (Artemisia filifolia) dominate the historical plant community (United States Department of

Agriculture, Natural Resources Conservation Service, 2024). Limited to no vegetation is allowed to grow on the compacted production pad.

The surface geology at the site primarily comprises PA – Pajarito loamy sand (New Mexico Bureau of Geology and Mineral Resources, 2024) and the soil at the site is characterized as Cottonwood-Reeves and Pajarito loamy fine sand (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Additional soil characteristics include a drainage class of well drained to somewhat excessively drained with a runoff class of moderate to moderately rapid. The karst geology potential for the site is medium (United States Department of the Interior, Bureau of Land Management, 2018).

4.0 Closure Criteria Determination

The nearest active well to the site is a New Mexico Office of the State Engineer (NMOSE) monitoring well located approximately 0.21 miles southwest of the site (United States Geological Survey, 2024). Data from 2000 shows the NMOSE borehole recorded a depth to groundwater of 50 feet below ground surface (bgs). Information pertaining to the depth to ground water determination is included in Appendix B.

There is surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is a riverine (National Wetlands Inventory) located approximately 2.83 miles Southwest of the site (United States Fish and Wildlife Service, 2024). There is a lakebed east of the site that is 185 feet away as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Table 1. Closure Criteria Determination			
Site Name: Spud 16 State 10H Battery			
Spill Coordinates: 32.303367,-103.983474			
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater	**<50**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	14,796	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	**185**	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	19,480	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**	10,188	feet
	ii) Within 1000 feet of any fresh water well or spring	10,188	feet
6	Within incorporated municipal boundaries or within a defined municipal freshwater 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	9,632	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	Loamy fine sand	
12	Ecological Classification	Loamy Sand	
13	Geology	Qpl	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'

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

Table 2. Closure Criteria for Soils Impacted by a Release

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
< 50 feet	Chloride - Horizontal	* 15,000 Variance
	Chloride - Vertical	250 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – total dissolved solids
TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics
BTEX – benzene, toluene, ethylbenzene and xylenes
"*" – Due to the salinity of the water feature nearby Vertex requested and was approved a variance for 15,000 ppm chloride. Correspondence related to the variance is provided in appendix A.

5.0 Remedial Actions Taken

An initial site inspection of the release area was initiated on May 22, 2023, and completed on July 6, 2023, which identified the area of the release specified in the initial C-141 Report, estimated the approximate volume of the release and white lined the area required for the One Call request. The total affected area was 3,071 square feet. The Daily Field Reports associated with the site inspection are included in Appendix C.

5.1 Regulatory Overview- Review of Variance

Due to the close proximity of the New Mexico Salt & Minerals Corp. salt lake and flooding conditions in the previous years the closure criteria of 600 ppm chlorides on location would not be attainable. A meeting arranged on June 6, 2024 to review these conditions with the NMOCD and request a variance in chlorides to achieve closure of incident, nAB1810133480. After delineation efforts and review of historical aerial imagery, the NMOCD granted the variance for this site not to exceed 15,000 ppm chlorides.

5.2 NMOCD Approved Remedial Actions Taken

Remediation efforts began on September 11, 2024, and were finalized on September 24, 2024. Vertex personnel supervised the excavation of 3,422 square feet and 128 cubic yards of impacted soils were removed. Field screening was completed and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and Silver Nitrate Titration (chlorides). Field screening results were used to identify areas requiring further remediation. Contaminated soils were excavated to a depth of 1, 2 and 4.5 feet bgs. Impacted soil was disposed of at an approved waste management facility as stipulated by the Form

C-138 Request for Approval to Accept Solid Waste. Field screening results and DFRs documenting various phases of the remediation are included in Appendix C.

Notification that confirmatory samples were being collected was provided to the NMOCD on September 13 and October 7, 2024, for sampling on September 20 and October 11, 2024, and indicated on the NMOCD permitting website. Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments. A total of 30 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Eurofins in Albuquerque, New Mexico and Envirotech in Farmington, New Mexico under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are presented in Table 4, and the laboratory data reports are included in Appendix D. All confirmatory samples collected and analyzed were below closure criteria for the site.

5.3 Regulatory Review

On November 4, 2024, the excavation and confirmations sample results were reviewed with NMOCD regulators and verbal approval was given to proceed with the closure report.

6.0 Closure Request

The release area was fully delineated, remediated, and backfilled with local soils by October 12, 2024. Confirmatory samples were analyzed by the laboratory and found to be below allowable concentrations as per the NMAC Closure Criteria for Soils Impacted by a Release locations “under 50 feet to groundwater” with a variance of 15,000 ppm chlorides. Based on these findings Devon requests that this release be closed.

Should you have any questions or concerns, please do not hesitate to contact Chad Hensley at 575.200.6167 or chensley@vertexresource.com

7.0 References

Google Inc. (2024). *Google Earth Pro (Version 7.3.3)* [Software]. Retrieved from https://earth.google.com

New Mexico Bureau of Geology and Mineral Resources. (2024). *Interactive Geologic Map*. Retrieved from https://maps.nmt.edu/

New Mexico Department of Surface Water Quality Bureau. (2024). *Assessed and Impaired Waters of New Mexico*. Retrieved from https://gis.web.env.nm.gov/oem/?map=swqb

New Mexico Energy, Minerals and Natural Resources Department. (2024). *OCD Permitting - Spill Search*. Retrieved from https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/Data/Spills/Spills.aspx

New Mexico Mining and Minerals Division. (2024). *Coal Mine Resources in New Mexico*. Retrieved from https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=5f80f3b0faa545e58fe747cc7b037a93

New Mexico Office of the State Engineer. (2024a). *Point of Diversion Location Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html

New Mexico Office of the State Engineer. (2024b). *Water Column/Average Depth to Water Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

New Mexico Office of the State Engineer. (2024c). *Well Log/Meter Information Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.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. (2024). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

United States Department of Homeland Security, Federal Emergency Management Agency. (2024). *FEMA Flood Map Service: Search by Address*. Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karst*. Retrieved from https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html

United States Fish and Wildlife Service. (2024). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

United States Geological Survey. (2024). *National Water Information System: Web Interface*. Retrieved from https://waterdata.usgs.gov/nwis

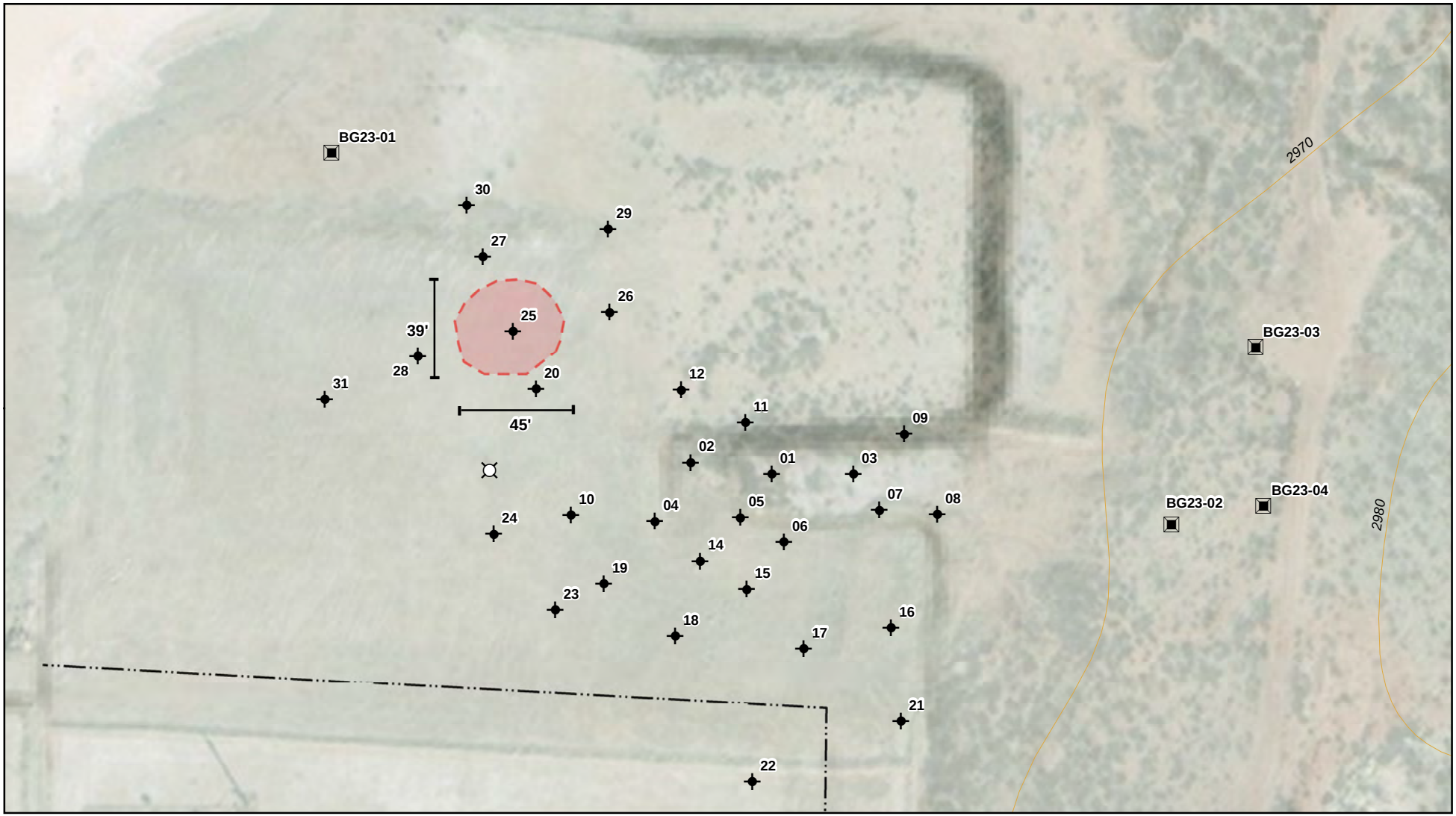
8.0 Limitations

This report has been prepared for the sole benefit of Devon Energy Production Company, LP. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division without the express written consent of Vertex Resource Services Inc. (Vertex) and Devon Energy Production Company, LP. 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.

FIGURES

ATTACHMENT 3



Borehole (Prefixed by "BH23-")
Former Wellhead
Background Samples
Contour Interval (10 ft)
Approximate Release Area (~1,340 sq.ft.)
Pipeline (Underground)

VERTEX

0 25 50 ft

Map Center:
Lat/Long: 32.304278, -103.982995

NAD 1983 UTM Zone 13N
Date: Sep 22/23

N

Characterization Sampling Site Schematic
Spud 16 State #010H

FIGURE:
1

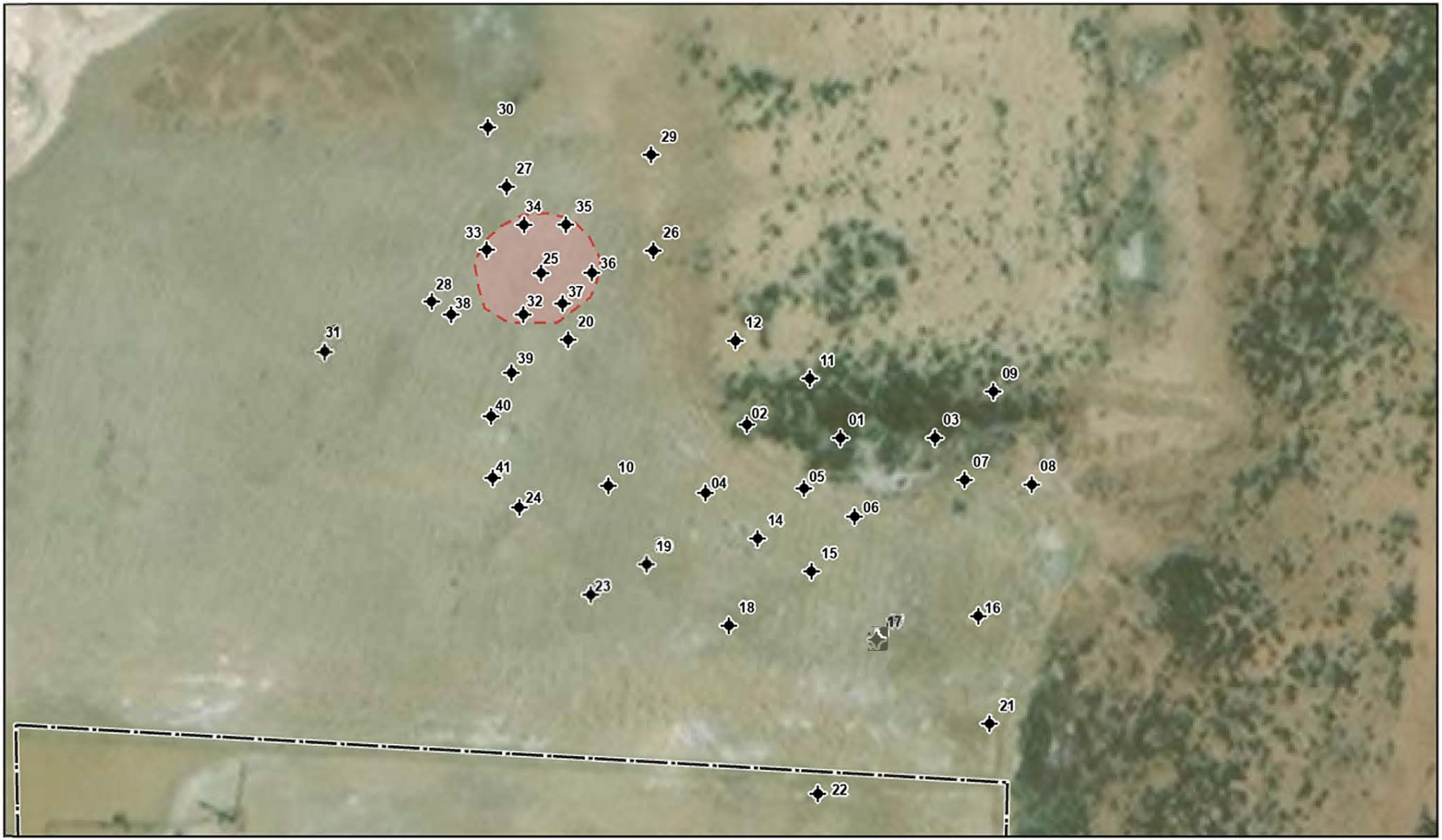
devon

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: Georeferenced image and hillshade from Esri, 2022. Site features from GPS by Vertex Professional Services Ltd., 2023. Contour from U.S. Geological Survey, 2012.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2023\23E-02857 - Spud 16 State 10H\Figure 1 Site Schematic (23E-02857).mxd



Borehole (Prefixed by "BH23-") | Approximate Lease Boundary | Historical Release Area (~1,340 sq.ft.)

VERTEX

0 25 50 ft

NAD 1983 UTM Zone 13N FT

Date: Nov 14/24

Map Center:
Lat/Long
32.304223°,-103.983075°

N

Characterization Schematic
Spud 16 State #010H

FIGURE:
2

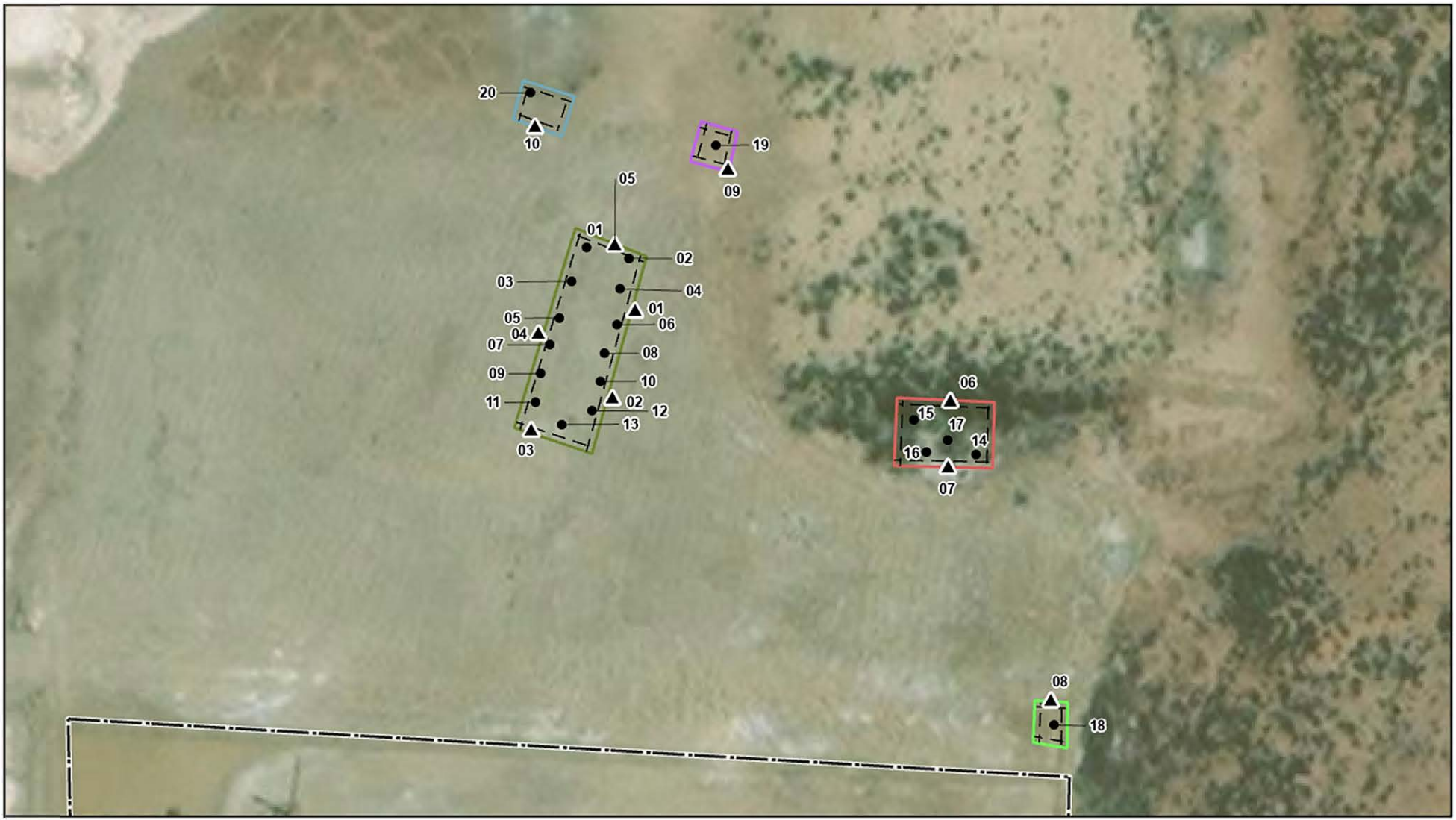
devon

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: Georeferenced image from Esri, 2023. Approximate Lease boundary from sketch by Vertex Professional Services Ltd. (VPS), 2024. Site features from GPS by VPS, 2024.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects\ US PROJECTS\Devon Energy Corporation\20231123E-02857 - Spud 16 State 10H\Project\Spud 16 State 10H.aprx



▲ Wall Sample (Prefixed by "WS24-")

● Base Sample (Prefixed by "BS24-")

Approximate Lease Boundary

Excavation to 1' bgs (~ 180 sq. ft | 60 ft.)

Excavation to 1' bgs (~ 194 sq. ft | 56 ft.)

Excavation to 1' bgs (~ 262 sq.ft | 65 ft.)

Excavation to 1' bgs (~ 799 sq. ft |115 ft.)

Excavation to 4.5' bgs (~ 1,987 sq. ft | 199 ft.)

VERTEX

0 25 50 ft

NAD 1983 UTM Zone 13N FT

Date: Nov 14/24

Map Center:
Lat/Long
32.304224°,-103.983134°

N

Confirmation Schematic
Spud 16 State #010H

FIGURE: 3

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: Georeferenced image from Esri, 2023. Approximate lease boundary from sketch by Vertex Professional Services Ltd. (VPS), 2024. Site features from GPS by VPS, 2024.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects\ US PROJECTS\Devon Energy Corporation\20231123E-02857 - Spud 16 State 10H\Project\Spud 16 State 10H.aprx

TABLES

Client Name: Devon Energy
Site Name: Spud 16 State 010H
NMOCD Tracking #: nAB1810133480
Project #: 23E-02857

Table 3. Initial Characterization Laboratory Results

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 Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater less than 50'							
BG23-01	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	18000
BG23-02	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	12000
BG23-03	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	17000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	4900
	4	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	5900
	6	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	8800
BG23-04	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	14000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	3700
	4	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	3200
BH23-01	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	4,800
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	3,500
BH23-02	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	13,000
	1.5	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	5,000
BH23-03	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	14,000
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	3,900
BH23-04	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	3,400
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	3,200
BH23-05	0	May 22, 2023	ND	ND	ND	11	ND	ND	ND	6,400
	1	May 22, 2023	ND	ND	ND	11	ND	ND	ND	8,100
BH23-06	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	8,300
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	2,100
BH23-07	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	15,000
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	2,600
	4	May 22, 2023	-	-	-	-	-	-	-	-
BH23-08	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	9,300
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	5,100
	4	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	6,800
BH23-09	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	13,000
	2	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	4,600
BH23-10	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	4,400
	1.5	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	2,100
BH23-11	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	3,000
	2	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	2,200
BH23-12	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	140
	1.5	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	430

VERTEX

BH23-13	0	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	7,500
	1.5	May 23, 2023	ND	ND	ND	ND	ND	ND	ND	2,300
BH23-14	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	5,200
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	1,900
BH23-15	0	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	5,900
	2	May 22, 2023	ND	ND	ND	ND	ND	ND	ND	5,400
BH23-16	0	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	13,000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	4,700
	4	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	5,800
BH23-17	0	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	9,900
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	2,700
	4	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	4,900
BH23-18	0	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	10,000
	2	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	5,200
BH23-19	0	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	6,500
	2	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	3,700
BH23-20	0	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	890
	2	June 26, 2023	ND	ND	ND	ND	ND	ND	ND	7,500
BH23-21	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	21,000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	6,200
	4	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	7,500
BH23-22	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	11,000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	3,400
	4	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	5,100
BH23-23	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	11,000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	5,200
BH23-24	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	2,800
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	2,000
BH23-25	0	June 30, 2023	ND	ND	ND	ND	ND	11	11	1,600
	1	July 2, 2024	ND	ND	ND	ND	110	420	530	870
	2	June 30, 2023	ND	ND	ND	1900	4,400	1,900	6,300	2,600
	3	July 2, 2024	ND	ND	ND	ND	1100	2400	3500	2,600
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	4,700
	5	July 2, 2024	ND	ND	ND	ND	11	ND	11	4,800
	6	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	7,100
BH23-26	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	9,000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	3,500
BH23-27	0	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	9,800
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	3,300
BH23-28	0	June 30, 2023	ND	ND	ND	12	ND	12	12	5,000
	2	June 30, 2023	ND	ND	ND	ND	ND	ND	ND	2,500
BH23-29	0	July 6, 2023	ND	ND	ND	ND	ND	ND	ND	28,000
	2	July 6, 2023	ND	ND	ND	ND	ND	ND	ND	8,400
BH23-30	0	July 6, 2023	ND	ND	ND	ND	ND	ND	ND	17,000
	2	July 6, 2023	ND	ND	ND	ND	ND	ND	ND	5,600
BH23-31	0	July 6, 2023	ND	ND	ND	ND	ND	ND	ND	11,000
	2	July 6, 2023	ND	ND	ND	ND	ND	ND	ND	1,700
BH23-32	1	July 2, 2024	ND	ND	ND	ND	11	ND	11	1300
	3	July 2, 2024	ND	ND	ND	ND	830	2600	2611	2400
	4	July 2, 2024	ND	ND	ND	ND	1000	2900	3900	2900
BH23-33	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	1600
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	6400
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	4800
BH23-34	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	2200
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	2500
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	4900
BH23-35	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	2500
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	5000
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	8700

BH23-37	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	1700
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	3300
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	3100
BH23-38	1	July 2, 2024	ND	ND	ND	ND	18	46	64	1100
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	3900
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	3400
BH23-39	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	2300
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	29000
	4	July 2, 2024	ND	ND	ND	15	1100	560	1675	8400
	6	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	3100
BH23-40	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	6400
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	28000
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BH23-41	1	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	1500
	3	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	ND
	4	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	ND
	6	July 2, 2024	ND	ND	ND	ND	ND	ND	ND	ND

"ND" Not Detected at the Reporting Limit

VERTEX

Client Name: Devon Energy
Site Name: Spud 16 State 010H
NMOCD Tracking #: nAB1810133480
Project #: 23E-02857
Lab Reports: 885-5200-1, 885-7515-1, 890-7167-1, E410119

Table 4. Confirmatory Sample Laboratory Results

Sample Description			Petroleum Hydrocarbons						Inorganic
			Volatile		Extractable				
Sample ID	Depth (ft)	Sample Date	Benzene (mg/kg)	BTEX (Total) (mg/kg)	Gasoline Range Organics (GRO) (mg/kg)	Diesel Range Organics (DRO) (mg/kg)	Motor Oil Range Organics (MRO) (mg/kg)	Total Petroleum Hydrocarbons (TPH) (mg/kg)	Chloride Concentration (mg/kg)
			Depth to Groundwater less than 50'; Chloride Exception Under 15,000						
BS24-01	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	6140
BS24-02	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	7750
BS24-03	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	12100
BS24-04	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	7600
BS24-05	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	14200
BS24-06	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	7390
BS24-07	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	8040
BS24-08	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	7720
BS24-09	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	7010
BS24-10	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	6550
BS24-11	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	5020
BS24-12	4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	6880
BS24-13	4.5	September 20, 2024	ND	ND	ND	80.6	ND	80.6	6880
BS24-14	1	September 20, 2024	ND	ND	ND	**106**	ND	**106**	2980
	2	October 11, 2024	ND	ND	ND	ND	ND	ND	8010
BS24-15	1	September 20, 2024	ND	ND	ND	ND	ND	ND	7440
BS24-16	1	September 20, 2024	ND	ND	ND	ND	ND	ND	7070
BS24-17	1	September 20, 2024	ND	ND	ND	ND	ND	ND	10700
BS24-18	1	September 20, 2024	ND	ND	ND	ND	ND	ND	7730
BS24-19	1	September 20, 2024	ND	ND	ND	**121**	ND	**121**	4320
	2	October 11, 2024	ND	ND	ND	ND	ND	ND	4870
BS24-20	1	September 20, 2024	ND	ND	ND	ND	ND	ND	3040
WS24-01	0-4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	5040
WS24-02	0-4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	5600
WS24-03	0-4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	11800
WS24-04	0-4.5	September 20, 2024	ND	ND	ND	ND	ND	ND	8390
WS24-05	0-4.5	September 20, 2024	ND	0.00601	ND	ND	ND	ND	2870
WS24-06	0-1	September 20, 2024	ND	0.0046	ND	**161**	ND	**161**	2600
	0-2	October 11, 2024	ND	ND	ND	ND	ND	ND	2690
WS24-07	0-1	September 20, 2024	ND	ND	ND	ND	ND	ND	3140
WS24-08	0-1	September 20, 2024	ND	0.00502	ND	ND	ND	ND	4020
WS24-09	0-1	September 20, 2024	ND	0.00454	ND	**234**	64	**298**	948
	0-2	October 11, 2024	ND	ND	ND	ND	ND	ND	3640
WS24-10	0-1	September 20, 2024	ND	ND	ND	**172**	50.9	**222.9**	2450
	0-2	October 11, 2024	ND	ND	ND	ND	ND	ND	7230

"ND" Not Detected at the Reporting Limit
"-" indicates not analyzed/assessed
Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria

VERTEX

APPENDIX A - NMOCD C-141 Report(s) and Correspondence

NM OIL CONSERVATION
ARTESIA DISTRICT
APR 02 2018
RECEIVED

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised April 3, 2017

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

Release Notification and Corrective Action

nAB1810133480

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Devon Energy Production Company 6137	Contact Aaron Kidd
Address 6488 Seven Rivers Hwy Artesia, NM 88210	Telephone No. 575-748-3371
Facility Name Spud 16 State 10H	Facility Type Oil

Surface Owner Private	Mineral Owner State	API No. 30-015-41148

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	16	23S	29E					Eddy

Latitude 32.304161 N **Longitude** 103.983046 W NAD83

NATURE OF RELEASE

Type of Release Produced Water	Volume of Release 47 bbls of Produced Water	Volume Recovered 0 bbls of Produced Water
Source of Release Flowline	Date and Hour of Occurrence March 19, 2018 3:38 PM MST	Date and Hour of Discovery March 19, 2018 3:38 PM MST
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? OCD-Mike Bratcher & Crystal Weaver SLO-Tammy Honea	
By Whom? Mike Shoemaker- EHS Professional	Date and Hour March 20, 2018 6:41 PM	
Was a Watercourse Reached? ☒ Yes ☐ No	If YES, Volume Impacting the Watercourse. 17 Bbls Produced Water	

If a Watercourse was Impacted, Describe Fully.*
A flowline transferring produced water to the Charger SWD ruptured causing a release. Approximately 47 bbls of produced water was released and none was recovered. From measurements that were taken approximately 30 bbls of the release soaked into the ground and 17 bbls impacted the adjacent brine lake. The lake was inspected and no sheen was observed.

Describe Cause of Problem and Remedial Action Taken.*
A flowline transferring produced water to the Charger SWD ruptured causing a release. The transfer pump was immediately and shut in to prevent any further release.

Describe Area Affected and Cleanup Action Taken.*
Approximately 47 bbls of produced water was released and none was recovered. From measurements that were taken approximately 30 bbls of the release soaked into the ground and 17 bbls impacted the adjacent brine lake. The lake was inspected and no sheen was observed. An environmental contractor will be contacted to assist with delineation and remediation efforts.

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

Signature: *Tamala Robison*	OIL CONSERVATION DIVISION
Printed Name: Tamala Robison	Approved by Environmental Specialist: Crystal Weaver
Title: Field Admin Support	Approval Date: 4/10/18 Expiration Date: N/A
E-mail Address: Tamala.Robison@dvn.com	Conditions of Approval: see attached Attached ☒ 2RP-4692
Date: 4/02/2018 Phone: 575-748-3371	

* Attach Additional Sheets If Necessary

4/9/18 AB

State of New Mexico
Oil Conservation Division

Incident ID	nAB1810133480
District RP	2RP-04692-0
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<50 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☒ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☒ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☒ Yes ☐ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	nAB1810133480
District RP	2RP-04692-0
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: Env. Professional

Signature: Date:

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

OCD Only

Received by: Date:

State of New Mexico
Oil Conservation Division

Incident ID	nAB1810133480
District RP	2RP-04692-0
Facility ID	
Application ID	

Remediation Plan

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

☒ Detailed description of proposed remediation technique
☒ Scaled sitemap with GPS coordinates showing delineation points
☒ Estimated volume of material to be remediated
☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☐ Extents of contamination must be fully delineated.

☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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

Printed Name: Dale Woodall Title: Env. Professional

Signature: _____ Date: _____

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

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

From: Riley Plogger
To: Hamlet, Robert, EMNRD
Cc: Chad Hensley
Subject: Re: [EXTERNAL] Spud 16 State 10H incident number nAB1810133480
Date: Wednesday, November 20, 2024 8:24:01 AM

Thank you sir

Get Outlook for iOS

From: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Sent: Wednesday, November 20, 2024 8:23:00 AM
To: Riley Plogger <RPlogger@vertexresource.com>
Cc: Chad Hensley <CHensley@vertexresource.com>
Subject: RE: [EXTERNAL] Spud 16 State 10H incident number nAB1810133480

> **Caution:** This email is from an external sender. Please take care when clicking links or opening attachments. When in doubt, contact your IT Department

Riley,

I'll go ahead and log it in the Incident Details, so there's no confusion. Please double check the dates on future notifications. Thanks

Robert Hamlet • Environmental Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave.| Artesia, NM 88210
575.909.0302 | robert.hamlet@state.nm.us
http://www.emnrd.state.nm.us/OCD/

From: Riley Plogger <RPlogger@vertexresource.com>
Sent: Tuesday, November 19, 2024 2:37 PM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>
Cc: Chad Hensley <CHensley@vertexresource.com>
Subject: [EXTERNAL] Spud 16 State 10H incident number nAB1810133480

> You don't often get email from rplogger@vertexresource.com. Learn why this is important

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Good afternoon Robert, I am requesting a variance for the Spud 16 State 10H pasture

nAB1810133480. During confirmation sampling I got my dates mixed up with the Spud 16 State 10H

Battery nAPP2317939002. My dates for sampling on the Pasture were September 16th through the 18th but on my sampling I put the 20th. I was going to ask if you could help me out with my mix up

Riley Plogger
Eviromental Technician

Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, NM 88220

C. 575-361-9639

Riley Plogger
Environmental Field Technician

Vertex Resource Services Inc.

Houston, TX 77380-1335

C 575.361.9639

www.vertex.ca
Connect with LinkedIn

From: Chad Hensley
To: Riley Plogger
Subject: FW: NMOCD Spud 16 10 & 11H and Laguna Salado 22 Federal 4 & 5 meeting overview
Date: Wednesday, November 20, 2024 10:01:00 AM

For your correspondence in the closure report

From: Chad Hensley
Sent: Friday, November 8, 2024 9:17 AM
To: Hamlet, Robert, EMNRD <Robert.Hamlet@emnrd.nm.gov>; scott.rodgers@emnrd.nm.gov
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>; Raley, Jim <Jim.Raley@dvn.com>
Subject: FW: NMOCD Spud 16 10 & 11H and Laguna Salado 22 Federal 4 & 5 meeting overview

Good afternoon here is a brief overview what was discussed in the meeting 11/4/20024

Spud 16 10H Battery

Incident # nAPP2317939002

Confirmation sampling event with the variance of 10,000 chlorides. 1 sample BS24-45 needs to be resampled that has a chloride of 11,000

Spud 16 11H

Incident # nAPP2427745812

Confirmation sampling event was good with the variance of 10,000 chlorides to send closure report to OCD

Spud 16 10H

Incident # nAB1810133480

Confirmation sampling with the variance of 15,000 met criteria. Closure report needs to be sent to OCD

Laguna Salado 22 Federal 4H

Incident # NAB1627737279

2 background samples need to be taken North of release closer to spill area and North in vegetation . 1 Background sample to be collected East of pipeline and 1 South end of spill area. With a total of 4 backgrounds

Laguna Salado 22 Federal 5H:

Incident #: NAB1914043668

Proposed release area needs to be sampled along road and East of road near salt lake

for hydrocarbons

Riley Plogger
Eviromental Technician

Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, NM 88220

C. 575-361-9639

APPENDIX B – Closure Criteria Research Documentation

Closure Criteria Worksheet			
Site Name: Spud 16 State #010H			
Spill Coordinates: 32.304161,-103.983046			
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	**<50**	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	14,796	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	**197**	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	7,469	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**	10,188	feet
	ii) Within 1000 feet of any fresh water well or spring	10,188	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	9,632	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	Loam	
12	Ecological Classification	Gyp Upland	
13	Geology	Qpl - Lacustrine and playa deposits	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		<50'	<50' 51-100' >100'

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 02717	CUB	ED	4	2	4	16	23S	29E	595817	3574407*	166	400		
C 02718	CUB	ED	4	4	2	16	23S	29E	595816	3574812*	290	400		
C 01217 S	CUB	ED	4	1	4	16	23S	29E	595413	3574403*	332	350		
C 02715	CUB	ED	4	1	3	15	23S	29E	596221	3574411*	520	400		
C 02716	CUB	ED	4	4	4	16	23S	29E	595818	3574002*	546	400		
C 02808	CUB	ED		2	3	16	23S	29E	594909	3574501*	807	100		
C 02809	CUB	ED		2	3	16	23S	29E	594909	3574501*	807	100		
C 02720	CUB	ED		2	1	21	23S	29E	594911	3573690*	1169	150		
C 03058 EXPLORE	CUB	ED	4	1	1	16	23S	29E	594605	3575206*	1295	150		
C 02794	CUB	ED		4	3	10	23S	29E	596518	3575731*	1436	100		
C 02795	CUB	ED		4	3	10	23S	29E	596518	3575731*	1436	200		
C 03057 EXPLORE	CUB	ED	4	1	1	21	23S	29E	594605	3573586*	1463	150		
C 02797	CUB	ED		2	3	22	23S	29E	596540	3572895*	1838	200		
C 02721	CUB	ED		2	3	21	23S	29E	594915	3572879*	1843	150		
C 02705	C	ED			2	17	23S	29E	593902	3575093*	1896	68	28	40
C 02613	CUB	ED	4	4	2	20	23S	29E	594203	3573176*	2036	400		
C 02608	CUB	ED	3	1	4	17	23S	29E	593598	3574387*	2123	400		
C 02707	C	ED			2	28	23S	29E	595535	3571868*	2677	40	18	22
C 02806	CUB	ED		1	1	09	23S	29E	594473	3576927*	2692	100		
C 02807	CUB	ED		1	1	09	23S	29E	594473	3576927*	2692	100		
C 03059 EXPLORE	CUB	ED	4	1	3	17	23S	29E	592993	3574378*	2727		65	
C 02792	CUB	ED		4	3	04	23S	29E	594868	3577336*	2922	200		
C 02793	CUB	ED		4	3	04	23S	29E	594868	3577336*	2922	100		
C 04326 POD14	CUB	ED	4	2	3	23	23S	29E	598191	3572765	3044	58	54	4
C 04326 POD16	CUB	ED	2	4	3	23	23S	29E	598209	3572664	3119	64	54	10
C 02804	CUB	ED		2	1	08	23S	29E	593262	3576905*	3408	100		

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

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

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

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

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 02805	CUB	ED		2	1	08	23S	29E	593262	3576905*	3408	100		
C 02706	C	ED			4	18	23S	29E	592302	3574291*	3422	17	10	7
C 01627	C	ED	1	4	4	28	23S	29E	595649	3570959*	3580	170		
C 03587 POD2	CUB	ED	1	2	4	19	23S	29E	592213	3572706	3953	77	16	61
C 02704	C	ED			1	19	23S	29E	591531	3573493*	4313	174		
C 03587 POD1	CUB	ED	1	4	3	29	23S	29E	593338	3570754	4469	99	44	55
C 04597 POD1	CUB	ED	1	1	4	24	23S	29E	600124	3573002	4668			
C 04597 POD2	CUB	ED	1	1	4	24	23S	29E	600122	3572959	4680			
C 04470 POD1	CUB	ED	3	1	3	07	23S	29E	591280	3576086	4697			
C 04597 POD3	CUB	ED	1	1	4	24	23S	29E	600172	3572991	4716			
C 04597 POD4	CUB	ED	1	1	4	24	23S	29E	600159	3572947	4719			
C 04597 POD5	CUB	ED	2	1	4	24	23S	29E	600198	3572931	4761			
C 02182	C	ED			4	30	23S	29E	592328	3571048*	4864	75	30	45
C 04584 POD3	CUB	ED	3	2	2	13	23S	28E	590887	3575129	4864	31		
C 04472 POD1	CUB	ED	2	2	4	13	23S	29E	600639	3574619	4923		37	
C 04594 POD2	CUB	ED	4	2	2	13	23S	29E	600604	3575232	4936	42	34	8
C 04594 POD5	CUB	ED	4	2	2	13	23S	29E	600626	3575236	4959	30	30	0
C 04594 POD1	CUB	ED	4	2	2	13	23S	29E	600629	3575241	4963	36	31	5
C 04594 POD3	CUB	ED	4	2	2	13	23S	29E	600645	3575280	4984	38	27	11
C 04594 POD7	CUB	ED	4	2	2	13	23S	29E	600659	3575217	4989	34	28	6
C 04594 POD6	CUB	ED	4	2	2	13	23S	29E	600659	3575220	4989	34	28	6

Average Depth to Water: **33 feet**
Minimum Depth: **10 feet**
Maximum Depth: **65 feet**

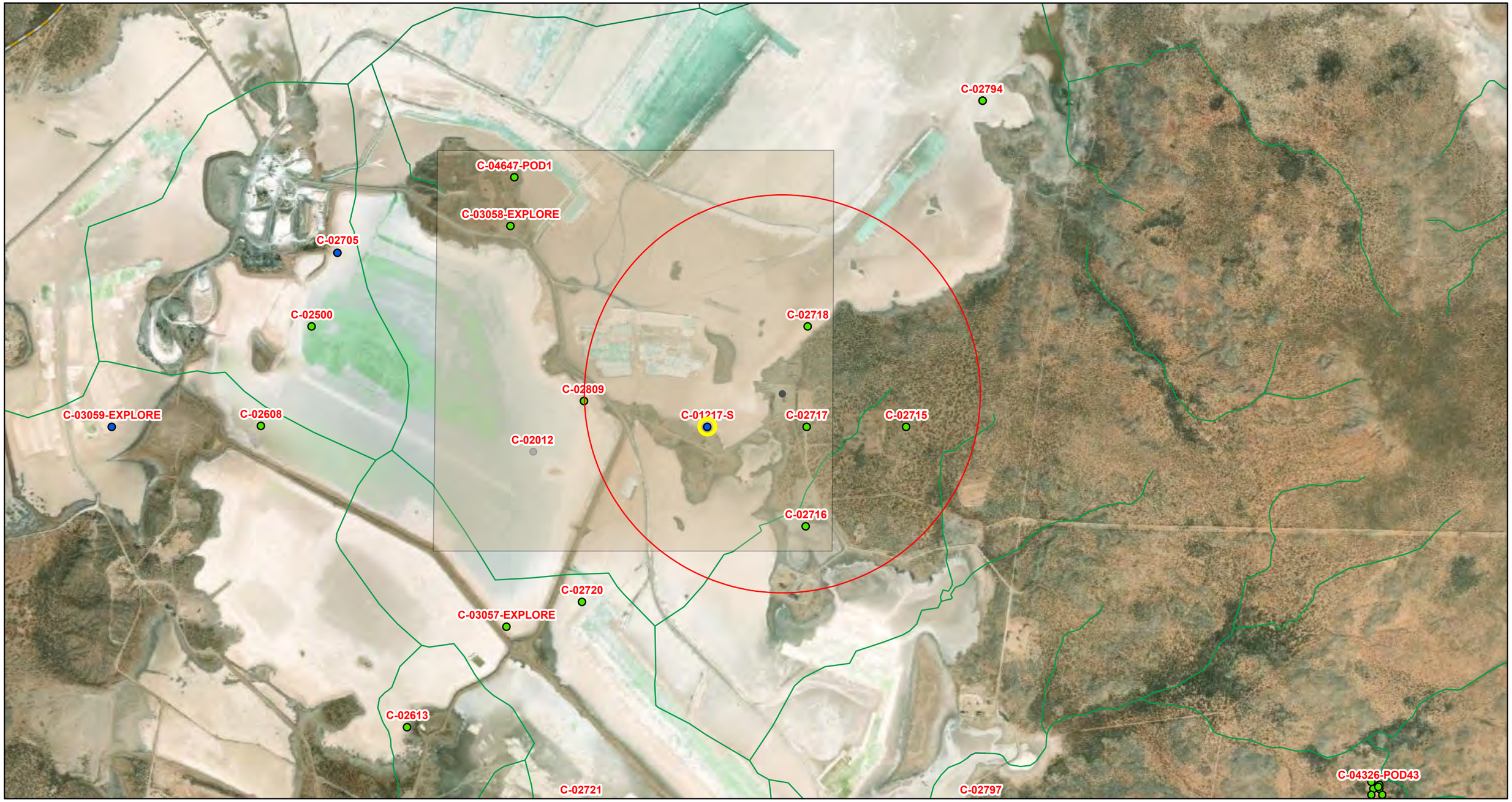
Record Count: 47

UTMNAD83 Radius Search (in meters):

Easting (X): 595716 **Northing (Y):** 3574539 **Radius:** 5000

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

Spud 16 State 10H Battery OSE POD Locations Map



5/17/2023, 12:23:09 PM

GIS WATERS PODs
- Active
- Pending

OSE District Boundary

New Mexico State Trust Lands

Subsurface Estate

NHD Flowlines
- Artificial Path
- Connector
- Stream River

SiteBoundaries

1:18,056

0 0.17 0.35 0.7 mi

0 0.3 0.6 1.2 km

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

Web Generated Map
Map is generated by web users.

Point of Diversion Summary

quarters are 1=NW 2=NE 3=SW 4=SE
quarters are smallest to largest

NAD83 UTM in meters

Well Tag	POD Nbr	Q64	Q16	Q4	Sec	Tws	Rng	X	Y	Map
NA	C 04326 POD16	NE	SE	SW	23	23S	29E	598209.2	3572664.1	

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

Driller License:	1664	**Driller Company:**	CASCADE DRILLING, LP		
Driller Name:	CAIN, SHAWN N.NJR.L.NER				
Drill Start Date:	2019-05-14	**Drill Finish Date:**	2019-05-14	**Plug Date:**	
Log File Date:	2019-08-28	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	2.07	**Depth Well:**	64	**Depth Water:**	54

Water Bearing Stratifications:

Top	Bottom	Description
52	60	Limestone/Dolomite/Chalk

Casing Perforations:

Top	Bottom
54	64

New Mexico Office of the State Engineer
Point of Diversion Summary

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

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 01217 S	4	1	4	16	23S	29E	595413	3574403*

Driller License:	1192	**Driller Company:**	UNITED DRILLING, INC.		
Driller Name:	MORENO, JOSE				
Drill Start Date:	12/21/1998	**Drill Finish Date:**	01/12/1999	**Plug Date:**	
Log File Date:	01/21/2000	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	16.00	**Depth Well:**	350 feet	**Depth Water:**	

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

New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	C 02705			2	17	23S	29E	593902	3575093*

Driller License:	1348	**Driller Company:**	TAYLOR WATER WELL SERVICE		
Driller Name:					
Drill Start Date:	05/24/2000	**Drill Finish Date:**	05/26/2000	**Plug Date:**	
Log File Date:	08/28/2000	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	35 GPM
Casing Size:	2.38	**Depth Well:**	68 feet	**Depth Water:**	28 feet

Water Bearing Stratifications:	Top	Bottom	Description
	48	55	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	48	68

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

SP

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

46309

Section 1. GENERAL INFORMATION

(A) Owner of well IMC Kalium Owner's Well No. _____
Street or Post Office Address Box 71
City and State Carlsbad, NM 88220

Well was drilled under Permit No. C-2705 and is located in the:

a. NE ¼ ¼ ¼ ¼ of Section 19 Township 23S Range 29E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Taylor Water Well Service License No. WD-1348

Address 7317 Etcheverry Rd., Carlsbad, NM 88220

Drilling Began 5/24/00 Completed 5/26/00 Type tools Rotary Size of hole 6 in.

Elevation of land surface or _____ at well is UK ft. Total depth of well 68 ft.

Completed well is ☒ shallow ☐ artesian. Depth to water upon completion of well 28 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
48	55	7	Sand+fn gravel	35

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
2 3/8	Sch 40	Flush	+2	68	70	Cap	48	68

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by:
_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received 08-28-2000

Quad _____ FWL _____ FSL _____

File No. C-2705 Use Monitor Location No. 23S.29E.19.2

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	Soil
2	40	38	Clay:rd,pnk,sme brn,slty
40	48	8	Clay:off wht,sft,smth
48	55	7	Sand+Gravel:clr,fstd,yel,rnd,sb rnd,med grn,sme gravel,1my
55	62	7	Clay:yel,smth
62	65	3	Clay:gn gry,smth
65	84	19	Clay:rd,sme gry anhy+gyp
84	92	12	Clay:gry,sme gry siltstone
92	98	6	Clay:rd,brn,sme gry siltstone
98	106	8	Clay:blu gry,sme wht-pnk anhy
106	150	44	Clay:rd,sme brn,sft,smth,sme thin sections of wht-pnk anhy

Section 7. REMARKS AND ADDITIONAL INFORMATION

Drilled with mud to 150'. Packer test and then plug back to 68' with cement grout. Sand pack from 68'-45'. Grout with bentonite from 45' to surface.

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, ex[redacted]Section 5, shall be answered as completely[redacted]accurately as possible when any well is drilled, repaired or deepened. When this [redacted] is used as a plugging record, only Section 1[redacted]nd Section 5 n[redacted] be

U.S. Fish and Wildlife Service
National Wetlands Inventory

Spud 16 State #010H Lake 0.04 miles

October 20, 2023

Wetlands

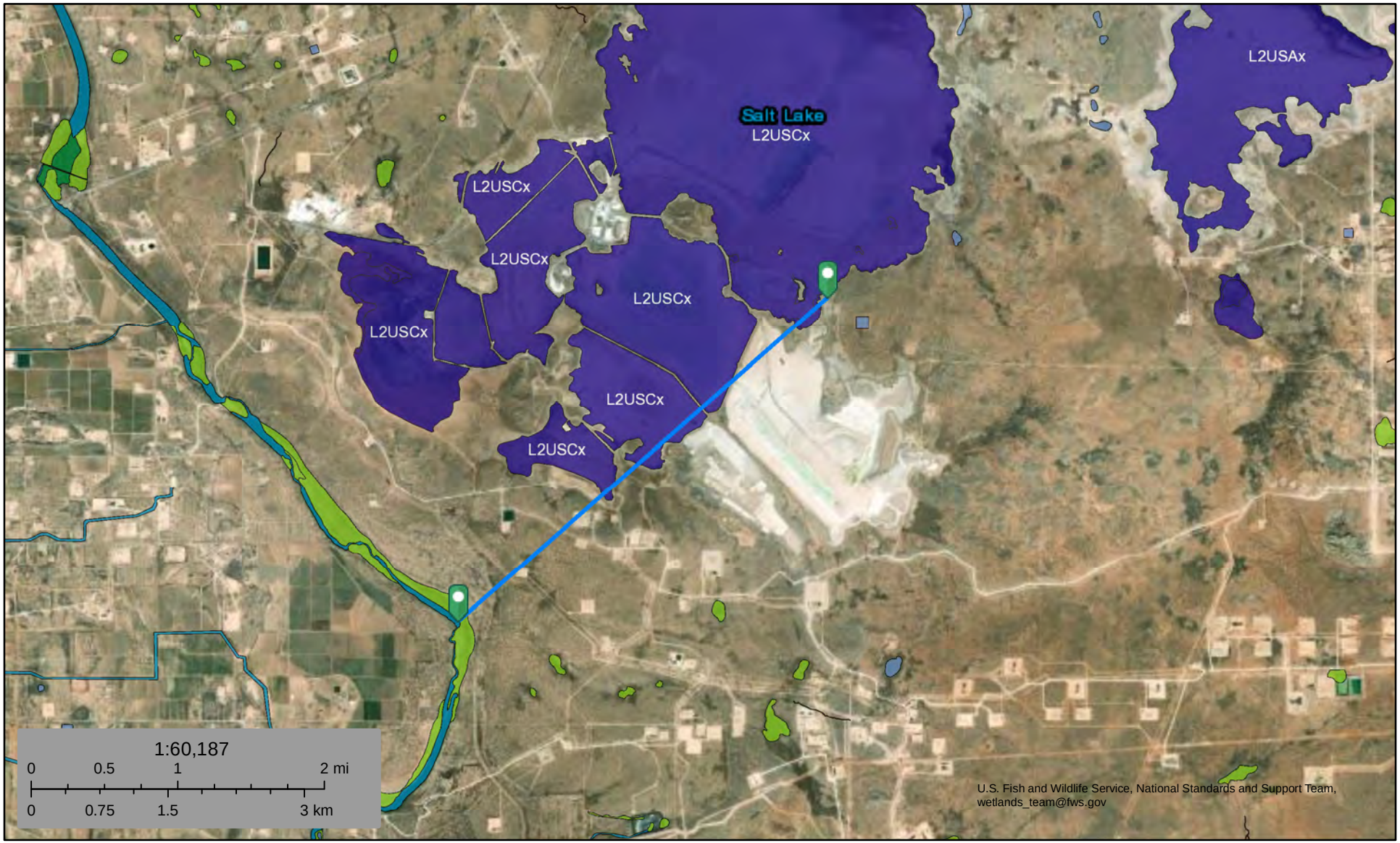
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

U.S. Fish and Wildlife Service

National Wetlands Inventory

02 - Watercourse - Spud 16 State 10 Battery
14,957 feet away (2.83 miles)



July 19, 2023

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

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 02717	CUB	MON	0	UNITED SALT CORPORATION	ED	C 02717					4 2 4	16	23S	29E	595817	3574407*	166
C 02718	CUB	MON	0	UNITED SALT CORPORATION	ED	C 02718					4 4 2	16	23S	29E	595816	3574812*	290
C 01217	CUB	COM	150	INTREPID MINING NM LLC US BANK NATIONAL ASSOCIATION	ED	C 01217 S				Shallow	4 1 4	16	23S	29E	595413	3574403*	332
C 02622	CUB	COM	0	UNITED SALT CORPORATION	ED	C 01217 S				Shallow	4 1 4	16	23S	29E	595413	3574403*	332
C 02715	CUB	MON	0	UNITED SALT CORPORATION	ED	C 02715					4 1 3	15	23S	29E	596221	3574411*	520
C 02716	CUB	MON	0	UNITED SALT CORPORATION	ED	C 02716					4 4 4	16	23S	29E	595818	3574002*	546
C 02808	CUB	MON	0	IMC	ED	C 02808					2 3	16	23S	29E	594909	3574501*	807
C 02809	CUB	MON	0	IMC	ED	C 02809					2 3	16	23S	29E	594909	3574501*	807
C 02012	C	STK	3	HENRY H GRANDI	ED	C 02012					3	16	23S	29E	594705	3574293*	1040
C 02720	CUB	MON	0	JOHN WOZNICWICZ	ED	C 02720					2 1	21	23S	29E	594911	3573690*	1169
C 03058	CUB		0	UNITED SALT CORPORATION	ED	C 03058 EXPLORE					4 1 1	16	23S	29E	594605	3575206*	1295
C 04647	CUB	EXP	0	ENVIROTECH DRILLING SERV TETRA TECH INC	ED	C 04647 POD1	NA				2 1 1	16	23S	29E	594621	3575404	1395
C 02794	CUB	MON	0	IMC	ED	C 02794					4 3	10	23S	29E	596518	3575731*	1436
C 02795	CUB	MON	0	IMC	ED	C 02795					4 3	10	23S	29E	596518	3575731*	1436
C 03057	CUB	EXP	0	UNITED SALT CORPORATION	ED	C 03057 EXPLORE					4 1 1	21	23S	29E	594605	3573586*	1463
C 02797	CUB	MON	0	IMC	ED	C 02797					2 3	22	23S	29E	596540	3572895*	1838
C 02721	CUB	MON	0	JOHN WOZNICWICZ	ED	C 02721					2 3	21	23S	29E	594915	3572879*	1843
C 02705	C		0	IMC KALIUM	ED	C 02705				Shallow	2	17	23S	29E	593902	3575093*	1896

***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 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance
C 02500	CUB	EXP	0	UNITED SALT CORPORATION	ED	C 02500				4	3	2	17	23S	29E	593800	3574791*	1932
C 02613	CUB	EXP	0	UNITED SALT CORPORATION	ED	C 02613				4	4	2	20	23S	29E	594203	3573176*	2036
C 02608	CUB	EXP	0	UNITED SALT CORPORATION	ED	C 02608			Shallow	3	1	4	17	23S	29E	593598	3574387*	2123
C 04326	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04326 POD49	NA			2	4	3	23	23S	29E	597378	3572591	2560
C 02707	C		0	IMC KALIUM	ED	C 02707			Shallow			2	28	23S	29E	595535	3571868*	2677
C 02806	CUB	MON	0	IMC	ED	C 02806					1	1	09	23S	29E	594473	3576927*	2692
C 02807	CUB	MON	0	IMC	ED	C 02807					1	1	09	23S	29E	594473	3576927*	2692
C 03059	CUB		0	UNITED SALT CORPORATION	ED	C 03059 EXPLORE			Shallow	4	1	3	17	23S	29E	592993	3574378*	2727
C 04326	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04326 POD1	NA			1	2	3	23	23S	29E	598124	3572992	2862
					ED	C 04326 POD50				3	2	3	23	23S	29E	597992	3572782	2875
					ED	C 04326 POD51				3	2	3	23	23S	29E	598034	3572817	2887
					ED	C 04326 POD4				1	2	3	23	23S	29E	598135	3572962	2888
					ED	C 04326 POD6				1	2	3	23	23S	29E	598125	3572940	2891
					ED	C 04326 POD2				1	2	3	23	23S	29E	598156	3572980	2895
					ED	C 04326 POD43					2	3	23	23S	29E	598153	3572971	2898
					ED	C 04326 POD8				3	2	3	23	23S	29E	598097	3572884	2899
					ED	C 04326 POD3				1	2	3	23	23S	29E	598156	3572962	2905
					ED	C 04326 POD44				3	2	3	23	23S	29E	598050	3572781	2921
C 02792	CUB	MON	0	IMC	ED	C 02792					4	3	04	23S	29E	594868	3577336*	2922
C 02793	CUB	MON	0	IMC	ED	C 02793					4	3	04	23S	29E	594868	3577336*	2922
C 04326	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04326 POD5	NA			2	2	3	23	23S	29E	598169	3572940	2928
					ED	C 04326 POD45				3	2	3	23	23S	29E	598095	3572822	2934

***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 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance
					ED	C 04326 POD9					3	2	3	23	23S	29E	598136	3572873	2938
					ED	C 04326 POD7					3	2	3	23	23S	29E	598157	3572894	2943
					ED	C 04326 POD40						2	3	23	23S	29E	598114	3572815	2953
C 04456	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04456 POD2	NA				3	2	3	23	23S	29E	598103	3572791	2958
C 04326	CUB	MON	0	XTO ENERGY INC	ED	C 04326 POD10	NA				4	2	3	23	23S	29E	598170	3572882	2961
					ED	C 04326 POD41						2	3	23	23S	29E	598097	3572775	2963
C 04456	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04456 POD3	NA				3	2	3	23	23S	29E	598134	3572815	2969
C 04326	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04326 POD25	NA				3	2	3	23	23S	29E	598123	3572747	3000
					ED	C 04326 POD35					3	2	3	23	23S	29E	598142	3572767	3004
					ED	C 04326 POD29					3	2	3	23	23S	29E	598145	3572769	3005
					ED	C 04326 POD46					3	2	3	23	23S	29E	598131	3572748	3007
					ED	C 04326 POD18					4	2	3	23	23S	29E	598168	3572792	3011
					ED	C 04326 POD42						2	3	23	23S	29E	598113	3572694	3025
C 04456	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04456 POD1	NA				1	4	3	23	23S	29E	598112	3572682	3031
C 04326	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04326 POD11	NA				4	2	3	23	23S	29E	598220	3572827	3033
					ED	C 04326 POD30					4	2	3	23	23S	29E	598177	3572763	3035
					ED	C 04326 POD14				Shallow	4	2	3	23	23S	29E	598190	3572765	3044
					ED	C 04326 POD24					3	2	3	23	23S	29E	598160	3572716	3049
					ED	C 04326 POD26					4	2	3	23	23S	29E	598193	3572746	3057
C 04456	CUB	MON	0	XTO ENERGY INC	ED	C 04456 POD4	NA				1	4	1	23	23S	29E	598126	3572657	3057
C 04326	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04326 POD12	NA				4	2	3	23	23S	29E	598228	3572790	3061
					ED	C 04326 POD17					4	2	3	23	23S	29E	598198	3572729	3072

(acre ft per annum)

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance
					ED	C 04326 POD13					4	2	3	23	23S	29E	598249	3572791	3078
					ED	C 04326 POD48					1	4	3	23	23S	29E	598111	3572597	3082
					ED	C 04326 POD23					1	4	3	23	23S	29E	598166	3572662	3086
					ED	C 04326 POD47					1	4	3	23	23S	29E	598128	3572612	3087
					ED	C 04326 POD36					4	2	3	23	23S	29E	598256	3572777	3091
					ED	C 04326 POD15					2	4	3	23	23S	29E	598202	3572692	3097
					ED	C 04326 POD22					4	2	3	23	23S	29E	598228	3572722	3100
					ED	C 04326 POD33					4	2	3	23	23S	29E	598253	3572750	3104
					ED	C 04326 POD32					4	2	3	23	23S	29E	598253	3572726	3118
					ED	C 04326 POD16				Shallow	2	4	3	23	23S	29E	598209	3572664	3119
					ED	C 04326 POD31					4	2	3	23	23S	29E	598258	3572726	3122
					ED	C 04326 POD53					4	2	3	23	23S	29E	598325	3572820	3124
					ED	C 04326 POD37					4	2	3	23	23S	29E	598282	3572751	3127
					ED	C 04326 POD28					2	4	3	23	23S	29E	598204	3572644	3127
					ED	C 04326 POD19					2	4	3	23	23S	29E	598232	3572673	3132
					ED	C 04326 POD20					2	4	3	23	23S	29E	598249	3572684	3139
					ED	C 04326 POD38					2	4	3	23	23S	29E	598216	3572633	3144
					ED	C 04326 POD34					2	4	3	23	23S	29E	598265	3572696	3145
					ED	C 04326 POD39					2	4	3	23	23S	29E	598266	3572683	3153
					ED	C 04326 POD27					2	4	3	23	23S	29E	598272	3572684	3157
					ED	C 04326 POD21					2	4	3	23	23S	29E	598250	3572654	3158
					ED	C 04326 POD52					4	2	3	23	23S	29E	598366	3572767	3188

(acre ft per annum)

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code Grant	Source	q 6416	q 4	q	Sec	Tws	Rng	X	Y	Distance
C 02804	CUB	MON	0	IMC	ED	C 02804				2	1		08	23S	29E	593262	3576905*	3408
C 02805	CUB	MON	0	IMC	ED	C 02805				2	1		08	23S	29E	593262	3576905*	3408
C 02706	C		0	IMC KALIUM	ED	C 02706			Shallow		4		18	23S	29E	592302	3574291*	3422
C 01627	C	PRO	0	EXXON CORPORATION	ED	C 01627				1	4	4	28	23S	29E	595649	3570959*	3580
C 03377	C	STK	3	B F & G FARMS	ED	C 03377 POD1				3	3	2	29	23S	29E	593596	3571587	3634
C 03587	CUB	MON	0	MOSAIC POTASH CARLSBAD INC	ED	C 03587 POD2			Shallow	1	2	4	19	23S	29E	592213	3572706	3953
C 02704	C		0	IMC KALIUM	ED	C 02704			Shallow		1		19	23S	29E	591531	3573493*	4313
C 03587	CUB	MON	0	MOSAIC POTASH CARLSBAD INC	ED	C 03587 POD1			Shallow	1	4	3	29	23S	29E	593337	3570754	4469
C 04597	CUB	MON	0	WSP USA INC	ED	C 04597 POD1	NA			1	1	4	24	23S	29E	600124	3573002	4668
					ED	C 04597 POD2				1	1	4	24	23S	29E	600122	3572959	4680
C 04470	CUB	MON	0	MARATHON OIL	ED	C 04470 POD1	NA			3	1	3	07	23S	29E	591280	3576086	4697
C 04597	CUB	MON	0	XTO ENERGY INC	ED	C 04597 POD3	NA			1	1	4	24	23S	29E	600171	3572991	4716
					ED	C 04597 POD4				1	1	4	24	23S	29E	600158	3572947	4719
					ED	C 04597 POD10				3	1	4	24	23S	29E	600145	3572875	4731
C 04550	CUB	MON	0	WSP GLOBAL INC	ED	C 04550 POD2	NA			3	2	2	13	23S	29E	600389	3575323	4738
C 04597	CUB	MON	0	WSP USA INC	ED	C 04597 POD9	NA			3	1	4	24	23S	29E	600173	3572902	4747
					ED	C 04597 POD5				2	1	4	24	23S	29E	600198	3572931	4761
C 04550	CUB	MON	0	XTO ENERGY INC	ED	C 04550 POD3	NA			1	2	2	13	23S	29E	600410	3575409	4774
C 04597	CUB	MON	0	WSP USA INC	ED	C 04597 POD12	NA			4	1	4	24	23S	29E	600188	3572860	4776
					ED	C 04597 POD7				4	1	4	24	23S	29E	600213	3572893	4788
					ED	C 04597 POD6				4	1	4	24	23S	29E	600221	3572917	4788
C 04490	CUB	MON	0	MOSAIC POTASH CARLSBAD INC	ED	C 04490 POD5	NA			4	3	3	19	23S	29E	591424	3572381	4803

***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 6416	q 4	Sec	Tws	Rng	X	Y	Distance
C 02182	C	PRO	0	SANTA FE ENERGY	ED	C 02182				Shallow		4	30	23S	29E	592328	3571048*	4864
C 04584	CUB	MON	0	GOLDER ASSOCIATES INC	ED	C 04584 POD3	NA			Shallow	3	2 2	13	23S	28E	590887	3575129	4864
C 04472	CUB	MON	0	LT ENVIRONMENTAL INC	ED	C 04472 POD1	NA			Shallow	2	2 4	13	23S	29E	600639	3574619	4923
C 04594	CUB	MON	0	KYLE LITTRELL	ED	C 04594 POD2	NA			Shallow	4	2 2	13	23S	29E	600603	3575232	4936
					ED	C 04594 POD5				Shallow	4	2 2	13	23S	29E	600626	3575236	4959
					ED	C 04594 POD1				Shallow	4	2 2	13	23S	29E	600629	3575241	4963
					ED	C 04594 POD3				Shallow	4	2 2	13	23S	29E	600645	3575280	4984
					ED	C 04594 POD7				Shallow	4	2 2	13	23S	29E	600658	3575217	4989
					ED	C 04594 POD6				Shallow	4	2 2	13	23S	29E	600658	3575220	4989

Record Count: 115

UTMNAD83 Radius Search (in meters):

Easting (X): 595716 **Northing (Y):** 3574539 **Radius:** 5000

Sorted by: Distance

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

New Mexico Office of the State Engineer
Water Right Summary

WR File Number: C 02718 **Subbasin:** CUB **Cross Reference:** -

Primary Purpose: MON MONITORING WELL

Primary Status: PMT PERMIT

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

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

Owner: UNITED SALT CORPORATION

Contact: E.J. DANIEL

Documents on File

Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
183422	EXPL	2000-06-22	PMT	APR	C 02718	T	0	0	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02718			4	4	2	16	23S	29E	595816	3574812*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

Source

Acres	Diversion	CU	Use	Priority	Source	Description
0	0		MON		GW	

New Mexico Office of the State Engineer

Water Right Summary

get image list

WR File Number: C 02012 **Subbasin:** C **Cross Reference:** -

Primary Purpose: STK 72-12-1 LIVESTOCK WATERING

Primary Status: PMT PERMIT

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

Total Diversion: 3 **Cause/Case:** -

Owner: HENRY H GRANDI

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	465160	72121	1982-05-25	PMT	APR	C 02012	T		3	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
C 02012					3	16	23S	29E	594705	3574293*	

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

U.S. Fish and Wildlife Service
National Wetlands Inventory

SPUD 16 STATE 10H Wetland

May 17, 2023

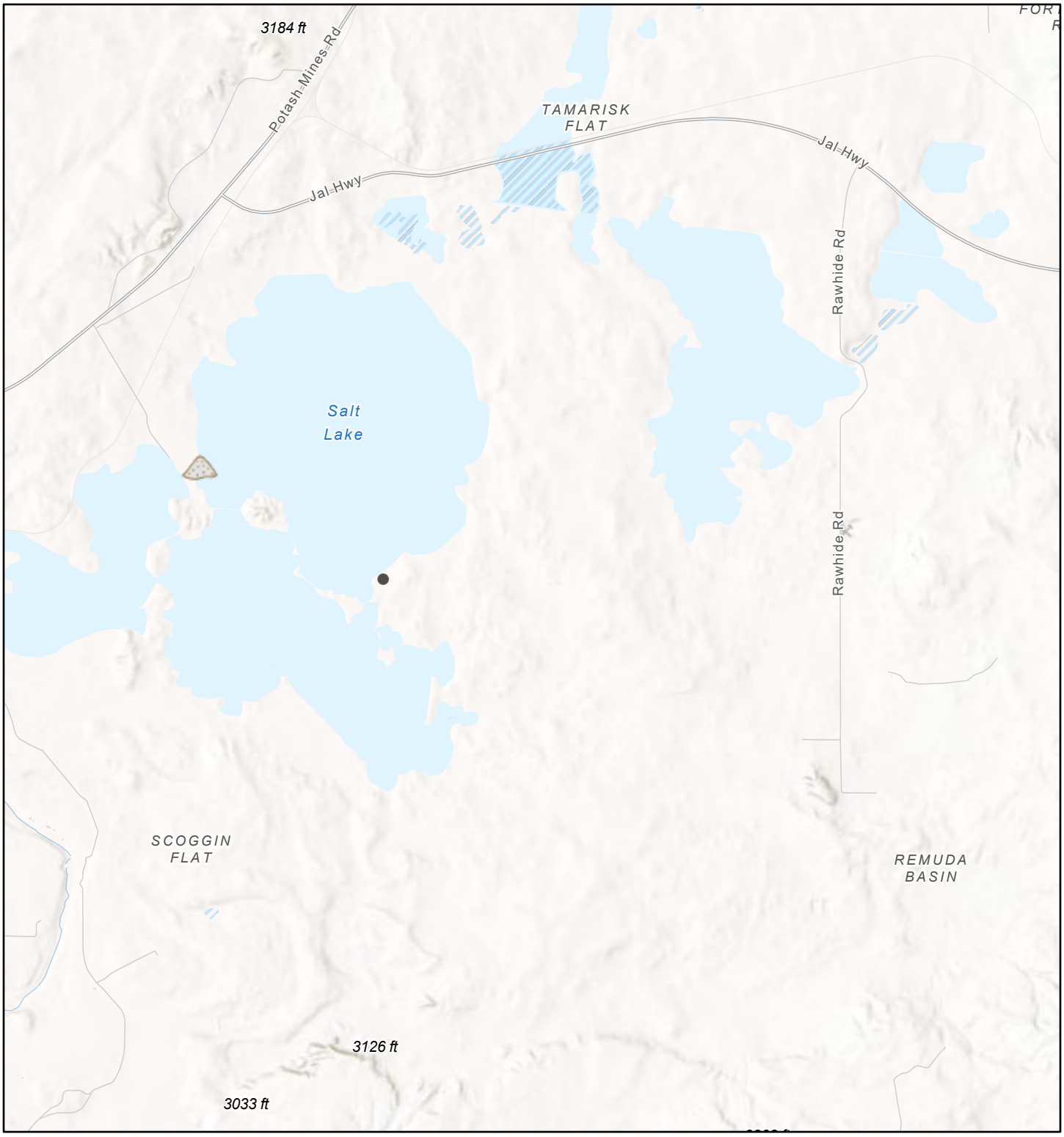
Wetlands

- 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

08 - Mines - Spud 16 State 10 Battery



7/19/2023, 4:47:32 PM

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

Registered Mines

- Aggregate, Stone etc.
- Salt

Esri, NASA, NGA, USGS, FEMA, New Mexico State University, Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

EMNRD MMD GIS Coordinator

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

Registered Mines in New Mexico

NM Mining and Minerals Division

EMNRD Home Help

32.304161, -103.983046

Show search results for 32.304161, -1...

Legend

Registered Mines

- Aggregate, Stone etc.
- Coal
- Gypsum
- Humate
- Industrial Minerals (Other)
- Metals
- Perlite
- Potash
- PM Pumice
- Red Dog, Scoria
- Salt
- U Uranium
- ZE Zeolites

Mineral_and_Surface_Ownership

Land Ownership

- BLM
- BOR
- DOD
- DOE
- FS
- FWS
- I
- NPS
- P
- S
- SGF
- SP
- USDA
- VCNP

Public Land Survey System (PLSS)

Registered Mines: United Salt Corp. Lake Mine

Name	United Salt Corp. Lake Mine
County	Eddy
Program	Mine Registration Program
Status	Active Mining
Commodities	Salt
LandClasses	Private
MineralClasses	Private
Forms	Industrial Minerals Mining
MSHAIdents	2901042
MineTypes	Surface - Other
Quads	Loving
PLSS	Sec 17 T23S R29E, Sec 8 T23S R29E

Zoom to

Salt Lake

Private

BLM

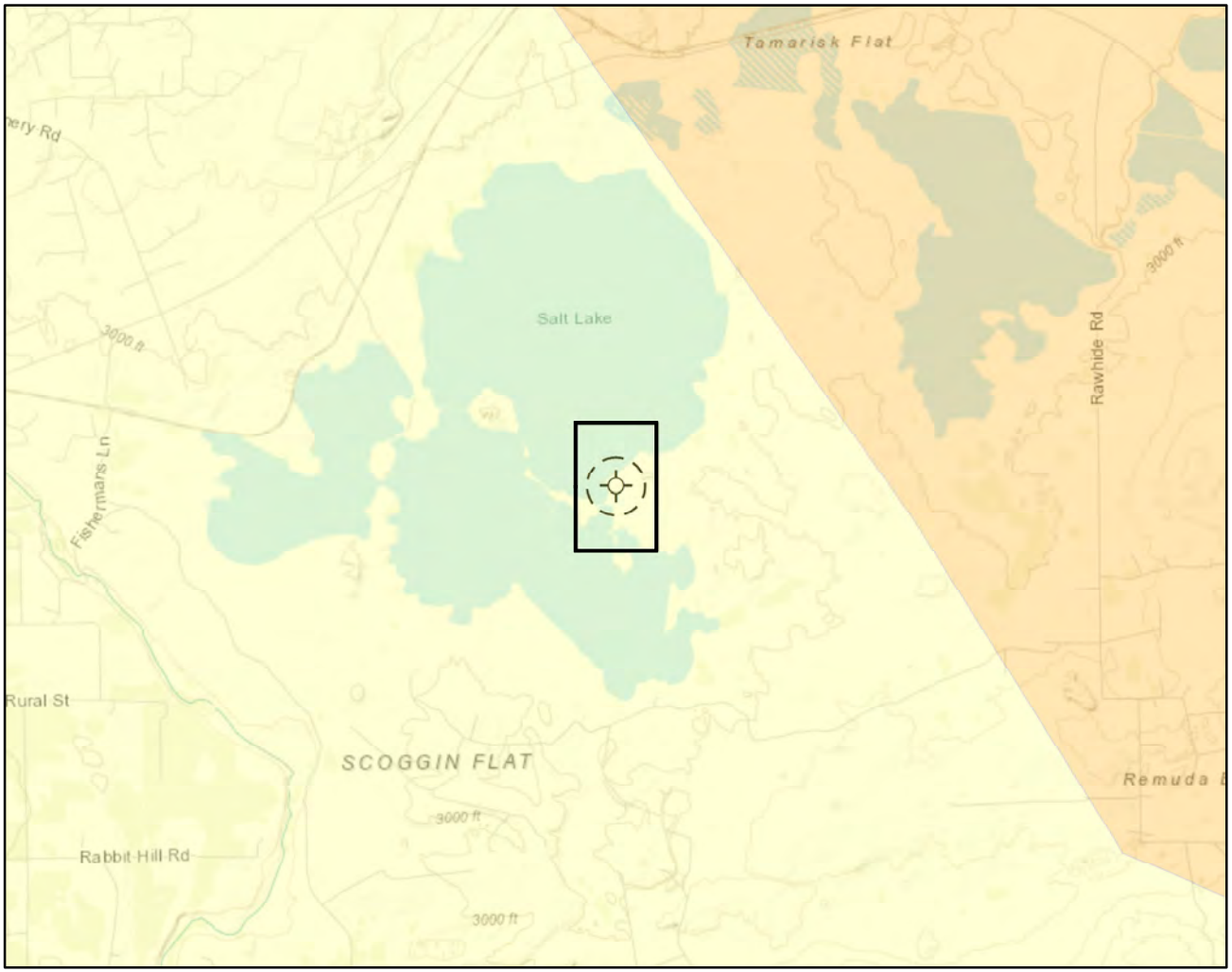
3006 ft

3014 ft

0.4km 0.3mi

-104.032 32.315 Degrees

Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, New Mexico State University



Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.304161, -103.983046

NAD 1983 UTM Zone 13N
Date: Jun 22/23

N

Karst Potential Schematic
Spud 16 State 10H

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, Georeferenced image from ESRI, 2022; Overview Map: ESRI World Topographic. Karst potential data sourced from Rosswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

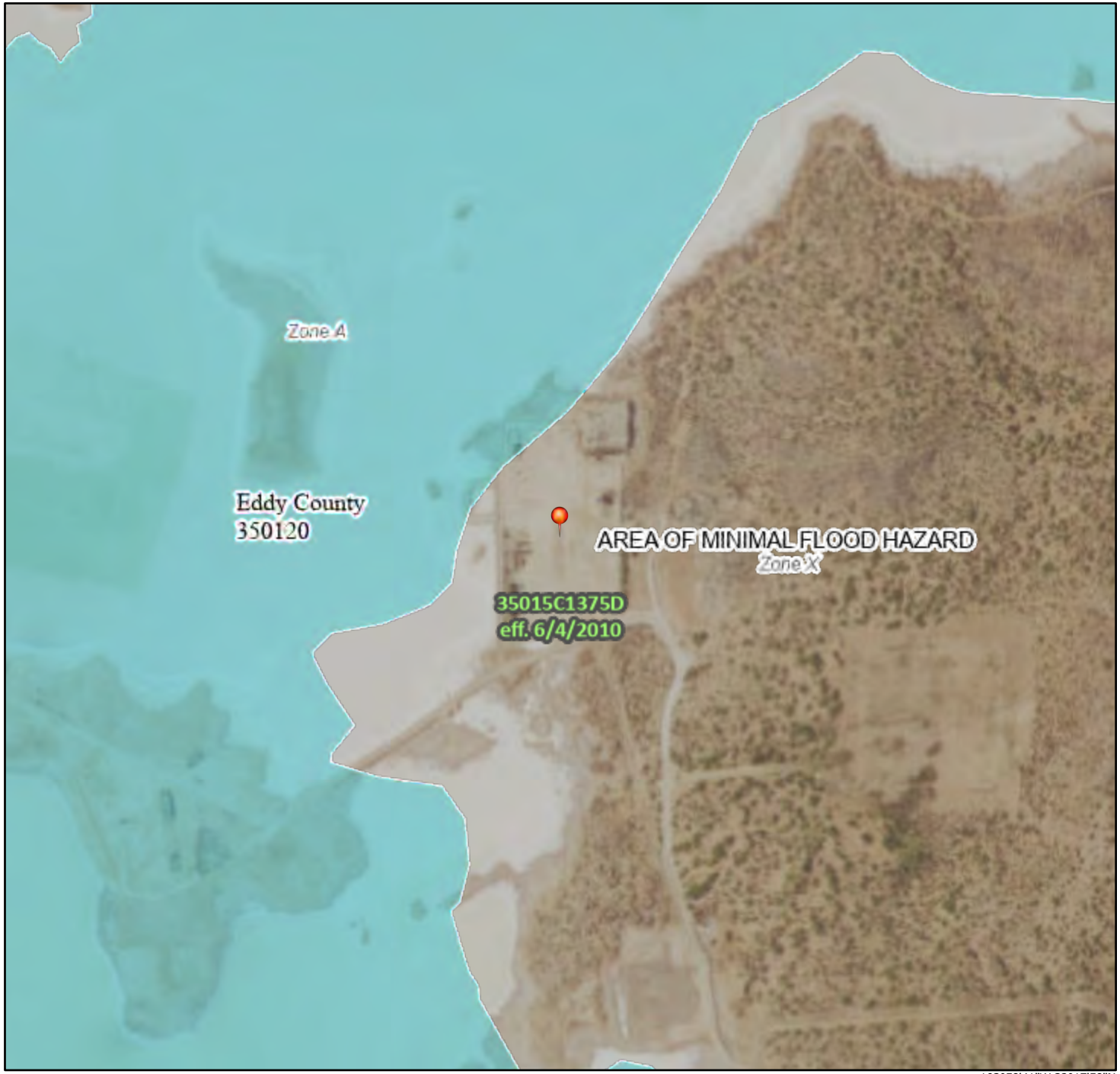
VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2023\23E-02857 - Spud 16 State 10H\Figure X Karst Potential Schematic- Spud 16 Sate10H (23E-02857)_Request#15884.mxd

National Flood Hazard Layer FIRMette

FEMA

103°59'19"W 32°18'28"N



103°58'41"W 32°17'58"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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 Cross Sections with 1% Annual Chance
- 17.5 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 5/17/2023 at 3:17 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 Eddy Area, New Mexico

October 20, 2023

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

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

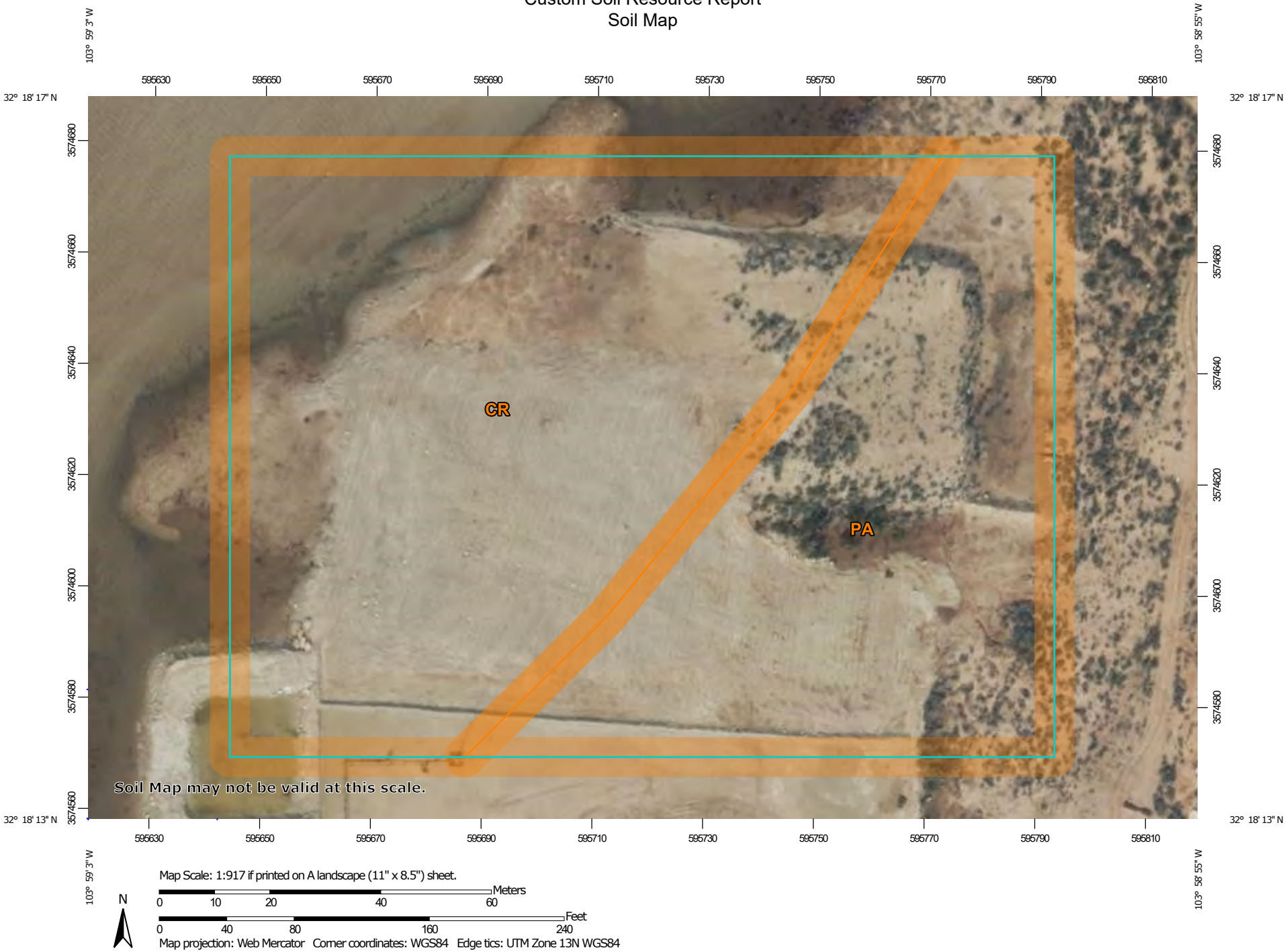
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Eddy Area, New Mexico
Survey Area Data: Version 19, Sep 7, 2023

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

Date(s) aerial images were photographed: Nov 12, 2022—Dec 2, 2022

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
CR	Cottonwood-Reeves loams, overflow, 0 to 3 percent slopes	2.4	60.3%
PA	Pajarito loamy fine sand, 0 to 3 percent slopes, eroded	1.6	39.7%
Totals for Area of Interest		**4.0**	**100.0%**

Map Unit Descriptions

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

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

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

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

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Eddy Area, New Mexico

CR—Cottonwood-Reeves loams, overflow, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1w47
Elevation: 3,000 to 4,300 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Cottonwood and similar soils: 60 percent
Reeves and similar soils: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cottonwood

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, head slope, nose slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 60 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 3 to 12 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 20 percent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: R070BB006NM - Gyp Upland
Hydric soil rating: No

Description of Reeves

Setting

Landform: Plains, ridges, hills
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, head slope, nose slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from gypsum

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 32 inches: clay loam
H3 - 32 to 60 inches: gypsiferous material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 20 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B
Ecological site: R070BB006NM - Gyp Upland
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 5 percent
Hydric soil rating: No

PA—Pajarito loamy fine sand, 0 to 3 percent slopes, eroded

Map Unit Setting

National map unit symbol: 1w54
Elevation: 2,700 to 5,500 feet

Mean annual precipitation: 5 to 15 inches
Mean annual air temperature: 57 to 70 degrees F
Frost-free period: 180 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Pajarito and similar soils: 98 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pajarito

Setting

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

Typical profile

H1 - 0 to 13 inches: loamy fine sand
H2 - 13 to 36 inches: fine sandy loam
H3 - 36 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Wink

Percent of map unit: 1 percent
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Berino

Percent of map unit: 1 percent
Ecological site: R070BD003NM - Loamy Sand
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

USDA Natural Resources Conservation Service

Ecological site R070BB006NM
Gyp Upland

Accessed: 10/20/2023

General information

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

Figure 1. Mapped extent

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

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on valley floors, plains, fan piedmonts, piedmont slopes or relic lakebeds on basins. The parent material consists of mixed alluvium and or eolian deposits derived from sedimentary rock or residuum weathered from gypsum. Slopes range from 0 to 35 percent and average less than 8 percent. The soil does not meet hydric critera, the calcium carbonate equivalent with in the control section is less than 20 percent and gypsum percent greater than 40 percent. Elevations range from 2,800 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Fan remnant (3) Basin-floor remnant
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	None to occasional
Ponding duration	Very brief (4 to 48 hours)
Ponding frequency	None to rare
Elevation	2,800–5,000 ft
Slope	0–35%
Aspect	Aspect is not a significant factor

Climatic features

The frost free season ranges from180 to 221 days between early April and late October. The optimum growing season of the major native warm season plants coincides with the summer rains during June, July, August, and September. However, plants can make some growth at any time during the frost free period when moisture is available and minimum daily temperatures stay above 51 degrees F.

Vegetation on this site will be limited to plants which can take advantage of moisture at the time it falls, since the

soil profiles have large amounts of available water for short periods of time and then rapidly dry. The majority of precipitation comes in the form of high intensity, short duration thunderstorms. Little or no available moisture can be stored in the soil profiles of this site. Strong winds from the southwest blow during January through June which accelerate soil drying within the plant root zone and further discourage cool season plant growth or occupancy of the site.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

Soils are shallow to moderately deep to gypsum material. Surface and subsurface textures range from loam, fine sandy loam or sandy loam. Substratum is a dense layers of soft or cemented gypsum material and gypsiferous earth at various depths. The gypsum materials commonly outcrop to the surface as inclusions of raw gypsumland which are void of vegetation and not part of the ecological site. In the lower part of the profile the semi indurated gypsum and caliche make up about 75 percent of the mass and are restrictive to root development. The plant, soil, air, water relationship is poor. The site has a droughty appearance because of the soils inability to support a dense stand of vegetation. If unprotected by plant cover or organic residue, the soil becomes easily wind blown and water eroded.

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

Characteristic Soils:
Holloman
Alamogordo
Aztec
Cottonwood
McCullough
Malargo
Reeves
Reflection
Yesum

Table 4. Representative soil features

Surface texture	(1) Gypsiferous fine sandy loam (2) Loam (3) Sandy loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Permeability class	Moderately slow to moderate

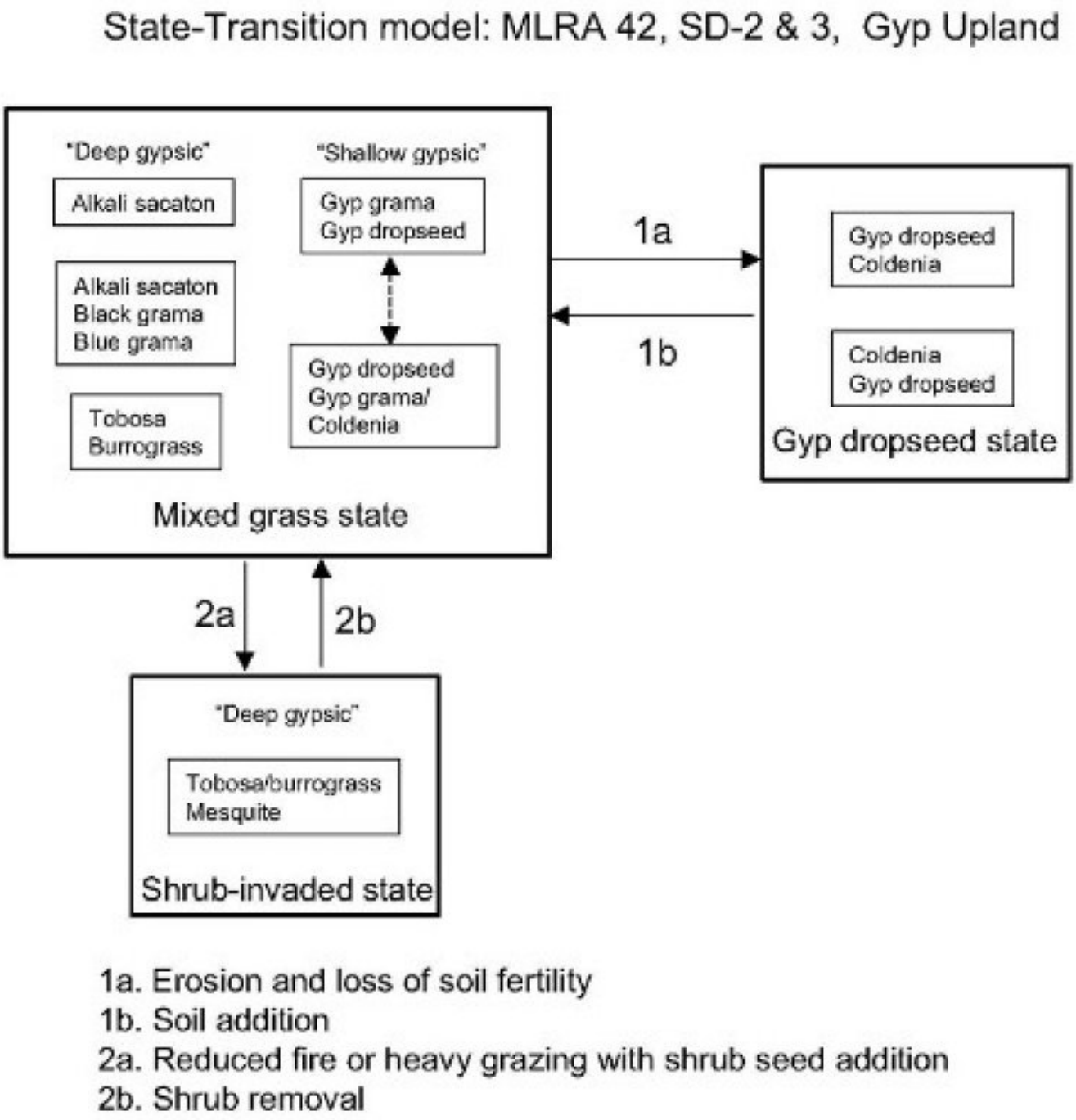
Soil depth	25–72 in
Surface fragment cover <=3"	0–3%
Surface fragment cover >3"	0–1%
Available water capacity (0-40in)	4–8 in
Calcium carbonate equivalent (0-40in)	5–30%
Electrical conductivity (0-40in)	2–16 mmhos/cm
Sodium adsorption ratio (0-40in)	0–1
Soil reaction (1:1 water) (0-40in)	7.4–8.6
Subsurface fragment volume <=3" (Depth not specified)	0–8%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Overview

The vegetation of this site often intergrades with that of Loamy sites, depending on the amounts of gypsum, soil texture, and depths of gypsic horizons. Low-lying areas where run-in water occurs behave like draws. Areas where gypsum outcrops are exposed harbor little vegetation. Gyp Uplands may intergrade with the Salt Flats site depending on salinity levels. Thus, the vegetation of this site is very patchy, variable, and difficult to characterize. The historic plant community types that are likely to be associated with the gyp uplands site include 1) an alkali sacaton (*Sporobolus airoides*) and black grama (*Bouteloua eriopoda*) or blue grama (*B. gracilis*)-dominated community associated with soils having relatively deep (> 10 “) gypsic horizons and 2) a gyp grama (*Bouteloua breviseta*) and gyp dropseed (*Sporobolus nealleyi*)-dominated community on soils with shallow (< 10”) gypsic horizons. Tobosa (*Pleuraphis mutica*), burrograss (*Scleropogon brevifolius*), and/or saltbush (*Atriplex canescens*) may also dominate depending on texture, land-use history, or other features. The subshrub Coldenia (Coldenia spp) increasingly dominates sites with very shallow gypsic horizons as grasses decline. Gyp upland sites are susceptible to erosion when vegetation cover is reduced due to drought and overgrazing. Mesquite (*Prosopis glandulosa*) may invade soils with deeper gypsic horizons within the site that are dominated by tobosa or burrograss. Erosion of A horizons bring gypsic horizons closer to the surface and can shift community composition to dominance by gyp dropseed, coldenia, and bare soil.

State and transition model



State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

This site has a grassland aspect with patches of bare or lichen covered soil surface exposed between patches of vegetation. The potential plant community is dominated by alkali sacaton, short and mid grass perennials and forbs, with half shrubs and shrubs sparsely and evenly distributed. Mixed grassland State: Alkali sacaton, black grama, and blue grama (only in SD-3) dominate soils that have relatively deep gypsic horizons that are deeper than 10" (e.g. Reeves series). Saltbush may be an abundant shrub. Alkali sacaton cover may be continuous in run-in settings surrounded by sparsely vegetated areas (alkali sacaton community). On fine-silty or fine loamy calcareous gypsid soils (e.g. Milner or Reeves series), tobosa or burrograss may be dominant. Dominance by burrograss or tobosa

might represent grazing-induced retrogression from an alkali sacaton-grama community type on these soils, but this has not been confirmed. In some cases, saltbush may be extremely dominant, (e.g. Malargo series) but it is not clear why. Gyp grama, black grama, and gyp dropseed dominate soils with shallow gypsic horizons and gyp dropseed, mormon tea (Ephedra spp.), and coldenia tend to dominate where the gypsic horizon is shallowest (< 3”). These communities exhibit low production, perhaps due to the comparatively shallow infiltration in gypsic soil and other chemical properties (Campbell and Campbell 1938). Outcrops of gypsum, often revealing a whitish floury mass at the surface, may be devoid of vegetation. Heavy grazing may reduce grama grasses and increase the dominance of gyp dropseed and coldenia, but it is important to recognize that these plants may dominate some patches without heavy grazing. Soil degradation due to surface compaction and reduced infiltration may be important on this site and result in reduced grass cover. Slight variations in the depth to the gypsic horizon, whether human induced or not, exert a powerful control on plant community composition. Where gypsic horizons are deep, soil texture or soil chemistry may govern composition. Diagnosis: Soils with deeper gypsic horizons should have continuous grass cover with a high representation of alkali sacaton and black grama. Shallower soils should have gyp grama and black grama but gyp outcrops will be dominated by gyp dropseeds or coldenia. Depending upon the depths to a gypsic horizon, large (< 1 m) bare patches may be common but they should not be common where the depth to gypsic horizon is greater than 5”. This site has a grassland aspect with patches of bare or lichen covered soil surface exposed between patches of vegetation. The potential plant community is dominated by alkali sacaton, short and mid grass perennials and forbs, with half shrubs and shrubs sparsely and evenly distributed.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	300	470	640
Forb	45	71	96
Shrub/Vine	30	47	64
Total	**375**	**588**	**800**

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	25%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	16%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	57%

Figure 5. Plant community growth curve (percent production by month). NM2806, R042XC006NM Gyp Upland HCPC. R042XC006NM Gyp Upland HCPC Warm Season Plant Community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	5	10	10	25	30	15	5	0	0

State 2
Transition to gyp dropseed

Community 2.1
Transition to gyp dropseed

Transition to gyp dropseed state (1a): Reduced grass cover caused by poor grazing management and/or drought may result in erosion of surface horizons. As the depth to the gypsic horizon decreases, plant communities will become increasingly dominated by gyp dropseed and/or coldenia. Mechanical disturbance of the soil surface and soil degradation may contribute to this effect. Key indicators of approach to transition: Increased bare ground, pedestalling, water flow patterns, blowouts, and eventually the loss of the A horizon.

State 3
Transition to shrub-invaded state

Community 3.1
Transition to shrub-invaded state

Transition to shrub-invaded state (2a): Reduced grass cover in deep gypsic soils may result in mesquite invasion. Key indicators of approach to transition: Increasing bare ground, presence of mesquite seedlings. Shrub-invaded: On deep gypsic soils and soils with less strong gypsic horizons (i.e. have a lower percentage of gypsum) within this site, mesquite may invade and cause some reduction in grass cover due to competition with grasses. These communities are dominated by tobosa or burrograss. Saltbush may also be an important component. It is not known if shrub presence and resulting erosion may result in the loss of dominant perennial grasses across broad areas on gypsic soils. As soil characteristics grade toward those of the loamy ecological site, widespread grass loss may be increasingly probable. Diagnosis: Moderate densities of mesquite, bare ground patches associated with mesquite patches.

State 4
Transition to mixed grassland (2b)

Community 4.1
Transition to mixed grassland (2b)

Transition to mixed grassland (2b): Shrub removal may result in the eventual recovery of perennial grasses. Gyp dropseed: These communities are dominated by gyp dropseed or coldenia, and often exhibit high amounts of bare ground and exposed gypsum at the surface. Gyp grama, black grama, and alkali sacaton may persist in small patches, especially in low-lying spots receiving run-in water and/or in which soils are protected from erosion. The frequency with which these community types represent degradation from mixed grassland due to poor management versus “natural” is unknown. The conditions under which gyp dropseed and coldenia dominate are unknown. Diagnosis: Dominance by gyp dropseed or coldenia, high amounts of bare ground, sometimes associated with a high cover of microbiotic crusts.

State 5
Transition to mixed grassland (1b)

Community 5.1
Transition to mixed grassland (1b)

Transition to mixed grassland (1b): Restoration or recovery of a non-gypsic A horizon would be required. Information sources and theoretical background: Communities, states, and transitions are based upon information in the ecological site description and observations by Brandon Bestelmeyer, Jornada Experimental Range and David Trujillo, NRCS. Information on the the role of gypsum in concert with soil chemical features in determining plant composition is sorely needed.

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)

Grass/Grasslike					
1	**Warm Season**			266–323	
	alkali sacaton	SPAI	*Sporobolus airoides*	266–323	–
2	**Warm Season**			29–88	
	black grama	BOER4	*Bouteloua eriopoda*	29–88	–
3	**Warm Season**			6–59	
	gypsum grama	BOBR	*Bouteloua breviseta*	6–59	–
4	**Warm Season**			18–88	
	bush muhly	MUPO2	*Muhlenbergia porteri*	18–88	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	18–88	–
5	**Warm Season**			6–18	
	gyp dropseed	SPNE	*Sporobolus nealleyi*	6–18	–
6	**Warm Season**			6–18	
	sand dropseed	SPCR	*Sporobolus cryptandrus*	6–18	–
7	**Warm Season**			6–18	
	blue grama	BOGR2	*Bouteloua gracilis*	6–18	–
8	**Warm Season**			18–88	
	threeawn	ARIST	*Aristida*	18–88	–
	low woollygrass	DAPU7	*Dasyochloa pulchella*	18–88	–
	ear muhly	MUAR	*Muhlenbergia arenacea*	18–88	–
Shrub/Vine					
9	**Shrub**			18–41	
	fourwing saltbush	ATCA2	*Atriplex canescens*	18–41	–
	jointfir	EPHED	*Ephedra*	18–41	–
	littleleaf sumac	RHMI3	*Rhus microphylla*	18–41	–
10	**Shrub**			6–18	
	javelina bush	COER5	*Condalia ericoides*	6–18	–
	knifeleaf condalia	COSP3	*Condalia spathulata*	6–18	–
	crown of thorns	KOSP	*Koeberlinia spinosa*	6–18	–
11	**Cactus**			6–18	
	pricklypear	OPUNT	*Opuntia*	6–18	–
	yucca	YUCCA	*Yucca*	6–18	–
Forb					
12	**Forb**			29–59	
	woody crinklemat	TICAC	*Tiquilia canescens var. canescens*	29–59	–
13	**Forb**			6–88	
	Forb, annual	2FA	*Forb, annual*	6–88	–
	trailing windmills	ALIN	*Allionia incarnata*	6–88	–
	daisy	CHRYS2	*Chrysanthemum*	6–88	–
	golden tickseed	COTI3	*Coreopsis tinctoria*	6–88	–
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	6–88	–
	Seven River Hills buckwheat	ERGY	*Eriogonum gypsophilum*	6–88	–

	blazingstar	MENTZ	*Mentzelia*	6–88	–
	fiddleleaf	NAMA4	*Nama*	6–88	–
	whitest evening primrose	OEAL	*Oenothera albicaulis*	6–88	–
	beardtongue	PENST	*Penstemon*	6–88	–
	Texan phacelia	PHINT	*Phacelia integrifolia var. texana*	6–88	–
	white milkwort	POAL4	*Polygala alba*	6–88	–
	desert unicorn-plant	PRAL4	*Proboscidea althaeifolia*	6–88	–
	whitestem paperflower	PSCO2	*Psilostrophe cooperi*	6–88	–
	threadleaf ragwort	SEFLF	*Senecio flaccidus var. flaccidus*	6–88	–
	Hopi tea greenthread	THME	*Thelesperma megapotamicum*	6–88	–

Animal community

This site provides habitats which support a resident animal community that is characterized by coyote, hooded skunk, desert cottontail, whitethroated woodrat, sparrow hawk, cactus wern, scaled quail, logggerhead shrike, mourning dove, and a number of ground nesting birds including, varied bunting, grasshopper sparrow, and Baird's sparrow Texas horned lizard, lesser earless lizard, and western diamondback rattlesnake.

Fourwing saltbush, littleleaf sumac, spiny allthorn, common javilinabush, and knifeleaf condalia provide protective cover for scaled quail. Seed, green herbage and fruit from a variety of grasses, forbs and shrubs provide food for a number of birds and mamals, including scaled and Gambel’s quail, mourning dove and prairie dogs. The fruit of tesajo cactus is relished by quail.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations
Soil Series Hydrologic Group
Cottonwood C
Holloman C
Yesum B
Alamogordo B
Aztec C
Malargo B
Reeves C
Reflection B

Recreational uses

This site offers recreation potential for hiking, horseback riding, rock, gem, and mineral collecting, nature observation and photography, and quail, dove, and predator hunting.
During years of abundant moisture, a colorful array of wildflowers can be observed from spring through fall.

Wood products

This site provides little or no wood products other than curiosities and small furniture which can be made from the roots and stems of mesquite where it has invaded the site. The woody pods of devils claw are also used in curiosities.

Other products

This site is suitable for grazing during all seasons of the year. Care must be taken to leave enough vegetation cover for soil protection during windy and rainy periods or severe soil erosion will result. About 300 pounds per acre of total vegetation and litter is minimal for soil protection. This site is best suited and most efficiently utilized by cattle. It can also be utilized by small numbers of goats and sheep in combination with cattle where control or protection from predators can be provided. Grazing management that results in a mosaic of use patterns provides diversity for wildlife.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index Ac/AUM
100 - 76 5.5 – 8.0
75 – 51 7.5 – 11.0
50 – 26 11.0 – 15.0
25 – 0 25.0 +

Type locality

Location 1: Eddy County, NM	
Township/Range/Section	T26S R24E S27

Other references

Contributors

Don Sylvester
Dr. Brandon Bestelmeyer

Rangeland health reference sheet

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

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

Indicators

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

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant:

    Sub-dominant:

    Other:

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

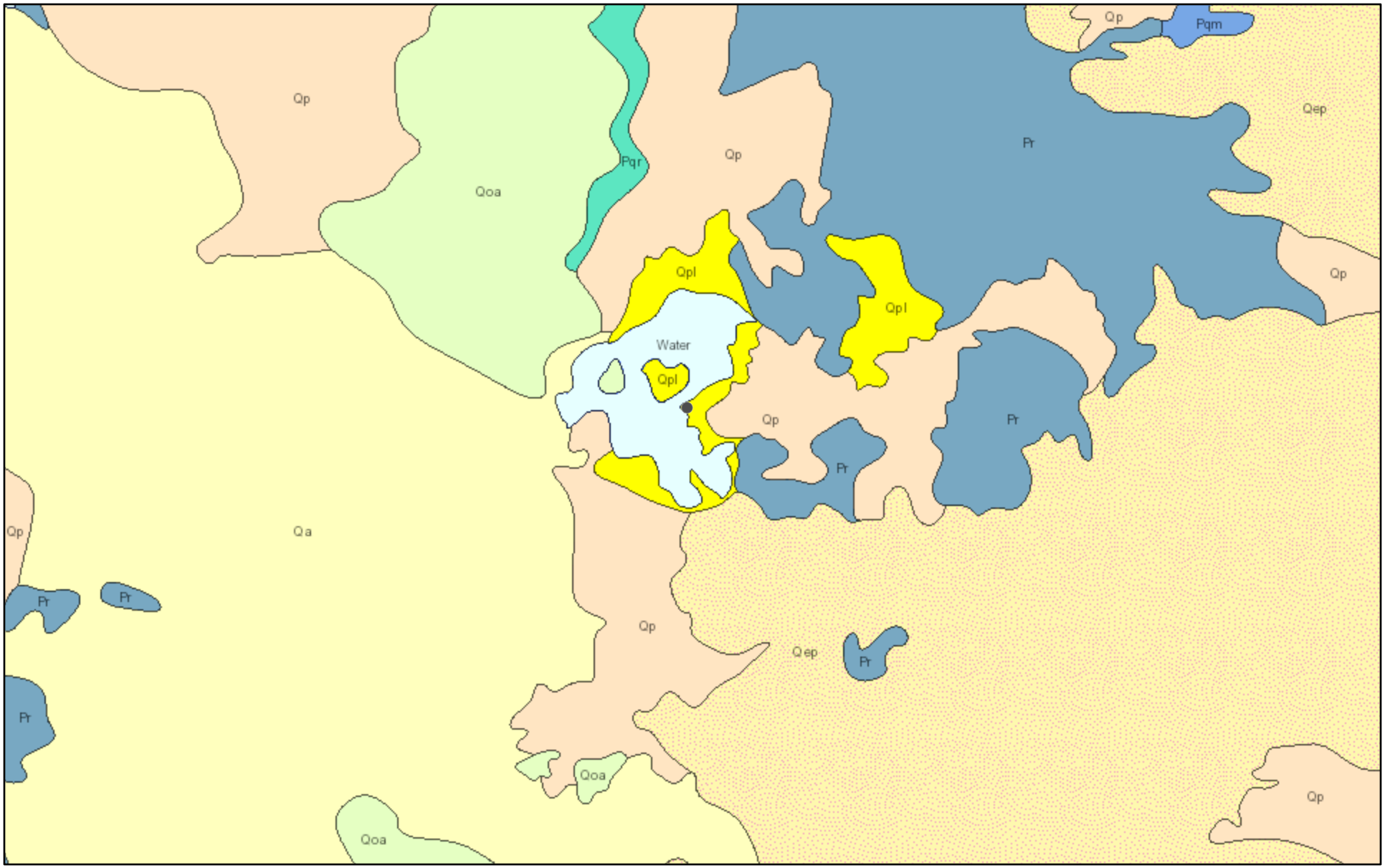
14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**

Spud 16 State 10H Geology



5/17/2023, 1:33:29 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perenial standing water
- Qa—Alluvium (Holocene to upper Pleistocene)

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names

ArcGIS Web AppBuilder

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

APPENDIX C – Daily Field and Sampling Report(s)

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/22/2023
Site Location Name:	Spud 16 State #010H	Report Run Date:	5/22/2023 11:28 PM
Client Contact Name:	Wes Matthews	API #:	30-015-41148
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/22/2023 8:15 AM
Departed Site	5/22/2023 3:30 PM

Field Notes

9:50 Arrived on site, filling out and signing safety documents. Performed a site walk evaluation for delineation plan.
Examined site and location to determine best location for marking proposed boreholes.
Marked borehole locations and performed line sweep with magnetic locator.

17:26 Collected samples BH23-01, -03, -04, -06, -14, and -15 at 0’ and 2’.
Collected samples BH23-05 at 0’ and 1’ and samples BH23-07 and -08 at 0’, 2’ and 4’.
Field screened all samples for chlorides with EC meter by NMOCD strictest criteria. Field screened all samples for VOCs with PID.

Next Steps & Recommendations

1 Continue delineation to west.

Daily Site Visit Report

Site Photos

Viewing Direction: Northwest	**Viewing Direction**: South
	
Site information sign	BH23-04 0ft - 2 ft, 2ft refusal
Viewing Direction: West	**Viewing Direction**: Northeast
	
Site of release near salt lake, evidence of some kind of chlorides throughout surface after recent rains.	Site of release near salt lake, evidence of some kind of chlorides throughout surface after recent rains.

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: Northwest
	
Site of release near salt lake, evidence of some kind of chlorides throughout surface after recent rains.	Site of release near salt lake, evidence of some kind of chlorides throughout surface after recent rains.
Viewing Direction: Southeast	**Viewing Direction**: South
	
BH23-01 0ft -2ft Saturation at 2ft	BH23-07 0ft -4ft Saturated at 3ft

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
BH23-08 0ft to 4ft	BH23-05 0ft - 1ft, refusal 1ft
Viewing Direction: Southwest	**Viewing Direction**: Southwest
	
BH23-03 0ft - 2ft Saturated at 2ft	BH23-06 0ft - 2 ft, 2ft refusal

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
BH23-14 0ft - 2ft. 2ft refusal	BH23-15 0ft - 2ft, 2 ft refusal

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	5/23/2023
Site Location Name:	Spud 16 State #010H	Report Run Date:	5/23/2023 11:18 PM
Client Contact Name:	Wes Matthews	API #:	30-015-41148
Client Contact Phone #:	(575) 748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/23/2023 8:05 AM
Departed Site	5/23/2023 4:10 PM

Field Notes

14:04 Arrived on site and filled out safety documents. Met with associate field technician, discussing work plan for the day and safety and signing safety documents.
8:45.
Collected and prepared equipment for sampling site.
Marked sites and performed line sweep with magnetic locators for surface background samples. 9:15.

15:58 Collected samples BH23-02, BH23-09 through BH23-13.
Field screened all samples for chlorides with EC meter at NMOCD strictest criteria.
Field screened all samples at at 0’ for TPH with Dexsil petroflag. Field screened all samples with PID for VOCs.
Collected surface background samples BG23-01 through BG23-03 and field screened for chlorides with EC meter, for TPH with Dexsil petroflag and VOCs with PID.

15:59 Prepared all samples for lab.

Next Steps & Recommendations

1 Receive lab results. Recommend mobilizing machinery for continuing delineation due to rocky and difficult to dig material.

Daily Site Visit Report

Site Photos

Viewing Direction: North

Site information placard

Viewing Direction: West

BG23-02 0ft, near salt lake shoreline northeast side of site.

Viewing Direction: Northwest

BH23-09 0ft - 2ft

Viewing Direction: Southwest

BH23-02 0ft - 1.5ft, 1.5 ft refusal

Daily Site Visit Report

Viewing Direction: Southwest

BH23-13 0ft to 1.5ft, 1.5 refusal

Viewing Direction: South

BH23-10 0ft - 2ft, 2ft refusal

Viewing Direction: South

BH23-12 0ft - 1.5 ft, 1.5ft refusal

Viewing Direction: Southwest

BH23-11 0ft - 2ft

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: West
	
BG23-01 0ft, near salt lake shoreline northwest side of site.	BG23-03 0ft, near salt lake shoreline northeast side of site.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	
Site Location Name:	Spud 16 State #010H	Report Run Date:	6/26/2023 8:50 PM
Client Contact Name:	Dale Woodall	API #:	30-015-41148
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	
Departed Site	6/26/2023 1:00 PM

Field Notes

11:11 Arrived on site, meeting with Centrex crew and filling out and signing safety documents. Examined site and location to determine best location for marking for sampling.
Used magnetic locator to sweep for lines in addition to Centrex sweeping for lines.
Prior to collection, confirmation of One Call was initiated.
Collected samples BH23-16 through BH23-20 at 0’ and BH23-18 through BH23-20 at 2’.

11:09 Field screened all samples for chlorides with EC meter.

11:14 Work was stopped, due to confirmation from One Call representative having completed only half of One Call area. Additional flagging and expansion to One Call area was added and sampling was completed.

12:45 Field screened all 0ft samples for TPH with Dexsil Petroflag.
Prepared samples for lab.

Next Steps & Recommendations

1 One Call and Devon clearance for continued delineation and background sampling.

Daily Site Visit Report

Site Photos

Viewing Direction: South

NE One Call area.

Viewing Direction: North

Site near salt lake, evidence of possible background chlorides can be observed throughout

Viewing Direction: West

NE One Call corner expansion (32.3046190, -103.9822617)

Viewing Direction: South

NE One Call corner expansion (32.3046190, -103.9822617)

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: West
	
SE One Call corner expansion (32.3039482, -103.9823167)	BH23-16
Viewing Direction: West	**Viewing Direction**: West
	
BH23-17 0ft	BH23-18 0ft, 2ft

Daily Site Visit Report

Viewing Direction: Northwest	**Viewing Direction**: South
	
BH23-19 0ft , 2ft	BH23-20 0ft, 2ft

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/30/2023
Site Location Name:	Spud 16 State #010H	Report Run Date:	7/1/2023 12:24 AM
Client Contact Name:	Dale Woodall	API #:	30-015-41148
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/30/2023 8:15 AM
Departed Site	6/30/2023 5:05 PM

Field Notes

13:49 Arrived on site and filled out safety documents. Met with Devon representative and contractors, discussing work plan for the day and safety and signing safety documents. 08:30
Met with Devon utility line marker for One Call clarification and confirmatory line sweep in addition to secondary line sweep performed by contractors. Primary target sampling points and surrounding area were clear. Points were marked with an approximately 20-25 ft buffer from the gas line to the south of the sampling area, plugged well head to west and, assumed, monitoring well to east for safety. 09:00

14:02 Collected samples BH23-16 and -17 at 2’ and 4’ due to previously having collected 0’ samples. Collected samples BH23-21 through BH23-22 0’, 2’ and 4’ and BH23-23 through BH23-28 0’ and 2’.
Collected background samples BG23-03 2’, 4’, 6’ (already have 0’) and BG23-04 0’, 2’, and 4’.

16:56 Samples BH23-28 uncovered an old, lose broken piece of PVC conduit at 2’. It may have been left from reclaimed pad.
Field screened all samples for chlorides with EC meter.
Field screened samples for TPH with Dexsil Petroflag and VOCs with PID.

16:59 Samples to NW field screening for TPH.
All samples screening high in chlorides potentially due to proximity to salt lake and salt mine.
Prepared samples for lab.

Daily Site Visit Report

Next Steps & Recommendations

1 Wait for lab results

Daily Site Visit Report

Site Photos

Viewing Direction: South

BH23-16 2ft, 4ft, became saturated at 4 ft

Viewing Direction: Southwest

BG23-04 0ft, 2ft, 4ft, 6ft

Viewing Direction: South

BH23-27 0ft, 2ft

Viewing Direction: Southeast

BH23-28 0ft, 2ft

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: South
	
All sample points backfilled.	BH23-17 2ft, 4ft, became saturated at 4 ft
Viewing Direction: South	**Viewing Direction**: South
	
BH23-21 0ft, 2ft, 4ft, became saturated at 4 ft	BH23-22 0ft, 2ft, 4ft

Daily Site Visit Report

Viewing Direction: Southwest	**Viewing Direction**: South
	
BH23-23 0ft, 2ft	BH23-24 0ft, 2ft
Viewing Direction: South	**Viewing Direction**: South
	
BH23-25 0ft, 2ft	BH23-26 0ft, 2ft

Daily Site Visit Report

Viewing Direction: Southwest

BG23-03 2ft, 4ft, 6ft

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/6/2023
Site Location Name:	Spud 16 State #010H	Report Run Date:	7/6/2023 8:46 PM
Client Contact Name:	Dale Woodall	API #:	30-015-41148
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/6/2023 9:00 AM
Departed Site	7/6/2023 2:45 PM

Field Notes

10:56 Arrived on site, filling out and signing safety documents. Examined site and location to determine best location for marking proposed borehole sample points following line sweep with magnetic locator.

14:34 Collected BH23-29, BH23-30, and BH23-31 at 0 ft and 2ft.

Field screened all samples for chlorides with EC meter, TPH with Dexsil Petroflag, and VOCs with PID.
Prepared samples for lab and backfilled boreholes.

Next Steps & Recommendations

1 Receive lab data

2. Updated Tables

Daily Site Visit Report

Site Photos

Viewing Direction: South

BH23-29 0ft, 2ft

Viewing Direction: South

BH23-30 0ft, 2ft

Viewing Direction: Northeast

BH23-31 0ft, 2ft

Viewing Direction: Northwest

Sample area, sample boreholes backfilled

Daily Site Visit Report

Viewing Direction: North

Site information placard

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/12/2024
Site Location Name:	Spud 16 State #010H	Report Run Date:	6/19/2024 7:29 PM
Client Contact Name:	Jim Raley	API #:	30-015-41148
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/12/2024 8:40 AM
Departed Site	6/12/2024 5:00 PM

Field Notes

14:55 Make up JSA

14:56 Did 811 walk around with Devon employee till 10:50

15:15 Auger and sample BH23-25 and BH24-32 to 37
*Ground is full with rocks can only get to 1.5 to 2’ with auger and rock bar

17:04 Petroflag field screening on samples

Next Steps & Recommendations

1 Send samples off to lab

2 Get excavator out here to get to 3’ so we can send off those samples

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: North
	
BH24-32 @ 2’ refusal	BH24-33 @ 2’ refusal
Viewing Direction: Southeast	**Viewing Direction**: North
	
BH24-34 @ 1.5 refusal	BH24-35 @1.5’ refusal

Daily Site Visit Report

Viewing Direction: Southeast	**Viewing Direction**: South
	
BH24-36 @ 1.5’ refusal	BH23-25 @1.5 refusal
Viewing Direction: North	**Viewing Direction**: North
	
BH25-37 @ 1.5’ refusal	Location placard

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Riley Plogger

Signature: 
Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/27/2024
Site Location Name:	Spud 16 State #010H	Report Run Date:	7/16/2024 10:50 PM
Client Contact Name:	Jim Raley	API #:	30-015-41148
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/27/2024 8:45 AM
Departed Site	6/27/2024 5:15 PM

Field Notes

13:57 Make up JSA

13:58 Delineate BH24-25 and 32 to 41 To 6-8’

13:58 Field screen samples with Petroflag

Next Steps & Recommendations

1 Jar samples and send off to lab for analysis

Daily Site Visit Report

Site Photos

Viewing Direction: South	**Viewing Direction**: North
	
BH24-36 @ 4.5’ *Hits water at depth of 4.5’	BH-37 @3’ Hits water at depth of 3’
Viewing Direction: South	**Viewing Direction**: South
	
BG24-36 @ 4’ hits water	BH24-32 @ 6’ Muddy layer at 5’

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
BH24-25 @4’ Hit water at 4’	BH24-35 @ 4’
Viewing Direction: South	**Viewing Direction**: South
	
BH24-34 @ 4’	BH24-33 @4’

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: South
	
BH24-38 @ 4’	BH24-39 @ 8’
Viewing Direction: South	**Viewing Direction**: South
	
BH24-40 @ 6’	BH24-41 @ 6’

Daily Site Visit Report

Viewing Direction: North

Photo of location placard

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Riley Plogger

Signature: 

Signature

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/16/2024
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	10/1/2024 4:29 PM
Client Contact Name:	Jim Raley	API #:	
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/16/2024 8:30 AM
Departed Site	9/16/2024 3:30 PM

Field Notes

9:55 Signed JSA's at 9:30.

9:57 Crew started excavation with hand shovels in area next to CTB batteries. 1'
Following that area they will start excavation behind CTB. 1'

19:07 Sampled the 1' rectangular area next to CTB at 2:00PM and the SW area behind CTB at 2:30PM and both were above criteria for chlorides.

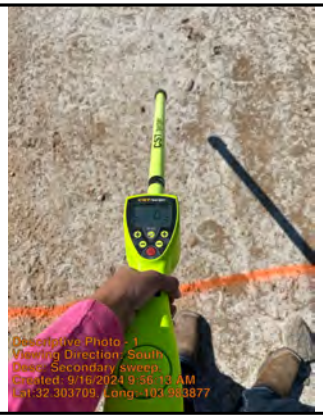
Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South



Secondary sweep.

Viewing Direction: South

Sample area BS-02 and WS-02.
Northeastern small square.

Viewing Direction: North

Sample area BS-01 and WS-01 10:30AM.
Northern most small square.

Viewing Direction: South

Resample from Friday 9-13-24 (BS-02)

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Meghan Veliz

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/12/2024
Site Location Name:	Spud 16 State #010H	Report Run Date:	10/3/2024 2:47 PM
Client Contact Name:	Dale Woodall	API #:	30-015-41148
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	9/12/2024 8:20 AM
Departed Site	9/12/2024 5:00 PM

Field Notes

10:01 Continue excavation off pad by well head down to 4.5’

Next Steps & Recommendations

1 Continue excavation

Daily Site Visit Report

Site Photos

Viewing Direction: East	**Viewing Direction**: South
	
Bedrock formation on pasture area by wellhead @ 2.5’	Bedrock formation on pasture area by wellhead @ 2.5’
Viewing Direction: East	**Viewing Direction**: North
	
Bedrock formation on wellhead area @ 2.5’	Excavation down to 4.5’

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: North
	
Excavation pit @ 4.5’	Excavation near wellhead @ 4.5’
Viewing Direction: North	**Viewing Direction**: North
	
Excavation near wellhead @ 4.5’	Excavation near wellhead @ 4.5’

Daily Site Visit Report

Viewing Direction: North

Excavation near wellhead @ 4.5’

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Riley Plogger

Signature: 

APPENDIX D – Laboratory Data Report(s) and Chain of Custody Form(s)

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 08, 2023

Kent Stallings

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

RE: Spud 16 State 10 OrderNo.: 2305C11

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 19 sample(s) on 5/24/2023 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 **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-001 **Matrix:** SOIL

Client Sample ID: BH23-01 0'
Collection Date: 5/22/2023 9:40:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/26/2023 2:49:12 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/26/2023 2:49:12 PM
Surr: DNOP	87.9	69-147		%Rec	1	5/26/2023 2:49:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/31/2023 11:25:00 PM
Surr: BFB	81.8	15-244		%Rec	1	5/31/2023 11:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/31/2023 11:25:00 PM
Toluene	ND	0.049		mg/Kg	1	5/31/2023 11:25:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/31/2023 11:25:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/31/2023 11:25:00 PM
Surr: 4-Bromofluorobenzene	81.0	39.1-146		%Rec	1	5/31/2023 11:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	4800	150		mg/Kg	50	5/31/2023 11:36:22 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-002 **Matrix:** SOIL

Client Sample ID: BH23-01 2'
Collection Date: 5/22/2023 9:45:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	5/26/2023 3:13:02 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/26/2023 3:13:02 PM
Surr: DNOP	87.5	69-147		%Rec	1	5/26/2023 3:13:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/31/2023 11:47:00 PM
Surr: BFB	82.8	15-244		%Rec	1	5/31/2023 11:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/31/2023 11:47:00 PM
Toluene	ND	0.049		mg/Kg	1	5/31/2023 11:47:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/31/2023 11:47:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/31/2023 11:47:00 PM
Surr: 4-Bromofluorobenzene	81.5	39.1-146		%Rec	1	5/31/2023 11:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	3500	150		mg/Kg	50	5/31/2023 11:48:46 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-003 **Matrix:** SOIL

Client Sample ID: BH23-03 0'
Collection Date: 5/22/2023 10:10:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/26/2023 3:37:00 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/26/2023 3:37:00 PM
Surr: DNOP	87.3	69-147		%Rec	1	5/26/2023 3:37:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 12:09:00 AM
Surr: BFB	83.5	15-244		%Rec	1	6/1/2023 12:09:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 12:09:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 12:09:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 12:09:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	6/1/2023 12:09:00 AM
Surr: 4-Bromofluorobenzene	81.9	39.1-146		%Rec	1	6/1/2023 12:09:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	14000	600		mg/Kg	200	5/31/2023 12:01:11 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-004 **Matrix:** SOIL

Client Sample ID: BH23-03 2'
Collection Date: 5/22/2023 10:15:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	5/26/2023 4:00:51 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	5/26/2023 4:00:51 PM
Surr: DNOP	93.6	69-147		%Rec	1	5/26/2023 4:00:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 12:30:00 AM
Surr: BFB	85.2	15-244		%Rec	1	6/1/2023 12:30:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 12:30:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 12:30:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 12:30:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	6/1/2023 12:30:00 AM
Surr: 4-Bromofluorobenzene	83.8	39.1-146		%Rec	1	6/1/2023 12:30:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	3900	150		mg/Kg	50	5/31/2023 12:13:35 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-005 **Matrix:** SOIL

Client Sample ID: BH23-04 0'
Collection Date: 5/22/2023 1:15:00 PM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/26/2023 4:24:39 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2023 4:24:39 PM
Surr: DNOP	88.6	69-147		%Rec	1	5/26/2023 4:24:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2023 12:52:00 AM
Surr: BFB	87.4	15-244		%Rec	1	6/1/2023 12:52:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 12:52:00 AM
Toluene	ND	0.048		mg/Kg	1	6/1/2023 12:52:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2023 12:52:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/1/2023 12:52:00 AM
Surr: 4-Bromofluorobenzene	82.2	39.1-146		%Rec	1	6/1/2023 12:52:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	3400	150		mg/Kg	50	6/1/2023 8:32:22 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-006 **Matrix:** SOIL

Client Sample ID: BH23-04 2'
Collection Date: 5/22/2023 2:00:00 PM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/26/2023 4:48:34 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/26/2023 4:48:34 PM
Surr: DNOP	86.6	69-147		%Rec	1	5/26/2023 4:48:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 1:14:00 AM
Surr: BFB	85.3	15-244		%Rec	1	6/1/2023 1:14:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 1:14:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 1:14:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 1:14:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2023 1:14:00 AM
Surr: 4-Bromofluorobenzene	81.0	39.1-146		%Rec	1	6/1/2023 1:14:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	3200	150		mg/Kg	50	6/1/2023 8:44:42 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-007 **Matrix:** SOIL

Client Sample ID: BH23-05 0'
Collection Date: 5/22/2023 10:00:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	11	10		mg/Kg	1	5/26/2023 5:12:22 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/26/2023 5:12:22 PM
Surr: DNOP	88.5	69-147		%Rec	1	5/26/2023 5:12:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 1:35:00 AM
Surr: BFB	85.3	15-244		%Rec	1	6/1/2023 1:35:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 1:35:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 1:35:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 1:35:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	6/1/2023 1:35:00 AM
Surr: 4-Bromofluorobenzene	81.6	39.1-146		%Rec	1	6/1/2023 1:35:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	6400	300		mg/Kg	100	6/1/2023 8:57:03 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-008 **Matrix:** SOIL

Client Sample ID: BH23-05 1'
Collection Date: 5/22/2023 10:30:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	11	9.5		mg/Kg	1	5/26/2023 5:36:28 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/26/2023 5:36:28 PM
Surr: DNOP	87.7	69-147		%Rec	1	5/26/2023 5:36:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 1:57:00 AM
Surr: BFB	83.0	15-244		%Rec	1	6/1/2023 1:57:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 1:57:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 1:57:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 1:57:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2023 1:57:00 AM
Surr: 4-Bromofluorobenzene	81.9	39.1-146		%Rec	1	6/1/2023 1:57:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	8100	300		mg/Kg	100	6/1/2023 9:09:23 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-009 **Matrix:** SOIL

Client Sample ID: BH23-06 0'
Collection Date: 5/22/2023 10:50:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/26/2023 6:25:12 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2023 6:25:12 PM
Surr: DNOP	85.1	69-147		%Rec	1	5/26/2023 6:25:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/1/2023 2:40:00 AM
Surr: BFB	86.3	15-244		%Rec	1	6/1/2023 2:40:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 2:40:00 AM
Toluene	ND	0.049		mg/Kg	1	6/1/2023 2:40:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/1/2023 2:40:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/1/2023 2:40:00 AM
Surr: 4-Bromofluorobenzene	81.3	39.1-146		%Rec	1	6/1/2023 2:40:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	8300	300		mg/Kg	100	6/1/2023 9:21:44 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-010 **Matrix:** SOIL

Client Sample ID: BH23-06 2'
Collection Date: 5/22/2023 11:00:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/26/2023 6:49:30 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/26/2023 6:49:30 PM
Surr: DNOP	85.9	69-147		%Rec	1	5/26/2023 6:49:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 3:01:00 AM
Surr: BFB	85.3	15-244		%Rec	1	6/1/2023 3:01:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 3:01:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 3:01:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 3:01:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2023 3:01:00 AM
Surr: 4-Bromofluorobenzene	82.5	39.1-146		%Rec	1	6/1/2023 3:01:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	2100	60		mg/Kg	20	5/31/2023 2:42:30 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-011 **Matrix:** SOIL

Client Sample ID: BH23-07 0'
Collection Date: 5/22/2023 9:55:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/26/2023 7:13:47 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/26/2023 7:13:47 PM
Surr: DNOP	87.2	69-147		%Rec	1	5/26/2023 7:13:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 3:23:00 AM
Surr: BFB	88.2	15-244		%Rec	1	6/1/2023 3:23:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 3:23:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 3:23:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 3:23:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2023 3:23:00 AM
Surr: 4-Bromofluorobenzene	81.2	39.1-146		%Rec	1	6/1/2023 3:23:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	15000	600		mg/Kg	200	6/5/2023 9:23:50 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-012 **Matrix:** SOIL

Client Sample ID: BH23-07 2'
Collection Date: 5/22/2023 10:00:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/26/2023 7:38:04 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/26/2023 7:38:04 PM
Surr: DNOP	86.3	69-147		%Rec	1	5/26/2023 7:38:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2023 3:45:00 AM
Surr: BFB	88.6	15-244		%Rec	1	6/1/2023 3:45:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 3:45:00 AM
Toluene	ND	0.048		mg/Kg	1	6/1/2023 3:45:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2023 3:45:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/1/2023 3:45:00 AM
Surr: 4-Bromofluorobenzene	81.3	39.1-146		%Rec	1	6/1/2023 3:45:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	2600	150		mg/Kg	50	6/1/2023 9:46:26 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-013 **Matrix:** SOIL

Client Sample ID: BH23-08 0'
Collection Date: 5/22/2023 8:30:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/26/2023 8:02:24 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2023 8:02:24 PM
Surr: DNOP	88.2	69-147		%Rec	1	5/26/2023 8:02:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/1/2023 4:06:00 AM
Surr: BFB	87.1	15-244		%Rec	1	6/1/2023 4:06:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 4:06:00 AM
Toluene	ND	0.046		mg/Kg	1	6/1/2023 4:06:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	6/1/2023 4:06:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	6/1/2023 4:06:00 AM
Surr: 4-Bromofluorobenzene	84.1	39.1-146		%Rec	1	6/1/2023 4:06:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	9300	300		mg/Kg	100	6/1/2023 9:58:46 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-014 **Matrix:** SOIL

Client Sample ID: BH23-08 2'
Collection Date: 5/22/2023 8:35:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/26/2023 8:26:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2023 8:26:37 PM
Surr: DNOP	88.0	69-147		%Rec	1	5/26/2023 8:26:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/1/2023 4:28:00 AM
Surr: BFB	86.1	15-244		%Rec	1	6/1/2023 4:28:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/1/2023 4:28:00 AM
Toluene	ND	0.049		mg/Kg	1	6/1/2023 4:28:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/1/2023 4:28:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/1/2023 4:28:00 AM
Surr: 4-Bromofluorobenzene	83.5	39.1-146		%Rec	1	6/1/2023 4:28:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	5100	300		mg/Kg	100	6/1/2023 10:11:07 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-015 **Matrix:** SOIL

Client Sample ID: BH23-14 0'
Collection Date: 5/22/2023 1:05:00 PM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	5/26/2023 8:50:49 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/26/2023 8:50:49 PM
Surr: DNOP	89.0	69-147		%Rec	1	5/26/2023 8:50:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/1/2023 4:50:00 AM
Surr: BFB	86.2	15-244		%Rec	1	6/1/2023 4:50:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 4:50:00 AM
Toluene	ND	0.046		mg/Kg	1	6/1/2023 4:50:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	6/1/2023 4:50:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	6/1/2023 4:50:00 AM
Surr: 4-Bromofluorobenzene	82.1	39.1-146		%Rec	1	6/1/2023 4:50:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	5200	300		mg/Kg	100	6/1/2023 10:23:27 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-016 **Matrix:** SOIL

Client Sample ID: BH23-14 2'
Collection Date: 5/22/2023 1:50:00 PM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/26/2023 9:14:59 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/26/2023 9:14:59 PM
Surr: DNOP	89.4	69-147		%Rec	1	5/26/2023 9:14:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/1/2023 5:11:00 AM
Surr: BFB	88.7	15-244		%Rec	1	6/1/2023 5:11:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 5:11:00 AM
Toluene	ND	0.046		mg/Kg	1	6/1/2023 5:11:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	6/1/2023 5:11:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	6/1/2023 5:11:00 AM
Surr: 4-Bromofluorobenzene	81.9	39.1-146		%Rec	1	6/1/2023 5:11:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	1900	60		mg/Kg	20	5/31/2023 4:21:47 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-017 **Matrix:** SOIL

Client Sample ID: BH23-15 0'
Collection Date: 5/22/2023 12:20:00 PM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/26/2023 9:39:12 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/26/2023 9:39:12 PM
Surr: DNOP	93.5	69-147		%Rec	1	5/26/2023 9:39:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/1/2023 5:33:00 AM
Surr: BFB	83.6	15-244		%Rec	1	6/1/2023 5:33:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/1/2023 5:33:00 AM
Toluene	ND	0.047		mg/Kg	1	6/1/2023 5:33:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/1/2023 5:33:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/1/2023 5:33:00 AM
Surr: 4-Bromofluorobenzene	82.6	39.1-146		%Rec	1	6/1/2023 5:33:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	5900	300		mg/Kg	100	6/1/2023 11:00:29 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-018 **Matrix:** SOIL

Client Sample ID: BH23-15 2'
Collection Date: 5/22/2023 12:45:00 PM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/26/2023 10:03:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/26/2023 10:03:37 PM
Surr: DNOP	93.5	69-147		%Rec	1	5/26/2023 10:03:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/1/2023 5:54:00 AM
Surr: BFB	89.8	15-244		%Rec	1	6/1/2023 5:54:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 5:54:00 AM
Toluene	ND	0.049		mg/Kg	1	6/1/2023 5:54:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/1/2023 5:54:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/1/2023 5:54:00 AM
Surr: 4-Bromofluorobenzene	83.1	39.1-146		%Rec	1	6/1/2023 5:54:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	5400	300		mg/Kg	100	6/1/2023 11:12:50 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C11**
Date Reported: **6/8/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 10
Lab ID: 2305C11-019 **Matrix:** SOIL

Client Sample ID: BH23-08 4'
Collection Date: 5/22/2023 8:50:00 AM
Received Date: 5/24/2023 7:28:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/27/2023 3:22:07 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/27/2023 3:22:07 AM
Surr: DNOP	88.3	69-147		%Rec	1	5/27/2023 3:22:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/1/2023 8:26:00 AM
Surr: BFB	87.2	15-244		%Rec	1	6/1/2023 8:26:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/1/2023 8:26:00 AM
Toluene	ND	0.050		mg/Kg	1	6/1/2023 8:26:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/1/2023 8:26:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/1/2023 8:26:00 AM
Surr: 4-Bromofluorobenzene	84.3	39.1-146		%Rec	1	6/1/2023 8:26:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	6800	300		mg/Kg	100	6/1/2023 11:25:10 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C11**

08-Jun-23

Client: Devon Energy

Project: Spud 16 State 10

Sample ID: **MB-75244**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75244**	RunNo: **97085**							
Prep Date: **5/30/2023**	Analysis Date: **5/30/2023**	SeqNo: **3525588**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75244**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75244**	RunNo: **97085**							
Prep Date: **5/30/2023**	Analysis Date: **5/30/2023**	SeqNo: **3525590**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Sample ID: **MB-75257**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75257**	RunNo: **97118**							
Prep Date: **5/31/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526699**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75257**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75257**	RunNo: **97118**							
Prep Date: **5/31/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526700**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C11**

08-Jun-23

Client: Devon Energy

Project: Spud 16 State 10

Sample ID: **MB-75207**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75207**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/26/2023**	SeqNo: **3523756** 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	8.6		10.00		85.5	69	147			

Sample ID: **LCS-75207**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75207**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/26/2023**	SeqNo: **3523757** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	78.3	61.9	130			
Surr: DNOP	4.1		5.000		81.4	69	147			

Sample ID: **MB-75212**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75212**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/26/2023**	SeqNo: **3523780** 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	8.8		10.00		87.8	69	147			

Sample ID: **LCS-75212**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75212**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/27/2023**	SeqNo: **3523781** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	78.0	61.9	130			
Surr: DNOP	3.8		5.000		76.5	69	147			

Sample ID: **2305C11-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-01 0'**	Batch ID: **75207**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/28/2023**	SeqNo: **3523850** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	9.7	48.64	0	78.2	54.2	135			
Surr: DNOP	3.9		4.864		79.4	69	147			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C11**
08-Jun-23

Client: Devon Energy
Project: Spud 16 State 10

Sample ID: **2305C11-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-01 0'** Batch ID: **75207** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/28/2023** SeqNo: **3523851** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	9.2	45.87	0	85.2	54.2	135	2.64	29.2	
Surr: DNOP	3.7		4.587		81.7	69	147	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C11**

08-Jun-23

Client: Devon Energy

Project: Spud 16 State 10

Sample ID: **lcs-75187**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75187**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526445** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.0	70	130			
Surr: BFB	1900		1000		189	15	244			

Sample ID: **mb-75187**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75187**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526446** 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	880		1000		87.9	15	244			

Sample ID: **lcs-75194**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	79.3	70	130			
Surr: BFB	1900		1000		189	15	244			

Sample ID: **mb-75194**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527083** 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	870		1000		86.5	15	244			

Sample ID: **2305C11-019ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 4'**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	4.9	24.32	0	75.8	70	130			
Surr: BFB	1800		972.8		186	15	244			

Sample ID: **2305C11-019amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 4'**	Batch ID: **75194**	RunNo: **97160**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3528108** Units: **mg/Kg**

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

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C11**
08-Jun-23

Client: Devon Energy
Project: Spud 16 State 10

Sample ID: **2305C11-019amsd** SampType: **MSD** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 4'** Batch ID: **75194** RunNo: **97160**
Prep Date: **5/25/2023** Analysis Date: **6/1/2023** SeqNo: **3528108** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	12	4.8	23.85	0	52.0	70	130	39.1	20	RS
Surr: BFB	1700		954.2		183	15	244	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C11**

08-Jun-23

Client: Devon Energy

Project: Spud 16 State 10

Sample ID: **lcs-75187**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75187**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526420** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.74	0.025	1.000	0	73.9	70	130			
Toluene	0.75	0.050	1.000	0	74.9	70	130			
Ethylbenzene	0.73	0.050	1.000	0	73.4	70	130			
Xylenes, Total	2.2	0.10	3.000	0	72.8	70	130			
Surr: 4-Bromofluorobenzene	0.87		1.000		86.9	39.1	146			

Sample ID: **mb-75187**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75187**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526421** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.85		1.000		84.7	39.1	146			

Sample ID: **lcs-75194**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527087** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.5	70	130			
Toluene	0.86	0.050	1.000	0	85.7	70	130			
Ethylbenzene	0.84	0.050	1.000	0	84.2	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		85.6	39.1	146			

Sample ID: **mb-75194**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527088** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.84		1.000		84.0	39.1	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
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: 2305C11 | RcptNo: 1

Received By: Tracy Casarrubias 5/24/2023 7:28:00 AM

Completed By: Tracy Casarrubias 5/24/2023 7:51:19 AM

Reviewed By: MS 5/24/23

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: MS 5/24/23

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:

Phone number, Email and Address not provided on COC- DAD 5/24/23

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.2	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Devon / Vertex

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:
☑ Standard ☑ Rush 5 DAY

Project Name: Spud 16 State 10

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: ~~SM~~ AH

On Ice: ☒ Yes ☐ No 409

# of Coolers: 1

Cooler Temp (Including CF): 0.2-0=0.2 (°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. 2305C11	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/22/23	9:40	Soil	BH23-01 0'	4 oz jar	Ice	001	✓	✓					✓			
	9:45		BH23-01 2'			002										
	10:10		BH23-03 0'			003										
	10:15		BH23-03 2'			004										
	13:15		BH23-04 0'			005										
	14:00		BH23-04 2'			006										
	10:00		BH23-05 0'			007										
	10:30		BH23-05 1'			008										
	10:50		BH23-06 0'			009										
	11:00		BH23-06 2'			010										
	9:55		BH23-07 0'			011										
	10:00		BH23-07 2'			012										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5/22/23	18:30				5/23/23	800
5/23/23	1900			Courier	5/24/23	7:28

Remarks: Bill directly to: Devon W/O: 21165742
KStallings@vertex.ca
C.C SMcCarty@vertex.ca

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 / Vertex

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:

☑ Standard ☑ Rush 5 Days

Project Name: Spud 16 State 10

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: SM AH

On Ice: ☑ Yes ☐ No Used

# of Coolers: 1

Cooler Temp(including CF): 0.2-0=0.2 (°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. 230SC11	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5/22/23	8:30	Soil	BH23-08 0'	4oz Jar	Ice	013	✓	✓					✓			
	8:35		BH23-08 2'			014										
	13:05		BH23-14 0'			015										
	13:50		BH23-14 2'			016										
	12:20		BH23-15 0'			017										
	12:45		BH23-15 2'			018										
	8:50		BH23-08 4'			019										
End of Samples																

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5/22/23	1830	Jesper McG				
5/23/23	900				5/23/23	800
				Courier	5/24/23	7:20

Remarks:

Bill directly to: Devon w/o: 21165742

kStallings@vertex.ca

cc. SMccarty@vertex.ca pg 2 of 2

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 05, 2023

Kent Stallings

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

RE: Spud 16 State 010 OrderNo.: 2305C87

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 3 sample(s) on 5/25/2023 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 **2305C87**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305C87-001 **Matrix:** SOIL

Client Sample ID: BG 23-01 0.0'
Collection Date: 5/23/2023 10:20:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/27/2023 11:02:39 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/27/2023 11:02:39 AM
Surr: DNOP	71.0	69-147		%Rec	1	5/27/2023 11:02:39 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	18000	1500		mg/Kg	500	6/2/2023 12:35:16 AM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	5/27/2023 3:17:57 AM
Toluene	ND	0.050		mg/Kg	1	5/27/2023 3:17:57 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/27/2023 3:17:57 AM
Xylenes, Total	ND	0.099		mg/Kg	1	5/27/2023 3:17:57 AM
Surr: Dibromofluoromethane	116	73-145		%Rec	1	5/27/2023 3:17:57 AM
Surr: 1,2-Dichloroethane-d4	111	64.8-147		%Rec	1	5/27/2023 3:17:57 AM
Surr: Toluene-d8	97.6	70-130		%Rec	1	5/27/2023 3:17:57 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/27/2023 3:17:57 AM
Surr: BFB	106	70-130		%Rec	1	5/27/2023 3:17:57 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C87**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305C87-002 **Matrix:** SOIL

Client Sample ID: BG 23-02 0.0'
Collection Date: 5/23/2023 10:35:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/27/2023 11:26:47 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2023 11:26:47 AM
Surr: DNOP	70.6	69-147		%Rec	1	5/27/2023 11:26:47 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	12000	600		mg/Kg	200	6/2/2023 12:47:37 AM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.024		mg/Kg	1	5/27/2023 4:47:33 AM
Toluene	ND	0.048		mg/Kg	1	5/27/2023 4:47:33 AM
Ethylbenzene	ND	0.048		mg/Kg	1	5/27/2023 4:47:33 AM
Xylenes, Total	ND	0.097		mg/Kg	1	5/27/2023 4:47:33 AM
Surr: Dibromofluoromethane	115	73-145		%Rec	1	5/27/2023 4:47:33 AM
Surr: 1,2-Dichloroethane-d4	107	64.8-147		%Rec	1	5/27/2023 4:47:33 AM
Surr: Toluene-d8	96.9	70-130		%Rec	1	5/27/2023 4:47:33 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/27/2023 4:47:33 AM
Surr: BFB	107	70-130		%Rec	1	5/27/2023 4:47:33 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305C87**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BG 23-03 0.0'
Project: Spud 16 State 010
Collection Date: 5/23/2023 10:45:00 AM
Lab ID: 2305C87-003 **Matrix:** SOIL
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	5/27/2023 11:50:55 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2023 11:50:55 AM
Surr: DNOP	71.3	69-147		%Rec	1	5/27/2023 11:50:55 AM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	17000	600		mg/Kg	200	6/2/2023 12:59:58 AM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.025		mg/Kg	1	5/27/2023 5:17:16 AM
Toluene	ND	0.050		mg/Kg	1	5/27/2023 5:17:16 AM
Ethylbenzene	ND	0.050		mg/Kg	1	5/27/2023 5:17:16 AM
Xylenes, Total	ND	0.10		mg/Kg	1	5/27/2023 5:17:16 AM
Surr: Dibromofluoromethane	116	73-145		%Rec	1	5/27/2023 5:17:16 AM
Surr: 1,2-Dichloroethane-d4	109	64.8-147		%Rec	1	5/27/2023 5:17:16 AM
Surr: Toluene-d8	95.9	70-130		%Rec	1	5/27/2023 5:17:16 AM
EPA METHOD 8015D MOD: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/27/2023 5:17:16 AM
Surr: BFB	105	70-130		%Rec	1	5/27/2023 5:17:16 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C87**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **MB-75263** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS** Batch ID: **75263** RunNo: **97118**
Prep Date: **5/31/2023** Analysis Date: **5/31/2023** SeqNo: **3526736** Units: **mg/Kg**

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

Sample ID: **LCS-75263** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS** Batch ID: **75263** RunNo: **97118**
Prep Date: **5/31/2023** Analysis Date: **5/31/2023** SeqNo: **3526737** 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			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C87**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **MB-75212**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75212**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/26/2023**	SeqNo: **3523780** 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	8.8		10.00		87.8	69	147			

Sample ID: **LCS-75212**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75212**	RunNo: **97076**
Prep Date: **5/26/2023**	Analysis Date: **5/27/2023**	SeqNo: **3523781** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	78.0	61.9	130			
Surr: DNOP	3.8		5.000		76.5	69	147			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C87**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **2305c87-001ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **BG 23-01 0.0'** Batch ID: **75185** RunNo: **97079**
Prep Date: **5/25/2023** Analysis Date: **5/27/2023** SeqNo: **3524156** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9940	0	111	60.8	141			
Toluene	1.0	0.050	0.9940	0	102	15	261			
Ethylbenzene	1.0	0.050	0.9940	0	105	70	130			
Xylenes, Total	3.2	0.099	2.982	0	107	70	130			
Surr: Dibromofluoromethane	0.56		0.4970		112	73	145			
Surr: 1,2-Dichloroethane-d4	0.54		0.4970		109	64.8	147			
Surr: Toluene-d8	0.47		0.4970		94.2	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.4970		98.5	62.1	144			

Sample ID: **2305c87-001amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **BG 23-01 0.0'** Batch ID: **75185** RunNo: **97079**
Prep Date: **5/25/2023** Analysis Date: **5/27/2023** SeqNo: **3524157** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	0.9852	0	105	60.8	141	6.28	20	
Toluene	0.97	0.049	0.9852	0	98.1	15	261	5.28	20	
Ethylbenzene	0.97	0.049	0.9852	0	98.7	70	130	7.40	0	
Xylenes, Total	3.0	0.099	2.956	0	102	70	130	5.47	0	
Surr: Dibromofluoromethane	0.56		0.4926		114	73	145	0	0	
Surr: 1,2-Dichloroethane-d4	0.53		0.4926		107	64.8	147	0	0	
Surr: Toluene-d8	0.46		0.4926		92.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.49		0.4926		98.6	62.1	144	0	0	

Sample ID: **lcs-75185** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **75185** RunNo: **97079**
Prep Date: **5/25/2023** Analysis Date: **5/26/2023** SeqNo: **3524160** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	0.93	0.050	1.000	0	93.3	70	130			
Surr: Dibromofluoromethane	0.56		0.5000		113	73	145			
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		108	64.8	147			
Surr: Toluene-d8	0.48		0.5000		96.1	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	62.1	144			

Sample ID: **mb-75185** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **75185** RunNo: **97079**
Prep Date: **5/25/2023** Analysis Date: **5/26/2023** SeqNo: **3524161** Units: **mg/Kg**

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

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C87**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **mb-75185** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **75185** RunNo: **97079**
Prep Date: **5/25/2023** Analysis Date: **5/26/2023** SeqNo: **3524161** 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: Dibromofluoromethane	0.58		0.5000		117	73	145			
Surr: 1,2-Dichloroethane-d4	0.55		0.5000		110	64.8	147			
Surr: Toluene-d8	0.47		0.5000		93.6	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		98.8	62.1	144			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2305C87**

05-Jun-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **lcs-75185**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75185**	RunNo: **97079**
Prep Date: **5/25/2023**	Analysis Date: **5/26/2023**	SeqNo: **3524133** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	81.5	70	130			
Surr: BFB	520		500.0		105	70	130			

Sample ID: **mb-75185**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS**	Batch ID: **75185**	RunNo: **97079**
Prep Date: **5/25/2023**	Analysis Date: **5/26/2023**	SeqNo: **3524134** 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	520		500.0		103	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
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: 2305C87 | RcptNo: 1

Received By: Juan Rojas 5/25/2023 9:35:00 AM

Completed By: Tracy Casarrubias 5/25/2023 10:07:19 AM

Reviewed By: 5-25-23

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: TMC 5/25/23

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: Mailing

Client Instructions: Mailing address, phone number and Email are missing on COC - TMC 5/25/23

16. Additional remarks: NO Relinquished By info from client on COC. TMC 5/25/23

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes	Morty		

Chain-of-Custody Record

Client: Devon

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☑ Standard ☒ Rush 5 DAY

Project Name: Spud 16 State #010

Project #: 23E-02857

Project Manager: Kent Stelling

Sampler: SM

On Ice: ☑ Yes ☐ No

# of Coolers: 1 (Marty)

Cooler Temp(including CF): 1.7-0=1.7 (°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. 2305C87	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5-23-23	1020	Soil	BG23-01 0.0'	4 oz	ICE	001	✓	✓					✓			
↓	1035	↓	BG23-02 0.0'	↓	↓	002										
↓	1045	↓	BG23-03 0.0'	↓	↓	003										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
			[signature]		5/24/23	1015
Date: 5/24/23	Time: 1100	Relinquished by: [signature]	Received by: [signature]	Via: Courier	Date 5/25/23	Time 9:35

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 05, 2023

Kent Stallings

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

RE: Spud 16 State 010 OrderNo.: 2305D04

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 5/25/2023 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 **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-001 **Matrix:** SOIL

Client Sample ID: BH23-02 0.0'
Collection Date: 5/23/2023 8:35:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	5/26/2023 10:28:06 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/26/2023 10:28:06 PM
Surr: DNOP	92.2	69-147		%Rec	1	5/26/2023 10:28:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2023 7:04:00 PM
Surr: BFB	84.9	15-244		%Rec	1	6/1/2023 7:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 7:04:00 PM
Toluene	ND	0.048		mg/Kg	1	6/1/2023 7:04:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2023 7:04:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/1/2023 7:04:00 PM
Surr: 4-Bromofluorobenzene	82.7	39.1-146		%Rec	1	6/1/2023 7:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	13000	600		mg/Kg	200	6/2/2023 1:37:01 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-002 **Matrix:** SOIL

Client Sample ID: BH23-02 1.5'
Collection Date: 5/23/2023 9:00:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/26/2023 10:52:40 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/26/2023 10:52:40 PM
Surr: DNOP	97.3	69-147		%Rec	1	5/26/2023 10:52:40 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/1/2023 7:26:00 PM
Surr: BFB	85.0	15-244		%Rec	1	6/1/2023 7:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/1/2023 7:26:00 PM
Toluene	ND	0.048		mg/Kg	1	6/1/2023 7:26:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/1/2023 7:26:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/1/2023 7:26:00 PM
Surr: 4-Bromofluorobenzene	83.5	39.1-146		%Rec	1	6/1/2023 7:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	5000	300		mg/Kg	100	6/2/2023 8:51:45 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-003 **Matrix:** SOIL

Client Sample ID: BH23-09 0.0'
Collection Date: 5/23/2023 12:15:00 PM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	5/28/2023 2:51:33 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/28/2023 2:51:33 AM
Surr: DNOP	79.2	69-147		%Rec	1	5/28/2023 2:51:33 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/30/2023 6:52:00 PM
Surr: BFB	88.8	15-244		%Rec	1	5/30/2023 6:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/30/2023 6:52:00 PM
Toluene	ND	0.049		mg/Kg	1	5/30/2023 6:52:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/30/2023 6:52:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/30/2023 6:52:00 PM
Surr: 4-Bromofluorobenzene	85.3	39.1-146		%Rec	1	5/30/2023 6:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	13000	600		mg/Kg	200	6/2/2023 9:04:05 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-004 **Matrix:** SOIL

Client Sample ID: BH23-09 2.0'
Collection Date: 5/23/2023 12:20:00 PM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/27/2023 1:27:20 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/27/2023 1:27:20 PM
Surr: DNOP	79.0	69-147		%Rec	1	5/27/2023 1:27:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/30/2023 7:57:00 PM
Surr: BFB	88.2	15-244		%Rec	1	5/30/2023 7:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/30/2023 7:57:00 PM
Toluene	ND	0.050		mg/Kg	1	5/30/2023 7:57:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/30/2023 7:57:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/30/2023 7:57:00 PM
Surr: 4-Bromofluorobenzene	85.8	39.1-146		%Rec	1	5/30/2023 7:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	4600	150		mg/Kg	50	6/2/2023 9:16:25 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-005 **Matrix:** SOIL

Client Sample ID: BH23-10 0.0'
Collection Date: 5/23/2023 12:30:00 PM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/27/2023 1:51:29 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/27/2023 1:51:29 PM
Surr: DNOP	76.8	69-147		%Rec	1	5/27/2023 1:51:29 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/30/2023 8:19:00 PM
Surr: BFB	85.5	15-244		%Rec	1	5/30/2023 8:19:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/30/2023 8:19:00 PM
Toluene	ND	0.049		mg/Kg	1	5/30/2023 8:19:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/30/2023 8:19:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/30/2023 8:19:00 PM
Surr: 4-Bromofluorobenzene	81.5	39.1-146		%Rec	1	5/30/2023 8:19:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	4400	150		mg/Kg	50	6/2/2023 9:28:46 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-006 **Matrix:** SOIL

Client Sample ID: BH23-10 2.0'
Collection Date: 5/23/2023 12:45:00 PM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	5/27/2023 2:15:42 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2023 2:15:42 PM
Surr: DNOP	77.7	69-147		%Rec	1	5/27/2023 2:15:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/30/2023 8:40:00 PM
Surr: BFB	87.0	15-244		%Rec	1	5/30/2023 8:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/30/2023 8:40:00 PM
Toluene	ND	0.050		mg/Kg	1	5/30/2023 8:40:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	5/30/2023 8:40:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	5/30/2023 8:40:00 PM
Surr: 4-Bromofluorobenzene	82.2	39.1-146		%Rec	1	5/30/2023 8:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	2100	60		mg/Kg	20	6/1/2023 2:18:01 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-007 **Matrix:** SOIL

Client Sample ID: BH23-11 0.0'
Collection Date: 5/23/2023 9:45:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/27/2023 2:39:50 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2023 2:39:50 PM
Surr: DNOP	78.2	69-147		%Rec	1	5/27/2023 2:39:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/30/2023 9:02:00 PM
Surr: BFB	81.4	15-244		%Rec	1	5/30/2023 9:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/30/2023 9:02:00 PM
Toluene	ND	0.049		mg/Kg	1	5/30/2023 9:02:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/30/2023 9:02:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/30/2023 9:02:00 PM
Surr: 4-Bromofluorobenzene	82.7	39.1-146		%Rec	1	5/30/2023 9:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	3000	150		mg/Kg	50	6/2/2023 9:41:06 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-008 **Matrix:** SOIL

Client Sample ID: BH23-11 2.0'
Collection Date: 5/23/2023 9:50:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/27/2023 3:04:00 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/27/2023 3:04:00 PM
Surr: DNOP	79.2	69-147		%Rec	1	5/27/2023 3:04:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/30/2023 9:24:00 PM
Surr: BFB	87.8	15-244		%Rec	1	5/30/2023 9:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/30/2023 9:24:00 PM
Toluene	ND	0.049		mg/Kg	1	5/30/2023 9:24:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/30/2023 9:24:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/30/2023 9:24:00 PM
Surr: 4-Bromofluorobenzene	83.9	39.1-146		%Rec	1	5/30/2023 9:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	2200	150		mg/Kg	50	6/2/2023 9:53:27 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-009 **Matrix:** SOIL

Client Sample ID: BH23-12 0.0'
Collection Date: 5/23/2023 9:50:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	5/27/2023 3:28:12 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/27/2023 3:28:12 PM
Surr: DNOP	80.0	69-147		%Rec	1	5/27/2023 3:28:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/30/2023 9:45:00 PM
Surr: BFB	85.7	15-244		%Rec	1	5/30/2023 9:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	5/30/2023 9:45:00 PM
Toluene	ND	0.047		mg/Kg	1	5/30/2023 9:45:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	5/30/2023 9:45:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	5/30/2023 9:45:00 PM
Surr: 4-Bromofluorobenzene	83.0	39.1-146		%Rec	1	5/30/2023 9:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	140	60		mg/Kg	20	6/1/2023 3:44:27 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-010 **Matrix:** SOIL

Client Sample ID: BH23-12 1.5'
Collection Date: 5/23/2023 10:15:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/27/2023 3:52:19 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/27/2023 3:52:19 PM
Surr: DNOP	85.3	69-147		%Rec	1	5/27/2023 3:52:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/30/2023 10:07:00 PM
Surr: BFB	90.0	15-244		%Rec	1	5/30/2023 10:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/30/2023 10:07:00 PM
Toluene	ND	0.048		mg/Kg	1	5/30/2023 10:07:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/30/2023 10:07:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	5/30/2023 10:07:00 PM
Surr: 4-Bromofluorobenzene	83.5	39.1-146		%Rec	1	5/30/2023 10:07:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	430	60		mg/Kg	20	6/1/2023 3:56:48 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-011 **Matrix:** SOIL

Client Sample ID: BH23-13 0.0'
Collection Date: 5/23/2023 8:45:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/27/2023 4:16:23 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/27/2023 4:16:23 PM
Surr: DNOP	80.9	69-147		%Rec	1	5/27/2023 4:16:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/30/2023 10:28:00 PM
Surr: BFB	89.1	15-244		%Rec	1	5/30/2023 10:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	5/30/2023 10:28:00 PM
Toluene	ND	0.049		mg/Kg	1	5/30/2023 10:28:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	5/30/2023 10:28:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	5/30/2023 10:28:00 PM
Surr: 4-Bromofluorobenzene	85.4	39.1-146		%Rec	1	5/30/2023 10:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	7500	300		mg/Kg	100	6/2/2023 10:05:47 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2305D04**
Date Reported: **6/5/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2305D04-012 **Matrix:** SOIL

Client Sample ID: BH23-13 1.5'
Collection Date: 5/23/2023 9:05:00 AM
Received Date: 5/25/2023 9:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/27/2023 4:40:32 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/27/2023 4:40:32 PM
Surr: DNOP	80.2	69-147		%Rec	1	5/27/2023 4:40:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/30/2023 11:12:00 PM
Surr: BFB	88.4	15-244		%Rec	1	5/30/2023 11:12:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	5/30/2023 11:12:00 PM
Toluene	ND	0.048		mg/Kg	1	5/30/2023 11:12:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	5/30/2023 11:12:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	5/30/2023 11:12:00 PM
Surr: 4-Bromofluorobenzene	86.2	39.1-146		%Rec	1	5/30/2023 11:12:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **NAI**
Chloride	2300	59		mg/Kg	20	6/1/2023 4:21:29 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305D04**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **MB-75263**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75263**	RunNo: **97118**							
Prep Date: **5/31/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526736**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75263**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75263**	RunNo: **97118**							
Prep Date: **5/31/2023**	Analysis Date: **5/31/2023**	SeqNo: **3526737**	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-75281**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75281**	RunNo: **97145**							
Prep Date: **6/1/2023**	Analysis Date: **6/1/2023**	SeqNo: **3528630**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75281**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75281**	RunNo: **97145**							
Prep Date: **6/1/2023**	Analysis Date: **6/1/2023**	SeqNo: **3528631**	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			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305D04**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **MB-75207** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75207** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/26/2023** SeqNo: **3523756** 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	8.6		10.00		85.5	69	147			

Sample ID: **LCS-75207** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75207** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/26/2023** SeqNo: **3523757** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	78.3	61.9	130			
Surr: DNOP	4.1		5.000		81.4	69	147			

Sample ID: **MB-75215** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75215** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/27/2023** SeqNo: **3523782** 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	7.5		10.00		75.5	69	147			

Sample ID: **LCS-75215** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75215** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/27/2023** SeqNo: **3523783** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	85.5	61.9	130			
Surr: DNOP	4.2		5.000		84.8	69	147			

Sample ID: **MB-75214** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75214** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/27/2023** SeqNo: **3523784** 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	7.8		10.00		78.4	69	147			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305D04**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **LCS-75214** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75214** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/27/2023** SeqNo: **3523785** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	78.2	61.9	130			
Surr: DNOP	3.9		5.000		77.6	69	147			

Sample ID: **2305D04-004AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-09 2.0'** Batch ID: **75215** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/28/2023** SeqNo: **3523854** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	9.8	48.92	0	83.0	54.2	135			
Surr: DNOP	3.9		4.892		79.5	69	147			

Sample ID: **2305D04-004AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-09 2.0'** Batch ID: **75215** RunNo: **97076**
Prep Date: **5/26/2023** Analysis Date: **5/28/2023** SeqNo: **3523855** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	9.5	47.44	0	86.0	54.2	135	0.541	29.2	
Surr: DNOP	3.8		4.744		81.1	69	147	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305D04**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **LCS-75211** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **75211** RunNo: **97082**
Prep Date: **5/26/2023** Analysis Date: **5/30/2023** SeqNo: **3524885** 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	82.3	70	130			
Surr: BFB	2000		1000		200	15	244			

Sample ID: **MB-75211** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **75211** RunNo: **97082**
Prep Date: **5/26/2023** Analysis Date: **5/30/2023** SeqNo: **3524886** 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	910		1000		90.9	15	244			

Sample ID: **lcs-75194** SampType: **LCS** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS** Batch ID: **75194** RunNo: **97112**
Prep Date: **5/25/2023** Analysis Date: **6/1/2023** SeqNo: **3527082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	25.00	0	79.3	70	130			
Surr: BFB	1900		1000		189	15	244			

Sample ID: **mb-75194** SampType: **MBLK** TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS** Batch ID: **75194** RunNo: **97112**
Prep Date: **5/25/2023** Analysis Date: **6/1/2023** SeqNo: **3527083** 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	870		1000		86.5	15	244			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305D04**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **LCS-75211** SampType: **LCS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS** Batch ID: **75211** RunNo: **97082**
Prep Date: **5/26/2023** Analysis Date: **5/30/2023** SeqNo: **3524912** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	1.000	0	80.5	70	130			
Toluene	0.82	0.050	1.000	0	82.2	70	130			
Ethylbenzene	0.81	0.050	1.000	0	81.2	70	130			
Xylenes, Total	2.4	0.10	3.000	0	80.9	70	130			
Surr: 4-Bromofluorobenzene	0.88		1.000		88.3	39.1	146			

Sample ID: **MB-75211** SampType: **MBLK** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS** Batch ID: **75211** RunNo: **97082**
Prep Date: **5/26/2023** Analysis Date: **5/30/2023** SeqNo: **3524913** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.87		1.000		87.0	39.1	146			

Sample ID: **2305D04-003ams** SampType: **MS** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-09 0.0'** Batch ID: **75211** RunNo: **97082**
Prep Date: **5/26/2023** Analysis Date: **5/30/2023** SeqNo: **3524916** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.75	0.025	0.9901	0	76.0	70	130			
Toluene	0.78	0.050	0.9901	0	79.2	70	130			
Ethylbenzene	0.79	0.050	0.9901	0	80.1	70	130			
Xylenes, Total	2.4	0.099	2.970	0	79.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		0.9901		86.9	39.1	146			

Sample ID: **2305D04-003AMSD** SampType: **MSD** TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-09 0.0'** Batch ID: **75211** RunNo: **97112**
Prep Date: **5/26/2023** Analysis Date: **6/1/2023** SeqNo: **3526444** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.62	0.025	0.9921	0	62.6	70	130	19.1	20	S
Toluene	0.67	0.050	0.9921	0	67.6	70	130	15.5	20	S
Ethylbenzene	0.67	0.050	0.9921	0	67.9	70	130	16.2	20	S
Xylenes, Total	2.0	0.099	2.976	0	67.2	70	130	16.2	20	S
Surr: 4-Bromofluorobenzene	0.85		0.9921		85.7	39.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2305D04**
05-Jun-23

Client: Devon Energy
Project: Spud 16 State 010

Sample ID: **lcs-75194**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527087** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	84.5	70	130			
Toluene	0.86	0.050	1.000	0	85.7	70	130			
Ethylbenzene	0.84	0.050	1.000	0	84.2	70	130			
Xylenes, Total	2.5	0.10	3.000	0	83.2	70	130			
Surr: 4-Bromofluorobenzene	0.86		1.000		85.6	39.1	146			

Sample ID: **mb-75194**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75194**	RunNo: **97112**
Prep Date: **5/25/2023**	Analysis Date: **6/1/2023**	SeqNo: **3527088** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.84		1.000		84.0	39.1	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
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: 2305D04 | RcptNo: 1

Received By: Juan Rojas 5/25/2023 9:35:00 AM

Completed By: Tracy Casarrubias 5/25/2023 10:25:32 AM

Reviewed By: 5-25-23

Chain of Custody

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

Log In

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

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

Adjusted?

Checked by: TMS 5/25/23

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: Mailing address, phone number and Email are missing on COC- TMC 5/25/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes	Morty		

Chain-of-Custody Record

Client: Devon

Direct Bill

Mailing Address:

Phone #:

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:

☐ Standard ☒ Rush 5 Day

Project Name: Spud 16 State #010

Project #: 23E-02857

Project Manager: Kent Stalling

Sampler: SM

On Ice: ☒ Yes ☐ No

# of Coolers: 1 Monty

Cooler Temp(including CF): 1.7+0=1.7 (°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. 2305D04	BTEX / MTBE / TMB's (8021)	TPH: 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5-23-23	0835	Soil	BH23-02 0.0'	4 oz	ICE	001	✓	✓					✓			
	0900		BH23-02 1.5'			002										
	1215		BH23-09 0.0'			003										
	1220		BH23-09 2.0'			004										
	1230		BH23-10 0.0'			005										
	1245		BH23-10 2.0'			006										
	0945		BH23-11 0.0'			007										
	0950		BH23-11 2.0'			008										
	0950		BH23-12 0.0'			009										
	1015		BH23-12 1.5'			010										
	0845		BH23-13 0.0'			011										
↓	0905	↓	BH23-13 1.5'	↓	↓	012	↓	↓					↓			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					5/24/23	1015
5/24/23	1900			courier	5/25/23	9:35

Remarks: Work Order: 21165742

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

July 11, 2023

Kent Stallings

Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX:

RE: Spud 16 State 010H OrderNo.: 2306E11

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 8 sample(s) on 6/28/2023 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

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-16 0'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 9:30:00 AM
Lab ID: 2306E11-001 **Matrix:** SOIL
Received Date: 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/30/2023 9:09:22 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/30/2023 9:09:22 PM
Surr: DNOP	95.4	69-147		%Rec	1	6/30/2023 9:09:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2023 12:02:38 AM
Surr: BFB	102	15-244		%Rec	1	6/30/2023 12:02:38 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/30/2023 12:02:38 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2023 12:02:38 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2023 12:02:38 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/30/2023 12:02:38 AM
Surr: 4-Bromofluorobenzene	88.3	39.1-146		%Rec	1	6/30/2023 12:02:38 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	13000	600		mg/Kg	200	7/5/2023 11:36:58 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-17 0'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 9:35:00 AM
Lab ID: 2306E11-002 **Matrix:** SOIL **Received Date:** 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	6/30/2023 9:20:12 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/30/2023 9:20:12 PM
Surr: DNOP	99.8	69-147		%Rec	1	6/30/2023 9:20:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2023 12:26:11 AM
Surr: BFB	96.9	15-244		%Rec	1	6/30/2023 12:26:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/30/2023 12:26:11 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2023 12:26:11 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2023 12:26:11 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/30/2023 12:26:11 AM
Surr: 4-Bromofluorobenzene	84.4	39.1-146		%Rec	1	6/30/2023 12:26:11 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	9900	590		mg/Kg	200	7/5/2023 11:49:19 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-18 0'
Project: Spud 16 State 010H **Collection Date:** 6/26/2023 9:38:00 AM
Lab ID: 2306E11-003 **Matrix:** SOIL **Received Date:** 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/30/2023 9:31:00 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/30/2023 9:31:00 PM
Surr: DNOP	89.6	69-147		%Rec	1	6/30/2023 9:31:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/30/2023 12:49:43 AM
Surr: BFB	101	15-244		%Rec	1	6/30/2023 12:49:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/30/2023 12:49:43 AM
Toluene	ND	0.048		mg/Kg	1	6/30/2023 12:49:43 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2023 12:49:43 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/30/2023 12:49:43 AM
Surr: 4-Bromofluorobenzene	87.4	39.1-146		%Rec	1	6/30/2023 12:49:43 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	10000	600		mg/Kg	200	7/5/2023 12:01:40 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-18 2'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 10:25:00 AM
Lab ID: 2306E11-004 **Matrix:** SOIL **Received Date:** 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/30/2023 9:41:50 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/30/2023 9:41:50 PM
Surr: DNOP	92.2	69-147		%Rec	1	6/30/2023 9:41:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/30/2023 1:13:17 AM
Surr: BFB	99.6	15-244		%Rec	1	6/30/2023 1:13:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/30/2023 1:13:17 AM
Toluene	ND	0.048		mg/Kg	1	6/30/2023 1:13:17 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2023 1:13:17 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/30/2023 1:13:17 AM
Surr: 4-Bromofluorobenzene	86.8	39.1-146		%Rec	1	6/30/2023 1:13:17 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	5200	150		mg/Kg	50	7/5/2023 12:14:01 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-19 0'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 9:40:00 AM
Lab ID: 2306E11-005 **Matrix:** SOIL **Received Date:** 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/30/2023 9:52:42 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/30/2023 9:52:42 PM
Surr: DNOP	90.8	69-147		%Rec	1	6/30/2023 9:52:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/30/2023 1:36:47 AM
Surr: BFB	99.6	15-244		%Rec	1	6/30/2023 1:36:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/30/2023 1:36:47 AM
Toluene	ND	0.050		mg/Kg	1	6/30/2023 1:36:47 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2023 1:36:47 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2023 1:36:47 AM
Surr: 4-Bromofluorobenzene	87.1	39.1-146		%Rec	1	6/30/2023 1:36:47 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	6500	300		mg/Kg	100	7/5/2023 12:26:21 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-19 2'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 10:15:00 AM
Lab ID: 2306E11-006 **Matrix:** SOIL
Received Date: 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	6/30/2023 10:14:26 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	6/30/2023 10:14:26 PM
Surr: DNOP	93.4	69-147		%Rec	1	6/30/2023 10:14:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2023 2:00:14 AM
Surr: BFB	100	15-244		%Rec	1	6/30/2023 2:00:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/30/2023 2:00:14 AM
Toluene	ND	0.049		mg/Kg	1	6/30/2023 2:00:14 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2023 2:00:14 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/30/2023 2:00:14 AM
Surr: 4-Bromofluorobenzene	87.7	39.1-146		%Rec	1	6/30/2023 2:00:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	3700	150		mg/Kg	50	7/5/2023 12:38:42 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-20 0'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 9:42:00 AM
Lab ID: 2306E11-007 **Matrix:** SOIL **Received Date:** 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.4		mg/Kg	1	6/30/2023 10:25:24 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	6/30/2023 10:25:24 PM
Surr: DNOP	91.8	69-147		%Rec	1	6/30/2023 10:25:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/30/2023 2:23:42 AM
Surr: BFB	97.1	15-244		%Rec	1	6/30/2023 2:23:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/30/2023 2:23:42 AM
Toluene	ND	0.048		mg/Kg	1	6/30/2023 2:23:42 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2023 2:23:42 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/30/2023 2:23:42 AM
Surr: 4-Bromofluorobenzene	83.8	39.1-146		%Rec	1	6/30/2023 2:23:42 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	890	60		mg/Kg	20	7/3/2023 8:37:52 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2306E11**
Date Reported: **7/11/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-20 2'
Project: Spud 16 State 010H
Collection Date: 6/26/2023 10:05:00 AM
Lab ID: 2306E11-008 **Matrix:** SOIL **Received Date:** 6/28/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/30/2023 10:36:23 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/30/2023 10:36:23 PM
Surr: DNOP	95.3	69-147		%Rec	1	6/30/2023 10:36:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/30/2023 2:47:11 AM
Surr: BFB	97.0	15-244		%Rec	1	6/30/2023 2:47:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/30/2023 2:47:11 AM
Toluene	ND	0.050		mg/Kg	1	6/30/2023 2:47:11 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/30/2023 2:47:11 AM
Xylenes, Total	ND	0.10		mg/Kg	1	6/30/2023 2:47:11 AM
Surr: 4-Bromofluorobenzene	84.2	39.1-146		%Rec	1	6/30/2023 2:47:11 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	7500	300		mg/Kg	100	7/5/2023 12:51:03 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306E11**

11-Jul-23

Client: Vertex Resources Services, Inc.

Project: Spud 16 State 010H

Sample ID: **MB-75962**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **75962**	RunNo: **97896**
Prep Date: **7/3/2023**	Analysis Date: **7/3/2023**	SeqNo: **3561639** Units: **mg/Kg**

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

Sample ID: **LCS-75962**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **75962**	RunNo: **97896**
Prep Date: **7/3/2023**	Analysis Date: **7/3/2023**	SeqNo: **3561640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.2	90	110			

Sample ID: **MB-75965**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **75965**	RunNo: **97896**
Prep Date: **7/3/2023**	Analysis Date: **7/3/2023**	SeqNo: **3561641** Units: **mg/Kg**

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

Sample ID: **LCS-75965**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **75965**	RunNo: **97896**
Prep Date: **7/3/2023**	Analysis Date: **7/3/2023**	SeqNo: **3561642** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.9	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306E11**

11-Jul-23

Client: Vertex Resources Services, Inc.

Project: Spud 16 State 010H

Sample ID: **LCS-75911**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **75911**	RunNo: **97879**
Prep Date: **6/29/2023**	Analysis Date: **6/30/2023**	SeqNo: **3560507** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	61.9	130			
Surr: DNOP	4.9		5.000		98.1	69	147			

Sample ID: **MB-75911**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75911**	RunNo: **97879**
Prep Date: **6/29/2023**	Analysis Date: **6/30/2023**	SeqNo: **3560511** 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	9.5		10.00		95.2	69	147			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306E11**

11-Jul-23

Client: Vertex Resources Services, Inc.

Project: Spud 16 State 010H

Sample ID: **mb-75895**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75895**	RunNo: **97810**
Prep Date: **6/28/2023**	Analysis Date: **6/29/2023**	SeqNo: **3558395** 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	1100		1000		110	15	244			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306E11**

11-Jul-23

Client: Vertex Resources Services, Inc.

Project: Spud 16 State 010H

Sample ID: **mb-75895**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75895**	RunNo: **97810**
Prep Date: **6/28/2023**	Analysis Date: **6/29/2023**	SeqNo: **3558398** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		93.0	39.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2306E11

RcptNo: 1

Received By: Juan Rojas 6/28/2023 7:15:00 AM

Completed By: Tracy Casarrubias 6/28/2023 8:15:30 AM

Reviewed By: TMC 6/28/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SCM 06/28/23

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: Mailing address,phone number and Email/Fax are misssing on COC - TMC 6/28/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes	Morty		

Chain-of-Custody Record

Client: Vertex / Devon

Mailing Address: On file

Phone #:

email or Fax#:

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

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

Turn-Around Time:
☐ Standard ☑ Rush 5 DAY

Project Name: Spud 16 State #010 H

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Marty

Cooler Temp(including CF): 1.6-0.2=1.4 (°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. 2306E11	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/26/23	9:30	Soil	BH23-16 0'	4oz jar	Ice	001	✓	✓					✓			
	9:35		BH23-17 0'			002										
	9:38		BH23-18 0'			003										
	10:25		BH23-18 2'			004										
	9:40		BH23-19 0'			005										
	10:15		BH23-19 2'			006										
	9:42		BH23-20 0'			007										
	10:05		BH23-20 2'			008										

Date	Time	Relinquished by	Received by	Via	Date	Time
6/26/23	15:50	Steph McCarty			6/27/23	945
			Jennifer		6/28/23	7:15

Remarks: Direct bill to: Devon W/O #: 211657 42

C. C. Smccarty@vertex.ca

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

July 17, 2023

Kent Stallings

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

RE: Spud 16 State 010 OrderNo.: 2307083

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 28 sample(s) on 7/6/2023 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 **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-16 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:05:00 AM
Lab ID: 2307083-001 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/6/2023 3:51:46 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/6/2023 3:51:46 PM
Surr: DNOP	89.4	69-147		%Rec	1	7/6/2023 3:51:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/7/2023 10:30:00 PM
Surr: BFB	93.8	15-244		%Rec	1	7/7/2023 10:30:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/7/2023 10:30:00 PM
Toluene	ND	0.048		mg/Kg	1	7/7/2023 10:30:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/7/2023 10:30:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/7/2023 10:30:00 PM
Surr: 4-Bromofluorobenzene	92.6	39.1-146		%Rec	1	7/7/2023 10:30:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	4700	150		mg/Kg	50	7/7/2023 10:55:17 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307083-002 **Matrix:** SOIL

Client Sample ID: BH23-16 4'
Collection Date: 6/30/2023 9:10:00 AM
Received Date: 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/6/2023 4:24:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 4:24:53 PM
Surr: DNOP	86.6	69-147		%Rec	1	7/6/2023 4:24:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/7/2023 10:52:00 PM
Surr: BFB	103	15-244		%Rec	1	7/7/2023 10:52:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/7/2023 10:52:00 PM
Toluene	ND	0.048		mg/Kg	1	7/7/2023 10:52:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/7/2023 10:52:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/7/2023 10:52:00 PM
Surr: 4-Bromofluorobenzene	94.3	39.1-146		%Rec	1	7/7/2023 10:52:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	5800	300		mg/Kg	100	7/7/2023 6:44:22 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-17 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:12:00 AM
Lab ID: 2307083-003 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/6/2023 4:35:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 4:35:56 PM
Surr: DNOP	86.7	69-147		%Rec	1	7/6/2023 4:35:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/7/2023 11:14:00 PM
Surr: BFB	97.1	15-244		%Rec	1	7/7/2023 11:14:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/7/2023 11:14:00 PM
Toluene	ND	0.050		mg/Kg	1	7/7/2023 11:14:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/7/2023 11:14:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/7/2023 11:14:00 PM
Surr: 4-Bromofluorobenzene	93.1	39.1-146		%Rec	1	7/7/2023 11:14:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	2700	150		mg/Kg	50	7/7/2023 11:07:38 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307083-004 **Matrix:** SOIL

Client Sample ID: BH23-17 4'
Collection Date: 6/30/2023 9:15:00 AM
Received Date: 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/6/2023 4:46:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 4:46:56 PM
Surr: DNOP	86.9	69-147		%Rec	1	7/6/2023 4:46:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/7/2023 11:35:00 PM
Surr: BFB	93.8	15-244		%Rec	1	7/7/2023 11:35:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/7/2023 11:35:00 PM
Toluene	ND	0.048		mg/Kg	1	7/7/2023 11:35:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/7/2023 11:35:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/7/2023 11:35:00 PM
Surr: 4-Bromofluorobenzene	91.9	39.1-146		%Rec	1	7/7/2023 11:35:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	4900	150		mg/Kg	50	7/7/2023 5:30:17 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-21 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:16:00 AM
Lab ID: 2307083-005 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/6/2023 4:57:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 4:57:53 PM
Surr: DNOP	91.4	69-147		%Rec	1	7/6/2023 4:57:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/7/2023 11:57:00 PM
Surr: BFB	95.5	15-244		%Rec	1	7/7/2023 11:57:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/7/2023 11:57:00 PM
Toluene	ND	0.049		mg/Kg	1	7/7/2023 11:57:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/7/2023 11:57:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/7/2023 11:57:00 PM
Surr: 4-Bromofluorobenzene	91.4	39.1-146		%Rec	1	7/7/2023 11:57:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	21000	1200		mg/Kg	400	7/7/2023 7:46:06 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-21 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:20:00 AM
Lab ID: 2307083-006 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/6/2023 5:08:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 5:08:52 PM
Surr: DNOP	83.0	69-147		%Rec	1	7/6/2023 5:08:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/8/2023 12:40:00 AM
Surr: BFB	96.7	15-244		%Rec	1	7/8/2023 12:40:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/8/2023 12:40:00 AM
Toluene	ND	0.050		mg/Kg	1	7/8/2023 12:40:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/8/2023 12:40:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/8/2023 12:40:00 AM
Surr: 4-Bromofluorobenzene	91.1	39.1-146		%Rec	1	7/8/2023 12:40:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	6200	300		mg/Kg	100	7/7/2023 6:56:43 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-21 4'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:25:00 AM
Lab ID: 2307083-007 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/6/2023 5:19:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 5:19:53 PM
Surr: DNOP	87.9	69-147		%Rec	1	7/6/2023 5:19:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/8/2023 1:02:00 AM
Surr: BFB	93.8	15-244		%Rec	1	7/8/2023 1:02:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/8/2023 1:02:00 AM
Toluene	ND	0.050		mg/Kg	1	7/8/2023 1:02:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/8/2023 1:02:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/8/2023 1:02:00 AM
Surr: 4-Bromofluorobenzene	92.5	39.1-146		%Rec	1	7/8/2023 1:02:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	7500	300		mg/Kg	100	7/7/2023 7:09:04 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307083-008 **Matrix:** SOIL

Client Sample ID: BH23-22 0'
Collection Date: 6/30/2023 9:30:00 AM
Received Date: 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/6/2023 5:30:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/6/2023 5:30:54 PM
Surr: DNOP	85.6	69-147		%Rec	1	7/6/2023 5:30:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/8/2023 1:24:00 AM
Surr: BFB	91.0	15-244		%Rec	1	7/8/2023 1:24:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/8/2023 1:24:00 AM
Toluene	ND	0.049		mg/Kg	1	7/8/2023 1:24:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/8/2023 1:24:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	7/8/2023 1:24:00 AM
Surr: 4-Bromofluorobenzene	90.8	39.1-146		%Rec	1	7/8/2023 1:24:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	11000	600		mg/Kg	200	7/7/2023 7:21:25 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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-22 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:35:00 AM
Lab ID: 2307083-009 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/6/2023 5:52:47 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/6/2023 5:52:47 PM
Surr: DNOP	85.1	69-147		%Rec	1	7/6/2023 5:52:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/8/2023 1:45:00 AM
Surr: BFB	95.5	15-244		%Rec	1	7/8/2023 1:45:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/8/2023 1:45:00 AM
Toluene	ND	0.050		mg/Kg	1	7/8/2023 1:45:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	7/8/2023 1:45:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/8/2023 1:45:00 AM
Surr: 4-Bromofluorobenzene	92.4	39.1-146		%Rec	1	7/8/2023 1:45:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	3400	150		mg/Kg	50	7/7/2023 6:07:19 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307083-010 **Matrix:** SOIL

Client Sample ID: BH23-22 4'
Collection Date: 6/30/2023 9:40:00 AM
Received Date: 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/6/2023 6:03:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 6:03:53 PM
Surr: DNOP	85.8	69-147		%Rec	1	7/6/2023 6:03:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/8/2023 2:07:00 AM
Surr: BFB	99.9	15-244		%Rec	1	7/8/2023 2:07:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/8/2023 2:07:00 AM
Toluene	ND	0.049		mg/Kg	1	7/8/2023 2:07:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/8/2023 2:07:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/8/2023 2:07:00 AM
Surr: 4-Bromofluorobenzene	93.0	39.1-146		%Rec	1	7/8/2023 2:07:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	5100	150		mg/Kg	50	7/7/2023 6:19:40 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-23 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:41:00 AM
Lab ID: 2307083-011 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/6/2023 6:14:59 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/6/2023 6:14:59 PM
Surr: DNOP	86.3	69-147		%Rec	1	7/6/2023 6:14:59 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/8/2023 2:29:00 AM
Surr: BFB	98.4	15-244		%Rec	1	7/8/2023 2:29:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/8/2023 2:29:00 AM
Toluene	ND	0.049		mg/Kg	1	7/8/2023 2:29:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/8/2023 2:29:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/8/2023 2:29:00 AM
Surr: 4-Bromofluorobenzene	93.2	39.1-146		%Rec	1	7/8/2023 2:29:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	11000	600		mg/Kg	200	7/7/2023 7:33:45 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307083-012 **Matrix:** SOIL

Client Sample ID: BH23-23 2'
Collection Date: 6/30/2023 9:42:00 AM
Received Date: 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/6/2023 6:26:04 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/6/2023 6:26:04 PM
Surr: DNOP	88.2	69-147		%Rec	1	7/6/2023 6:26:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/8/2023 2:51:00 AM
Surr: BFB	92.9	15-244		%Rec	1	7/8/2023 2:51:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/8/2023 2:51:00 AM
Toluene	ND	0.049		mg/Kg	1	7/8/2023 2:51:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/8/2023 2:51:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/8/2023 2:51:00 AM
Surr: 4-Bromofluorobenzene	92.5	39.1-146		%Rec	1	7/8/2023 2:51:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	5200	150		mg/Kg	50	7/7/2023 6:32:01 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-24 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:45:00 AM
Lab ID: 2307083-013 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/7/2023 5:06:54 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/7/2023 5:06:54 PM
Surr: DNOP	94.8	69-147		%Rec	1	7/7/2023 5:06:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/10/2023 10:59:00 AM
Surr: BFB	93.4	15-244		%Rec	1	7/10/2023 10:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 10:59:00 AM
Toluene	ND	0.047		mg/Kg	1	7/10/2023 10:59:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	7/10/2023 10:59:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	7/10/2023 10:59:00 AM
Surr: 4-Bromofluorobenzene	94.0	39.1-146		%Rec	1	7/10/2023 10:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	2800	150		mg/Kg	50	7/11/2023 10:14:12 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-24 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:48:00 AM
Lab ID: 2307083-014 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/7/2023 5:25:42 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2023 5:25:42 PM
Surr: DNOP	94.7	69-147		%Rec	1	7/7/2023 5:25:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/10/2023 12:04:00 PM
Surr: BFB	94.4	15-244		%Rec	1	7/10/2023 12:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/10/2023 12:04:00 PM
Toluene	ND	0.049		mg/Kg	1	7/10/2023 12:04:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/10/2023 12:04:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/10/2023 12:04:00 PM
Surr: 4-Bromofluorobenzene	95.3	39.1-146		%Rec	1	7/10/2023 12:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	2000	60		mg/Kg	20	7/7/2023 10:14:16 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-25 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:50:00 AM
Lab ID: 2307083-015 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	11	9.7		mg/Kg	1	7/7/2023 5:45:04 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2023 5:45:04 PM
Surr: DNOP	101	69-147		%Rec	1	7/7/2023 5:45:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/10/2023 1:09:00 PM
Surr: BFB	94.9	15-244		%Rec	1	7/10/2023 1:09:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/10/2023 1:09:00 PM
Toluene	ND	0.046		mg/Kg	1	7/10/2023 1:09:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/10/2023 1:09:00 PM
Xylenes, Total	ND	0.091		mg/Kg	1	7/10/2023 1:09:00 PM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	7/10/2023 1:09:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JTT**
Chloride	1600	60		mg/Kg	20	7/7/2023 11:15:59 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-25 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:56:00 AM
Lab ID: 2307083-016 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	1900	99		mg/Kg	10	7/7/2023 3:10:07 PM
Motor Oil Range Organics (MRO)	4400	490		mg/Kg	10	7/7/2023 3:10:07 PM
Surr: DNOP	0	69-147	S	%Rec	10	7/7/2023 3:10:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/10/2023 1:31:00 PM
Surr: BFB	93.5	15-244		%Rec	1	7/10/2023 1:31:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/10/2023 1:31:00 PM
Toluene	ND	0.050		mg/Kg	1	7/10/2023 1:31:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/10/2023 1:31:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/10/2023 1:31:00 PM
Surr: 4-Bromofluorobenzene	92.8	39.1-146		%Rec	1	7/10/2023 1:31:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	2600	150		mg/Kg	50	7/11/2023 10:26:37 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-26 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 9:58:00 AM
Lab ID: 2307083-017 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/7/2023 6:04:00 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2023 6:04:00 PM
Surr: DNOP	93.5	69-147		%Rec	1	7/7/2023 6:04:00 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/10/2023 1:53:00 PM
Surr: BFB	93.9	15-244		%Rec	1	7/10/2023 1:53:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 1:53:00 PM
Toluene	ND	0.047		mg/Kg	1	7/10/2023 1:53:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/10/2023 1:53:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/10/2023 1:53:00 PM
Surr: 4-Bromofluorobenzene	95.1	39.1-146		%Rec	1	7/10/2023 1:53:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	9000	300		mg/Kg	100	7/11/2023 11:28:38 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-26 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 10:00:00 AM
Lab ID: 2307083-018 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/7/2023 6:22:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2023 6:22:54 PM
Surr: DNOP	92.1	69-147		%Rec	1	7/7/2023 6:22:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/10/2023 2:15:00 PM
Surr: BFB	98.4	15-244		%Rec	1	7/10/2023 2:15:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 2:15:00 PM
Toluene	ND	0.048		mg/Kg	1	7/10/2023 2:15:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/10/2023 2:15:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/10/2023 2:15:00 PM
Surr: 4-Bromofluorobenzene	96.3	39.1-146		%Rec	1	7/10/2023 2:15:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	3500	150		mg/Kg	50	7/11/2023 10:39:01 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-27 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 12:05:00 PM
Lab ID: 2307083-019 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/7/2023 6:41:37 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/7/2023 6:41:37 PM
Surr: DNOP	94.4	69-147		%Rec	1	7/7/2023 6:41:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/10/2023 2:37:00 PM
Surr: BFB	95.4	15-244		%Rec	1	7/10/2023 2:37:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/10/2023 2:37:00 PM
Toluene	ND	0.046		mg/Kg	1	7/10/2023 2:37:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/10/2023 2:37:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	7/10/2023 2:37:00 PM
Surr: 4-Bromofluorobenzene	94.9	39.1-146		%Rec	1	7/10/2023 2:37:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	9800	600		mg/Kg	200	7/11/2023 11:41:02 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-27 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 12:08:00 PM
Lab ID: 2307083-020 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/7/2023 7:00:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2023 7:00:14 PM
Surr: DNOP	92.3	69-147		%Rec	1	7/7/2023 7:00:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/10/2023 2:58:00 PM
Surr: BFB	96.4	15-244		%Rec	1	7/10/2023 2:58:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 2:58:00 PM
Toluene	ND	0.049		mg/Kg	1	7/10/2023 2:58:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/10/2023 2:58:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/10/2023 2:58:00 PM
Surr: 4-Bromofluorobenzene	96.7	39.1-146		%Rec	1	7/10/2023 2:58:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	3300	150		mg/Kg	50	7/11/2023 10:51:25 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-28 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 12:10:00 PM
Lab ID: 2307083-021 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	12	10		mg/Kg	1	7/7/2023 7:18:51 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/7/2023 7:18:51 PM
Surr: DNOP	93.6	69-147		%Rec	1	7/7/2023 7:18:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/10/2023 3:20:00 PM
Surr: BFB	95.2	15-244		%Rec	1	7/10/2023 3:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 3:20:00 PM
Toluene	ND	0.047		mg/Kg	1	7/10/2023 3:20:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/10/2023 3:20:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	7/10/2023 3:20:00 PM
Surr: 4-Bromofluorobenzene	95.3	39.1-146		%Rec	1	7/10/2023 3:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	5000	150		mg/Kg	50	7/11/2023 11:03:49 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-28 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 12:13:00 PM
Lab ID: 2307083-022 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	7/7/2023 7:37:22 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/7/2023 7:37:22 PM
Surr: DNOP	94.1	69-147		%Rec	1	7/7/2023 7:37:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/10/2023 3:42:00 PM
Surr: BFB	98.3	15-244		%Rec	1	7/10/2023 3:42:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/10/2023 3:42:00 PM
Toluene	ND	0.047		mg/Kg	1	7/10/2023 3:42:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/10/2023 3:42:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	7/10/2023 3:42:00 PM
Surr: 4-Bromofluorobenzene	97.2	39.1-146		%Rec	1	7/10/2023 3:42:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	2500	150		mg/Kg	50	7/11/2023 11:16:13 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BG23-03 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 10:25:00 AM
Lab ID: 2307083-023 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/7/2023 7:55:55 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/7/2023 7:55:55 PM
Surr: DNOP	93.4	69-147		%Rec	1	7/7/2023 7:55:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/10/2023 4:26:00 PM
Surr: BFB	98.1	15-244		%Rec	1	7/10/2023 4:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/10/2023 4:26:00 PM
Toluene	ND	0.050		mg/Kg	1	7/10/2023 4:26:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/10/2023 4:26:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	7/10/2023 4:26:00 PM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	7/10/2023 4:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	4900	150		mg/Kg	50	7/14/2023 2:05:34 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BG23-03 4'
Project: Spud 16 State 010
Collection Date: 6/30/2023 10:30:00 AM
Lab ID: 2307083-024 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/7/2023 8:32:42 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/7/2023 8:32:42 PM
Surr: DNOP	93.5	69-147		%Rec	1	7/7/2023 8:32:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/10/2023 4:48:00 PM
Surr: BFB	93.5	15-244		%Rec	1	7/10/2023 4:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 4:48:00 PM
Toluene	ND	0.049		mg/Kg	1	7/10/2023 4:48:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/10/2023 4:48:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/10/2023 4:48:00 PM
Surr: 4-Bromofluorobenzene	95.8	39.1-146		%Rec	1	7/10/2023 4:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	5900	300		mg/Kg	100	7/14/2023 2:17:59 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BG23-03 6'
Project: Spud 16 State 010
Collection Date: 6/30/2023 10:35:00 AM
Lab ID: 2307083-025 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/7/2023 8:51:10 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/7/2023 8:51:10 PM
Surr: DNOP	94.0	69-147		%Rec	1	7/7/2023 8:51:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/10/2023 5:10:00 PM
Surr: BFB	97.1	15-244		%Rec	1	7/10/2023 5:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/10/2023 5:10:00 PM
Toluene	ND	0.046		mg/Kg	1	7/10/2023 5:10:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	7/10/2023 5:10:00 PM
Xylenes, Total	ND	0.091		mg/Kg	1	7/10/2023 5:10:00 PM
Surr: 4-Bromofluorobenzene	96.8	39.1-146		%Rec	1	7/10/2023 5:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	8800	600		mg/Kg	200	7/14/2023 2:30:24 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BG23-04 0'
Project: Spud 16 State 010
Collection Date: 6/30/2023 10:10:00 AM
Lab ID: 2307083-026 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/7/2023 9:09:34 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/7/2023 9:09:34 PM
Surr: DNOP	95.2	69-147		%Rec	1	7/7/2023 9:09:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/10/2023 5:32:00 PM
Surr: BFB	99.7	15-244		%Rec	1	7/10/2023 5:32:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/10/2023 5:32:00 PM
Toluene	ND	0.048		mg/Kg	1	7/10/2023 5:32:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/10/2023 5:32:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/10/2023 5:32:00 PM
Surr: 4-Bromofluorobenzene	96.5	39.1-146		%Rec	1	7/10/2023 5:32:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	14000	600		mg/Kg	200	7/14/2023 2:42:48 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BG23-04 2'
Project: Spud 16 State 010
Collection Date: 6/30/2023 10:15:00 AM
Lab ID: 2307083-027 **Matrix:** SOIL **Received Date:** 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/7/2023 9:27:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/7/2023 9:27:54 PM
Surr: DNOP	87.0	69-147		%Rec	1	7/7/2023 9:27:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/10/2023 5:54:00 PM
Surr: BFB	96.5	15-244		%Rec	1	7/10/2023 5:54:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/10/2023 5:54:00 PM
Toluene	ND	0.049		mg/Kg	1	7/10/2023 5:54:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/10/2023 5:54:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/10/2023 5:54:00 PM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	7/10/2023 5:54:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	3700	150		mg/Kg	50	7/14/2023 2:55:13 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307083**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307083-028 **Matrix:** SOIL

Client Sample ID: BG23-04 4'
Collection Date: 6/30/2023 10:20:00 AM
Received Date: 7/6/2023 7:35:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/7/2023 9:46:19 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/7/2023 9:46:19 PM
Surr: DNOP	91.8	69-147		%Rec	1	7/7/2023 9:46:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/10/2023 6:16:00 PM
Surr: BFB	97.3	15-244		%Rec	1	7/10/2023 6:16:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	7/10/2023 6:16:00 PM
Toluene	ND	0.047		mg/Kg	1	7/10/2023 6:16:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/10/2023 6:16:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	7/10/2023 6:16:00 PM
Surr: 4-Bromofluorobenzene	96.0	39.1-146		%Rec	1	7/10/2023 6:16:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	3200	150		mg/Kg	50	7/14/2023 3:07:37 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID:	**MB-76040**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**76040**	RunNo:	**98000**					
Prep Date:	**7/6/2023**	Analysis Date:	**7/6/2023**	SeqNo:	**3565793**	Units:	**mg/Kg**			

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

Sample ID:	**LCS-76040**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**76040**	RunNo:	**98000**					
Prep Date:	**7/6/2023**	Analysis Date:	**7/6/2023**	SeqNo:	**3565794**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.7	90	110			

Sample ID:	**MB-76059**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**76059**	RunNo:	**98004**					
Prep Date:	**7/7/2023**	Analysis Date:	**7/7/2023**	SeqNo:	**3566417**	Units:	**mg/Kg**			

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

Sample ID:	**LCS-76059**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**76059**	RunNo:	**98004**					
Prep Date:	**7/7/2023**	Analysis Date:	**7/7/2023**	SeqNo:	**3566418**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.0	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **2307083-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-16 2'**	Batch ID: **76032**	RunNo: **97976**
Prep Date: **7/6/2023**	Analysis Date: **7/6/2023**	SeqNo: **3564785** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	9.3	46.73	0	82.7	54.2	135			
Surr: DNOP	4.3		4.673		92.0	69	147			

Sample ID: **2307083-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-16 2'**	Batch ID: **76032**	RunNo: **97976**
Prep Date: **7/6/2023**	Analysis Date: **7/6/2023**	SeqNo: **3564786** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	9.3	46.51	0	83.3	54.2	135	0.271	29.2	
Surr: DNOP	4.2		4.651		89.9	69	147	0	0	

Sample ID: **LCS-76032**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76032**	RunNo: **97976**
Prep Date: **7/6/2023**	Analysis Date: **7/6/2023**	SeqNo: **3564808** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.6	61.9	130			
Surr: DNOP	3.9		5.000		77.1	69	147			

Sample ID: **MB-76032**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76032**	RunNo: **97976**
Prep Date: **7/6/2023**	Analysis Date: **7/6/2023**	SeqNo: **3564811** 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	8.4		10.00		83.5	69	147			

Sample ID: **MB-76038**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76038**	RunNo: **98033**
Prep Date: **7/6/2023**	Analysis Date: **7/7/2023**	SeqNo: **3567169** 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	9.7		10.00		97.2	69	147			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **LCS-76038**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76038**	RunNo: **98033**
Prep Date: **7/6/2023**	Analysis Date: **7/7/2023**	SeqNo: **3567170** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.1	61.9	130			
Surr: DNOP	4.6		5.000		92.7	69	147			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **lcs-76025**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76025**	RunNo: **97992**
Prep Date: **7/6/2023**	Analysis Date: **7/7/2023**	SeqNo: **3565537** 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	84.8	70	130			
Surr: BFB	2000		1000		199	15	244			

Sample ID: **mb-76025**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76025**	RunNo: **97992**
Prep Date: **7/6/2023**	Analysis Date: **7/7/2023**	SeqNo: **3565538** 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	950		1000		94.6	15	244			

Sample ID: **lcs-76031**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568737** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	88.2	70	130			
Surr: BFB	2100		1000		206	15	244			

Sample ID: **mb-76031**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568738** 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	960		1000		95.7	15	244			

Sample ID: **2307083-013ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-24 0'**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568740** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.7	23.61	0	84.2	70	130			
Surr: BFB	1900		944.3		200	15	244			

Sample ID: **2307083-013amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-24 0'**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568741** Units: **mg/Kg**

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

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **2307083-013amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-24 0'**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568741** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.7	23.63	0	81.2	70	130	3.53	20	
Surr: BFB	1900		945.2		200	15	244	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **lcs-76025**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76025**	RunNo: **97992**
Prep Date: **7/6/2023**	Analysis Date: **7/7/2023**	SeqNo: **3565540** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	86.6	70	130			
Toluene	0.90	0.050	1.000	0	89.6	70	130			
Ethylbenzene	0.91	0.050	1.000	0	90.5	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.5	70	130			
Surr: 4-Bromofluorobenzene	0.95		1.000		94.9	39.1	146			

Sample ID: **mb-76025**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76025**	RunNo: **97992**
Prep Date: **7/6/2023**	Analysis Date: **7/7/2023**	SeqNo: **3565541** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.93		1.000		93.1	39.1	146			

Sample ID: **lcs-76031**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568778** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.86	0.025	1.000	0	86.4	70	130			
Toluene	0.89	0.050	1.000	0	89.4	70	130			
Ethylbenzene	0.90	0.050	1.000	0	90.1	70	130			
Xylenes, Total	2.7	0.10	3.000	0	89.7	70	130			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.5	39.1	146			

Sample ID: **mb-76031**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568779** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.94		1.000		94.4	39.1	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307083**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **2307083-014ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-24 2'**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568782** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	0.9862	0	81.1	70	130			
Toluene	0.84	0.049	0.9862	0	84.7	70	130			
Ethylbenzene	0.85	0.049	0.9862	0	86.6	70	130			
Xylenes, Total	2.6	0.099	2.959	0	86.2	70	130			
Surr: 4-Bromofluorobenzene	0.93		0.9862		94.3	39.1	146			

Sample ID: **2307083-014amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-24 2'**	Batch ID: **76031**	RunNo: **98074**
Prep Date: **7/6/2023**	Analysis Date: **7/10/2023**	SeqNo: **3568783** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	0.9862	0	81.1	70	130	0.00123	20	
Toluene	0.84	0.049	0.9862	0	85.6	70	130	0.995	20	
Ethylbenzene	0.85	0.049	0.9862	0	86.6	70	130	0.0150	20	
Xylenes, Total	2.6	0.099	2.959	0	86.8	70	130	0.697	20	
Surr: 4-Bromofluorobenzene	0.99		0.9862		100	39.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
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: 2307083 | RcptNo: 1

Received By: Tracy Casarrubias 7/6/2023 7:35:00 AM

Completed By: Tracy Casarrubias 7/6/2023 8:40:00 AM

Reviewed By: TM 7/6/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: SCM 07/06/23

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: Mailing address, phone number and Email/Fax are missing on COC - TMC 7/6/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good	Yes	Morty		

Chain-of-Custody Record

Client: Devon / Vertex

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:
☑ Standard ☑ Rush 5 Day

Project Name: Spud 16 State #010

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☑ Yes ☐ No morty

# of Coolers: 1

Cooler Temp (including CF): 6.0-0.2=5.8 (°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. 2307083	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	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/30/23	9:05	Soil	BH23-16 2'	4oz jar	Ice	001	✓	✓					✓			
	9:10		BH23-16 4'			002										
	9:12		BH23-17 2'			003										
	9:15		BH23-17 4'			004										
	9:16		BH23-21 0'			005										
	9:20		BH23-21 2'			006										
	9:25		BH23-21 4'			007										
	9:30		BH23-22 0'			008										
	9:35		BH23-22 2'			009										
	9:40		BH23-22 4'			010										
	9:41		BH23-23 0'			011										
	9:42		BH23-23 2'			012										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/5/23	8:56				7/6/23	830
7/6/23	1900			courier	7/6/23	7:35

Remarks: Direct bill to: Devon W/O #: 211657 42

C.C. smccarty@vertex.ca pg 1 of 3

Chain-of-Custody Record

Client: Devon / Vertex

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:
☑ Standard ☑ Rush 5 Day

Project Name: Spud 16 State #010

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☑ Yes ☐ No mocty

# of Coolers: 1

Cooler Temp(including CF): 6.0-0.2=5.8 (°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. 2307083	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/30/23	9:45	Soil	BH23-24 0'	4oz jar	Ice	013	✓	✓					✓			
	9:48		BH23-24 2'			014										
	9:50		BH23-25 0'			015										
	9:56		BH23-25 2'			016										
	9:58		BH23-26 0'			017										
	10:00		BH23-26 2'			018										
	12:05		BH23-27 0'			019										
	12:08		BH23-27 2'			020										
	12:10		BH23-28 0'			021										
	12:13		BH23-28 2'			022										
	10:25		BG23-03 2'			023										
	10:30		BG23-03 4'			024										

Date	Time	Relinquished by	Received by	Via	Date	Time
7/5/23	8:56				7/5/23	856
7/5/23	1900			Courier	7/6/23	7:35

Remarks: Direct bill to: Devon w/o #: 21165742

C.C. smccarty@vertex.ca pg 2 of 3

Chain-of-Custody Record

Client: Devon / Vertex

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:
☐ Standard ☒ Rush 5 day

Project Name: Spud 16 State #010

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☒ Yes ☐ No many

# of Coolers: 1

Cooler Temp(including CF): 6.0 - 0.2 = 5.8 (°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. 2307083	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/30/23	10:35	Soil	BG23-03 6'	4 oz jar	Ice	025	✓	✓					✓			
	10:10		BG23-04 0'			026										
	10:15		BG23-04 2'			027										
	10:20		BG23-04 4'			028										

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
7/5/23	8:56	Stephen McCarty				
7/5/23	1900			Courier	7/6/23	7:35

Remarks: Direct bill to: Devon w/o #: 21165742

C.C. SMccarty@vertex.ca pg3of3

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

July 17, 2023

Kent Stallings

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

RE: Spud 16 State 010 OrderNo.: 2307254

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 6 sample(s) on 7/8/2023 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 **2307254**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307254-001 **Matrix:** SOIL

Client Sample ID: BH23-29 0'
Collection Date: 7/6/2023 10:10:00 AM
Received Date: 7/8/2023 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	7/11/2023 10:54:49 AM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	7/11/2023 10:54:49 AM
Surr: DNOP	94.0	69-147		%Rec	1	7/11/2023 10:54:49 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/11/2023 10:51:00 AM
Surr: BFB	95.2	15-244		%Rec	1	7/11/2023 10:51:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	7/11/2023 10:51:00 AM
Toluene	ND	0.049		mg/Kg	1	7/11/2023 10:51:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/11/2023 10:51:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	7/11/2023 10:51:00 AM
Surr: 4-Bromofluorobenzene	96.4	39.1-146		%Rec	1	7/11/2023 10:51:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	28000	1200		mg/Kg	400	7/12/2023 9:53:10 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307254**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307254-002 **Matrix:** SOIL

Client Sample ID: BH23-29 2'
Collection Date: 7/6/2023 10:50:00 AM
Received Date: 7/8/2023 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	7/11/2023 11:05:21 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	7/11/2023 11:05:21 AM
Surr: DNOP	100	69-147		%Rec	1	7/11/2023 11:05:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2023 11:56:00 AM
Surr: BFB	97.4	15-244		%Rec	1	7/11/2023 11:56:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/11/2023 11:56:00 AM
Toluene	ND	0.048		mg/Kg	1	7/11/2023 11:56:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2023 11:56:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	7/11/2023 11:56:00 AM
Surr: 4-Bromofluorobenzene	95.7	39.1-146		%Rec	1	7/11/2023 11:56:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	8400	300		mg/Kg	100	7/12/2023 10:05:35 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307254**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-30 0'
Project: Spud 16 State 010
Collection Date: 7/6/2023 11:00:00 AM
Lab ID: 2307254-003 **Matrix:** SOIL **Received Date:** 7/8/2023 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/11/2023 11:15:54 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/11/2023 11:15:54 AM
Surr: DNOP	96.3	69-147		%Rec	1	7/11/2023 11:15:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2023 1:01:00 PM
Surr: BFB	97.6	15-244		%Rec	1	7/11/2023 1:01:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/11/2023 1:01:00 PM
Toluene	ND	0.048		mg/Kg	1	7/11/2023 1:01:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2023 1:01:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/11/2023 1:01:00 PM
Surr: 4-Bromofluorobenzene	94.5	39.1-146		%Rec	1	7/11/2023 1:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	17000	600		mg/Kg	200	7/12/2023 10:18:00 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307254**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Client Sample ID: BH23-30 2'
Project: Spud 16 State 010
Collection Date: 7/6/2023 11:20:00 AM
Lab ID: 2307254-004 **Matrix:** SOIL **Received Date:** 7/8/2023 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	7/11/2023 11:26:30 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	7/11/2023 11:26:30 AM
Surr: DNOP	97.3	69-147		%Rec	1	7/11/2023 11:26:30 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2023 1:23:00 PM
Surr: BFB	98.1	15-244		%Rec	1	7/11/2023 1:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/11/2023 1:23:00 PM
Toluene	ND	0.048		mg/Kg	1	7/11/2023 1:23:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2023 1:23:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/11/2023 1:23:00 PM
Surr: 4-Bromofluorobenzene	95.2	39.1-146		%Rec	1	7/11/2023 1:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	5600	300		mg/Kg	100	7/12/2023 10:30:24 AM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.		

Analytical Report
Lab Order **2307254**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307254-005 **Matrix:** SOIL

Client Sample ID: BH23-31 0'
Collection Date: 7/6/2023 11:30:00 AM
Received Date: 7/8/2023 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/11/2023 11:37:08 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/11/2023 11:37:08 AM
Surr: DNOP	102	69-147		%Rec	1	7/11/2023 11:37:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2023 1:45:00 PM
Surr: BFB	97.0	15-244		%Rec	1	7/11/2023 1:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/11/2023 1:45:00 PM
Toluene	ND	0.048		mg/Kg	1	7/11/2023 1:45:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2023 1:45:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	7/11/2023 1:45:00 PM
Surr: 4-Bromofluorobenzene	97.3	39.1-146		%Rec	1	7/11/2023 1:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	11000	600		mg/Kg	200	7/12/2023 10:42:48 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	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

Analytical Report
Lab Order **2307254**
Date Reported: **7/17/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy
Project: Spud 16 State 010
Lab ID: 2307254-006 **Matrix:** SOIL

Client Sample ID: BH23-31 2'
Collection Date: 7/6/2023 11:45:00 AM
Received Date: 7/8/2023 9:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	7/11/2023 11:47:47 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/11/2023 11:47:47 AM
Surr: DNOP	93.8	69-147		%Rec	1	7/11/2023 11:47:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2023 2:07:00 PM
Surr: BFB	97.1	15-244		%Rec	1	7/11/2023 2:07:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	7/11/2023 2:07:00 PM
Toluene	ND	0.048		mg/Kg	1	7/11/2023 2:07:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2023 2:07:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/11/2023 2:07:00 PM
Surr: 4-Bromofluorobenzene	96.3	39.1-146		%Rec	1	7/11/2023 2:07:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **RBC**
Chloride	1700	60		mg/Kg	20	7/11/2023 3:38:08 PM

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Above Quantitation Range/Estimated Value
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 standard limits. If undiluted results may be estimated.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307254**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID:	**MB-76105**	SampType:	**MBLK**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**PBS**	Batch ID:	**76105**	RunNo:	**98114**					
Prep Date:	**7/11/2023**	Analysis Date:	**7/11/2023**	SeqNo:	**3570265**	Units:	**mg/Kg**			

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

Sample ID:	**LCS-76105**	SampType:	**LCS**	TestCode:	**EPA Method 300.0: Anions**					
Client ID:	**LCSS**	Batch ID:	**76105**	RunNo:	**98114**					
Prep Date:	**7/11/2023**	Analysis Date:	**7/11/2023**	SeqNo:	**3570266**	Units:	**mg/Kg**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307254**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **LCS-76085**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **76085**	RunNo: **98123**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570553** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	117	61.9	130			
Surr: DNOP	5.8		5.000		116	69	147			

Sample ID: **MB-76085**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **76085**	RunNo: **98123**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570556** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		120	69	147			

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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307254**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **lcs-76080**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570057** 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	85.9	70	130			
Surr: BFB	2100		1000		206	15	244			

Sample ID: **mb-76080**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570058** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		103	15	244			

Sample ID: **2307254-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-29 0'**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570060** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.53	0	93.3	70	130			
Surr: BFB	2100		981.4		211	15	244			

Sample ID: **2307254-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-29 0'**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570061** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.41	0	94.2	70	130	0.449	20	
Surr: BFB	2100		976.6		220	15	244	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307254**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID: **lcs-76080**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570099** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	94.3	70	130			
Toluene	0.95	0.050	1.000	0	95.0	70	130			
Ethylbenzene	0.95	0.050	1.000	0	95.0	70	130			
Xylenes, Total	2.8	0.10	3.000	0	94.9	70	130			
Surr: 4-Bromofluorobenzene	0.96		1.000		95.8	39.1	146			

Sample ID: **mb-76080**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570100** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		95.0	39.1	146			

Sample ID: **2307254-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-29 2'**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570103** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9625	0	88.0	70	130			
Toluene	0.86	0.048	0.9625	0	88.9	70	130			
Ethylbenzene	0.85	0.048	0.9625	0	88.7	70	130			
Xylenes, Total	2.6	0.096	2.887	0	88.5	70	130			
Surr: 4-Bromofluorobenzene	0.93		0.9625		97.0	39.1	146			

Sample ID: **2307254-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-29 2'**	Batch ID: **76080**	RunNo: **98073**
Prep Date: **7/10/2023**	Analysis Date: **7/11/2023**	SeqNo: **3570104** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.024	0.9606	0	88.3	70	130	0.202	20	
Toluene	0.85	0.048	0.9606	0	88.8	70	130	0.280	20	
Ethylbenzene	0.86	0.048	0.9606	0	89.6	70	130	0.907	20	
Xylenes, Total	2.6	0.096	2.882	0	89.0	70	130	0.442	20	
Surr: 4-Bromofluorobenzene	0.93		0.9606		96.8	39.1	146	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2307254**

17-Jul-23

Client: Devon Energy

Project: Spud 16 State 010

Sample ID:	**lcs-76082**	SampType:	**LCS**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**LCSS**	Batch ID:	**76082**	RunNo:	**98073**					
Prep Date:	**7/10/2023**	Analysis Date:	**7/11/2023**	SeqNo:	**3570123**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		95.1	39.1	146			

Sample ID:	**mb-76082**	SampType:	**MBLK**	TestCode:	**EPA Method 8021B: Volatiles**					
Client ID:	**PBS**	Batch ID:	**76082**	RunNo:	**98073**					
Prep Date:	**7/10/2023**	Analysis Date:	**7/11/2023**	SeqNo:	**3570124**	Units:	**%Rec**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		94.6	39.1	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 standard limits. If undiluted results may be estimated.
B	Analyte detected in the associated Method Blank
E	Above Quantitation Range/Estimated Value
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: 2307254 | RcptNo: 1

Received By: Tracy Casarrubias 7/8/2023 9:00:00 AM

Completed By: Tracy Casarrubias 7/8/2023 10:48:41 AM

Reviewed By: TMC 7/10/23

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☐	No ☐	NA ☑
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: TMC 7/8/23

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: Mailing address, phone number and Email/Fax are missing on COC- TMC 7/8/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes	Yogi		

Chain-of-Custody Record

Client: Devon / Vertex

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: ☑ Standard ☐ Rush 5-DAY (DAD 7.10.23)

Project Name: Spud 16 State #010

Project #: 23E-02857

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☑ Yes ☐ No yogi

\# of Coolers: 1

Cooler Temp(including CF): 2.8-0=2.8 (°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. 2307254	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)
7/6/23	10:10	Soil	BH23-29 0'	4oz jar	Ice	001	✓	✓					✓			
|	10:50	|	BH23-29 2'	|	|	002	|	|					|			
|	11:00	|	BH23-30 0'	|	|	003	|	|					|			
|	11:20	|	BH23-30 2'	|	|	004	|	|					|			
|	11:30	|	BH23-31 0'	|	|	005	|	|					|			
|	11:45	|	BH23-31 2'	|	|	006	|	|					|			

Date	Time	Relinquished by	Received by	Via	Date	Time
7/6/23	900	[signature] McCarty	[signature]		7/7/23	900
7/7/23	NA	[signature]	[signature]	courier	7/8/23	9:00

Remarks: Direct bill to: Devon w/o#: 21165742
C.C. smccarty@vertex.ca

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.

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Chad Hensley
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 7/26/2024 10:34:34 AM

JOB DESCRIPTION

Spud 16 10H

JOB NUMBER

885-7515-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
7/26/2024 10:34:34 AM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Spud 16 10H

Laboratory Job ID: 885-7515-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-7515-1
Project/Site: Spud 16 10H

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
S1-	Surrogate recovery exceeds control limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Spud 16 10H

Job ID: 885-7515-1

Job ID: 885-7515-1 Eurofins Albuquerque

Job Narrative
885-7515-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers and/or narrative comments are included to explain any exceptions, if applicable.

- Matrix QC may not be reported if insufficient sample is provided or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 7/9/2024 7:50 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.8°C.

Gasoline Range Organics
Method 8015D_GRO: Surrogate recovery for the following sample is outside the upper control limit: BH23-41@3' (885-7515-36). Possible double injection from surrogate well.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
Method 8021B: Surrogate recovery for the following sample is outside the upper control limit: BH23-41@3' (885-7515-36). Possible double injection from surrogate well.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
Method 8015D_DRO: The following samples were diluted due to the nature of the sample matrix: BH23-25@1' (885-7515-1) and BH23-32@3' (885-7515-7). Elevated reporting limits (RLs) are provided.

Method 8015D_DRO: The following samples required a dilution due to the nature of the sample matrix: BH23-25@3' (885-7515-2) and BH23-32@4' (885-7515-8). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@1'

Date Collected: 07/02/24 10:37
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 13:36	07/10/24 17:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/09/24 13:36*	*07/10/24 17:49*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/10/24 17:49	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 17:49	1
Toluene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 17:49	1
Xylenes, Total	ND		0.098		mg/Kg		07/09/24 13:36	07/10/24 17:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 13:36*	*07/10/24 17:49*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**110**		9.9		mg/Kg		07/10/24 09:15	07/11/24 11:02	1
Motor Oil Range Organics [C28-C40]	**420**		50		mg/Kg		07/10/24 09:15	07/11/24 11:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*07/10/24 09:15*	*07/11/24 11:02*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**870**		60		mg/Kg		07/11/24 10:42	07/11/24 15:45	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@3'

Date Collected: 07/02/24 10:41
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.6		mg/Kg		07/09/24 13:36	07/10/24 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*136*		*35 - 166*	*07/09/24 13:36*	*07/10/24 18:12*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/09/24 13:36	07/10/24 18:12	1
Ethylbenzene	ND		0.046		mg/Kg		07/09/24 13:36	07/10/24 18:12	1
Toluene	ND		0.046		mg/Kg		07/09/24 13:36	07/10/24 18:12	1
Xylenes, Total	ND		0.093		mg/Kg		07/09/24 13:36	07/10/24 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*07/09/24 13:36*	*07/10/24 18:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1100**		98		mg/Kg		07/10/24 09:15	07/11/24 11:43	10
Motor Oil Range Organics [C28-C40]	**2400**		490		mg/Kg		07/10/24 09:15	07/11/24 11:43	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*07/10/24 09:15*	*07/11/24 11:43*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2600**		150		mg/Kg		07/11/24 10:42	07/12/24 14:14	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@4'

Date Collected: 07/02/24 10:47
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 13:36	07/10/24 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*07/09/24 13:36*	*07/10/24 19:00*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 13:36	07/10/24 19:00	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 19:00	1
Toluene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 19:00	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 13:36	07/10/24 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 13:36*	*07/10/24 19:00*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		07/10/24 09:15	07/11/24 12:24	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/10/24 09:15	07/11/24 12:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*07/10/24 09:15*	*07/11/24 12:24*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4700**		150		mg/Kg		07/11/24 10:42	07/12/24 14:27	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@5'

Date Collected: 07/02/24 12:59
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-4

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 13:36	07/10/24 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/09/24 13:36*	*07/10/24 19:23*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/09/24 13:36	07/10/24 19:23	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 13:36	07/10/24 19:23	1
Toluene	ND		0.047		mg/Kg		07/09/24 13:36	07/10/24 19:23	1
Xylenes, Total	ND		0.093		mg/Kg		07/09/24 13:36	07/10/24 19:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 13:36*	*07/10/24 19:23*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**11**		8.8		mg/Kg		07/10/24 09:15	07/11/24 12:35	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		07/10/24 09:15	07/11/24 12:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*	*07/10/24 09:15*	*07/11/24 12:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4800**		150		mg/Kg		07/11/24 10:42	07/12/24 14:40	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@6'

Date Collected: 07/02/24 13:09
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-5
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 13:36	07/10/24 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/09/24 13:36*	*07/10/24 19:47*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 13:36	07/10/24 19:47	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 13:36	07/10/24 19:47	1
Toluene	ND		0.050		mg/Kg		07/09/24 13:36	07/10/24 19:47	1
Xylenes, Total	ND		0.10		mg/Kg		07/09/24 13:36	07/10/24 19:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 13:36*	*07/10/24 19:47*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		07/10/24 09:15	07/10/24 18:46	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/10/24 09:15	07/10/24 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*07/10/24 09:15*	*07/10/24 18:46*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**7100**		300		mg/Kg		07/11/24 10:42	07/12/24 15:18	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-32@1'

Date Collected: 07/02/24 10:54
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 13:36	07/10/24 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/09/24 13:36*	*07/10/24 20:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 13:36	07/10/24 20:10	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 20:10	1
Toluene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 20:10	1
Xylenes, Total	ND		0.098		mg/Kg		07/09/24 13:36	07/10/24 20:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 13:36*	*07/10/24 20:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**11**		9.8		mg/Kg		07/10/24 09:15	07/10/24 18:57	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 09:15	07/10/24 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*07/10/24 09:15*	*07/10/24 18:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1300**		60		mg/Kg		07/11/24 10:42	07/11/24 17:15	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-32@3'

Date Collected: 07/02/24 10:57
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 13:36	07/10/24 20:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/09/24 13:36*	*07/10/24 20:34*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/10/24 20:34	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 20:34	1
Toluene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 20:34	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 13:36	07/10/24 20:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*48 - 145*	*07/09/24 13:36*	*07/10/24 20:34*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**830**		97		mg/Kg		07/10/24 09:15	07/10/24 19:09	10
Motor Oil Range Organics [C28-C40]	**2600**		480		mg/Kg		07/10/24 09:15	07/10/24 19:09	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*07/10/24 09:15*	*07/10/24 19:09*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2400**		150		mg/Kg		07/11/24 10:42	07/12/24 15:31	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-32@4'

Date Collected: 07/02/24 11:03
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-8

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 13:36	07/10/24 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*35 - 166*	*07/09/24 13:36*	*07/10/24 20:57*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/10/24 20:57	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 20:57	1
Toluene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 20:57	1
Xylenes, Total	ND		0.097		mg/Kg		07/09/24 13:36	07/10/24 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 13:36*	*07/10/24 20:57*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**1000**		96		mg/Kg		07/10/24 09:15	07/11/24 12:46	10
Motor Oil Range Organics [C28-C40]	**2900**		480		mg/Kg		07/10/24 09:15	07/11/24 12:46	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*0*	*S1- D*	*62 - 134*	*07/10/24 09:15*	*07/11/24 12:46*	*10*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2900**		150		mg/Kg		07/11/24 10:42	07/12/24 15:44	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-33@1'

Lab Sample ID: 885-7515-9
Matrix: Solid
Date Collected: 07/02/24 11:07
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 13:36	07/10/24 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 13:36*	*07/10/24 21:21*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/10/24 21:21	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 13:36	07/10/24 21:21	1
Toluene	ND		0.047		mg/Kg		07/09/24 13:36	07/10/24 21:21	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 13:36	07/10/24 21:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 13:36*	*07/10/24 21:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		07/10/24 09:15	07/11/24 13:27	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/10/24 09:15	07/11/24 13:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*07/10/24 09:15*	*07/11/24 13:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1600**		60		mg/Kg		07/11/24 10:42	07/11/24 17:54	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-33@3'

Lab Sample ID: 885-7515-10

Date Collected: 07/02/24 11:11
Matrix: Solid
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 13:36	07/10/24 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 13:36*	*07/10/24 22:07*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/10/24 22:07	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 22:07	1
Toluene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 22:07	1
Xylenes, Total	ND		0.096		mg/Kg		07/09/24 13:36	07/10/24 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 13:36*	*07/10/24 22:07*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/10/24 09:15	07/10/24 19:42	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 09:15	07/10/24 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 09:15*	*07/10/24 19:42*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6400**		300		mg/Kg		07/11/24 10:42	07/12/24 15:57	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-33@4'

Date Collected: 07/02/24 11:15
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-11

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.6		mg/Kg		07/09/24 13:36	07/10/24 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 13:36*	*07/10/24 22:31*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/09/24 13:36	07/10/24 22:31	1
Ethylbenzene	ND		0.046		mg/Kg		07/09/24 13:36	07/10/24 22:31	1
Toluene	ND		0.046		mg/Kg		07/09/24 13:36	07/10/24 22:31	1
Xylenes, Total	ND		0.092		mg/Kg		07/09/24 13:36	07/10/24 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 13:36*	*07/10/24 22:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		07/10/24 09:15	07/10/24 19:53	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 09:15	07/10/24 19:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 09:15*	*07/10/24 19:53*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4800**		150		mg/Kg		07/11/24 10:42	07/12/24 16:10	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-34@1'

Lab Sample ID: 885-7515-12

Date Collected: 07/02/24 11:19
Matrix: Solid
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 13:36	07/10/24 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*07/09/24 13:36*	*07/10/24 22:54*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 13:36	07/10/24 22:54	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 22:54	1
Toluene	ND		0.049		mg/Kg		07/09/24 13:36	07/10/24 22:54	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 13:36	07/10/24 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*07/09/24 13:36*	*07/10/24 22:54*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		07/10/24 09:15	07/10/24 20:05	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/10/24 09:15	07/10/24 20:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 09:15*	*07/10/24 20:05*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2200**		150		mg/Kg		07/11/24 10:50	07/12/24 16:23	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-34@3'

Date Collected: 07/02/24 11:23
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-13

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 13:36	07/10/24 23:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*07/09/24 13:36*	*07/10/24 23:41*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/10/24 23:41	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 23:41	1
Toluene	ND		0.048		mg/Kg		07/09/24 13:36	07/10/24 23:41	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 13:36	07/10/24 23:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*48 - 145*	*07/09/24 13:36*	*07/10/24 23:41*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/10/24 09:15	07/10/24 20:16	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 09:15	07/10/24 20:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/10/24 09:15*	*07/10/24 20:16*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2500**		150		mg/Kg		07/11/24 11:55	07/12/24 16:36	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-34@4'

Date Collected: 07/02/24 11:27
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-14

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 13:36	07/11/24 00:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*07/09/24 13:36*	*07/11/24 00:04*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 13:36	07/11/24 00:04	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 13:36	07/11/24 00:04	1
Toluene	ND		0.048		mg/Kg		07/09/24 13:36	07/11/24 00:04	1
Xylenes, Total	ND		0.096		mg/Kg		07/09/24 13:36	07/11/24 00:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*48 - 145*	*07/09/24 13:36*	*07/11/24 00:04*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/10/24 09:15	07/10/24 20:27	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 09:15	07/10/24 20:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*07/10/24 09:15*	*07/10/24 20:27*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4900**		300		mg/Kg		07/11/24 11:55	07/12/24 16:48	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-35@1'

Lab Sample ID: 885-7515-15
Matrix: Solid
Date Collected: 07/02/24 11:30
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 15:34	07/10/24 22:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*07/09/24 15:34*	*07/10/24 22:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/10/24 22:59	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 15:34	07/10/24 22:59	1
Toluene	ND		0.048		mg/Kg		07/09/24 15:34	07/10/24 22:59	1
Xylenes, Total	ND		0.096		mg/Kg		07/09/24 15:34	07/10/24 22:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 15:34*	*07/10/24 22:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/10/24 11:23	07/10/24 21:34	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 11:23	07/10/24 21:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/10/24 11:23*	*07/10/24 21:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2500**		150		mg/Kg		07/11/24 11:55	07/12/24 17:01	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-35@3'

Lab Sample ID: 885-7515-16
Matrix: Solid
Date Collected: 07/02/24 11:33
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 15:34	07/11/24 00:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*07/09/24 15:34*	*07/11/24 00:05*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 15:34	07/11/24 00:05	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 15:34	07/11/24 00:05	1
Toluene	ND		0.050		mg/Kg		07/09/24 15:34	07/11/24 00:05	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 15:34	07/11/24 00:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/09/24 15:34*	*07/11/24 00:05*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/10/24 11:23	07/10/24 21:45	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 11:23	07/10/24 21:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*07/10/24 11:23*	*07/10/24 21:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5000**		300		mg/Kg		07/11/24 11:55	07/12/24 17:14	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-35@4'

Date Collected: 07/02/24 11:37
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-17

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 15:34	07/11/24 01:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/09/24 15:34*	*07/11/24 01:10*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 01:10	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 15:34	07/11/24 01:10	1
Toluene	ND		0.048		mg/Kg		07/09/24 15:34	07/11/24 01:10	1
Xylenes, Total	ND		0.097		mg/Kg		07/09/24 15:34	07/11/24 01:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 15:34*	*07/11/24 01:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/10/24 11:23	07/10/24 21:56	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 11:23	07/10/24 21:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 11:23*	*07/10/24 21:56*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8700**		300		mg/Kg		07/11/24 11:55	07/12/24 17:53	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-36@1'

Lab Sample ID: 885-7515-18

Date Collected: 07/02/24 11:42
Matrix: Solid
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 15:34	07/11/24 01:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*07/09/24 15:34*	*07/11/24 01:32*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 01:32	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 01:32	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 01:32	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 15:34	07/11/24 01:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 15:34*	*07/11/24 01:32*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		07/10/24 11:23	07/10/24 22:07	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/10/24 11:23	07/10/24 22:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*07/10/24 11:23*	*07/10/24 22:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1700**		60		mg/Kg		07/11/24 11:55	07/11/24 20:41	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-36@3'

Date Collected: 07/02/24 11:45
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-19

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 15:34	07/11/24 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*07/09/24 15:34*	*07/11/24 01:53*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 15:34	07/11/24 01:53	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 01:53	1
Toluene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 01:53	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 15:34	07/11/24 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 15:34*	*07/11/24 01:53*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/10/24 11:23	07/10/24 22:18	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 11:23	07/10/24 22:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/10/24 11:23*	*07/10/24 22:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3300**		150		mg/Kg		07/11/24 11:55	07/12/24 18:06	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-36@4'

Date Collected: 07/02/24 11:48
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-20

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.6		mg/Kg		07/09/24 15:34	07/11/24 02:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 15:34*	*07/11/24 02:15*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/09/24 15:34	07/11/24 02:15	1
Ethylbenzene	ND		0.046		mg/Kg		07/09/24 15:34	07/11/24 02:15	1
Toluene	ND		0.046		mg/Kg		07/09/24 15:34	07/11/24 02:15	1
Xylenes, Total	ND		0.093		mg/Kg		07/09/24 15:34	07/11/24 02:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/09/24 15:34*	*07/11/24 02:15*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/10/24 11:23	07/10/24 22:29	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 11:23	07/10/24 22:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*07/10/24 11:23*	*07/10/24 22:29*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3100**		150		mg/Kg		07/11/24 11:55	07/12/24 18:19	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-37@1'

Lab Sample ID: 885-7515-21

Date Collected: 07/02/24 11:52
Matrix: Solid
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.6		mg/Kg		07/09/24 15:34	07/11/24 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/09/24 15:34*	*07/11/24 02:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/09/24 15:34	07/11/24 02:37	1
Ethylbenzene	ND		0.046		mg/Kg		07/09/24 15:34	07/11/24 02:37	1
Toluene	ND		0.046		mg/Kg		07/09/24 15:34	07/11/24 02:37	1
Xylenes, Total	ND		0.092		mg/Kg		07/09/24 15:34	07/11/24 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 15:34*	*07/11/24 02:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**18**		9.0		mg/Kg		07/10/24 11:23	07/10/24 22:41	1
Motor Oil Range Organics [C28-C40]	**46**		45		mg/Kg		07/10/24 11:23	07/10/24 22:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 11:23*	*07/10/24 22:41*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1100**		60		mg/Kg		07/11/24 11:55	07/11/24 21:20	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-37@3'

Date Collected: 07/02/24 11:54
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-22

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 15:34	07/11/24 02:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/09/24 15:34*	*07/11/24 02:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 15:34	07/11/24 02:59	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 02:59	1
Toluene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 02:59	1
Xylenes, Total	ND		0.098		mg/Kg		07/09/24 15:34	07/11/24 02:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 15:34*	*07/11/24 02:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/10/24 11:23	07/10/24 22:52	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 11:23	07/10/24 22:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*07/10/24 11:23*	*07/10/24 22:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3900**		150		mg/Kg		07/11/24 11:55	07/12/24 18:31	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-37@4'

Date Collected: 07/02/24 11:58
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-23

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 15:34	07/11/24 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*07/09/24 15:34*	*07/11/24 03:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 03:20	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 15:34	07/11/24 03:20	1
Toluene	ND		0.048		mg/Kg		07/09/24 15:34	07/11/24 03:20	1
Xylenes, Total	ND		0.097		mg/Kg		07/09/24 15:34	07/11/24 03:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/09/24 15:34*	*07/11/24 03:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/10/24 11:23	07/10/24 23:14	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 11:23	07/10/24 23:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*07/10/24 11:23*	*07/10/24 23:14*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3400**		150		mg/Kg		07/11/24 11:55	07/12/24 18:44	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-38@1'

Lab Sample ID: 885-7515-24

Date Collected: 07/02/24 12:04
Matrix: Solid
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 15:34	07/11/24 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*07/09/24 15:34*	*07/11/24 03:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 03:42	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 03:42	1
Toluene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 03:42	1
Xylenes, Total	ND		0.098		mg/Kg		07/09/24 15:34	07/11/24 03:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 15:34*	*07/11/24 03:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	**12**		9.5		mg/Kg		07/10/24 11:23	07/10/24 23:26	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/10/24 11:23	07/10/24 23:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*07/10/24 11:23*	*07/10/24 23:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5100**		150		mg/Kg		07/11/24 11:55	07/12/24 18:57	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-38@3'

Date Collected: 07/02/24 12:09
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-25

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 15:34	07/11/24 04:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/09/24 15:34*	*07/11/24 04:26*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 04:26	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 04:26	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 04:26	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 15:34	07/11/24 04:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/09/24 15:34*	*07/11/24 04:26*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		07/10/24 11:23	07/10/24 23:37	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/10/24 11:23	07/10/24 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 11:23*	*07/10/24 23:37*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3100**		150		mg/Kg		07/11/24 11:55	07/12/24 19:10	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-38@4'

Date Collected: 07/02/24 12:13
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-26
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 15:34	07/11/24 04:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/09/24 15:34*	*07/11/24 04:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 04:48	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 04:48	1
Toluene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 04:48	1
Xylenes, Total	ND		0.098		mg/Kg		07/09/24 15:34	07/11/24 04:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/09/24 15:34*	*07/11/24 04:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		07/10/24 11:23	07/10/24 23:48	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/10/24 11:23	07/10/24 23:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*84*		*62 - 134*	*07/10/24 11:23*	*07/10/24 23:48*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5500**		300		mg/Kg		07/11/24 11:55	07/12/24 19:23	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-39@1'

Date Collected: 07/02/24 12:17
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-27

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 15:34	07/11/24 05:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 15:34*	*07/11/24 05:09*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 05:09	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 05:09	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 05:09	1
Xylenes, Total	ND		0.094		mg/Kg		07/09/24 15:34	07/11/24 05:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/09/24 15:34*	*07/11/24 05:09*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		07/10/24 11:23	07/10/24 23:59	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/10/24 11:23	07/10/24 23:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/10/24 11:23*	*07/10/24 23:59*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2300**		150		mg/Kg		07/11/24 11:55	07/12/24 19:36	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-39@3'

Lab Sample ID: 885-7515-28

Date Collected: 07/02/24 12:21
Matrix: Solid
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		24		mg/Kg		07/09/24 15:34	07/11/24 05:31	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*07/09/24 15:34*	*07/11/24 05:31*	*5*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 05:31	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 05:31	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 05:31	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 15:34	07/11/24 05:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/09/24 15:34*	*07/11/24 05:31*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		07/10/24 11:23	07/11/24 00:11	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 11:23	07/11/24 00:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/10/24 11:23*	*07/11/24 00:11*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**29000**		1500		mg/Kg		07/11/24 11:55	07/12/24 19:49	500

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-39@4'

Date Collected: 07/02/24 13:04
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-29

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	15		12		mg/Kg		07/09/24 15:34	07/11/24 05:53	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*156*		*35 - 166*	*07/09/24 15:34*	*07/11/24 05:53*	*5*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.12		mg/Kg		07/09/24 15:34	07/11/24 05:53	5
Ethylbenzene	0.62		0.24		mg/Kg		07/09/24 15:34	07/11/24 05:53	5
Toluene	ND		0.24		mg/Kg		07/09/24 15:34	07/11/24 05:53	5
Xylenes, Total	ND		0.49		mg/Kg		07/09/24 15:34	07/11/24 05:53	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*48 - 145*	*07/09/24 15:34*	*07/11/24 05:53*	*5*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	1100		19		mg/Kg		07/10/24 11:23	07/11/24 13:38	2
Motor Oil Range Organics [C28-C40]	560		95		mg/Kg		07/10/24 11:23	07/11/24 13:38	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*101*		*62 - 134*	*07/10/24 11:23*	*07/11/24 13:38*	*2*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8400		300		mg/Kg		07/11/24 11:55	07/12/24 20:27	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-39@6'

Date Collected: 07/02/24 12:22
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-30

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/09/24 15:34	07/11/24 06:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*07/09/24 15:34*	*07/11/24 06:15*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 06:15	1
Ethylbenzene	ND		0.048		mg/Kg		07/09/24 15:34	07/11/24 06:15	1
Toluene	ND		0.048		mg/Kg		07/09/24 15:34	07/11/24 06:15	1
Xylenes, Total	ND		0.096		mg/Kg		07/09/24 15:34	07/11/24 06:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/09/24 15:34*	*07/11/24 06:15*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.5		mg/Kg		07/10/24 11:23	07/11/24 00:34	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/10/24 11:23	07/11/24 00:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/10/24 11:23*	*07/11/24 00:34*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**31000**		1500		mg/Kg		07/11/24 11:55	07/12/24 20:40	500

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-40@1'

Date Collected: 07/02/24 12:25
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-31

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 15:34	07/11/24 06:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/09/24 15:34*	*07/11/24 06:37*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 06:37	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 06:37	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 06:37	1
Xylenes, Total	ND		0.094		mg/Kg		07/09/24 15:34	07/11/24 06:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/09/24 15:34*	*07/11/24 06:37*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/10/24 11:23	07/11/24 00:45	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 11:23	07/11/24 00:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*07/10/24 11:23*	*07/11/24 00:45*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**6400**		300		mg/Kg		07/11/24 11:55	07/12/24 20:53	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-40@3'

Date Collected: 07/02/24 12:30
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-32

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 15:34	07/11/24 06:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 15:34*	*07/11/24 06:59*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 06:59	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 06:59	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 06:59	1
Xylenes, Total	ND		0.095		mg/Kg		07/09/24 15:34	07/11/24 06:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/09/24 15:34*	*07/11/24 06:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		07/10/24 11:23	07/11/24 00:57	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/10/24 11:23	07/11/24 00:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*90*		*62 - 134*	*07/10/24 11:23*	*07/11/24 00:57*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**28000**		1500		mg/Kg		07/11/24 11:55	07/12/24 21:06	500

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-40@4'

Date Collected: 07/02/24 12:34
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-33

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 15:34	07/11/24 07:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/09/24 15:34*	*07/11/24 07:20*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/09/24 15:34	07/11/24 07:20	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 07:20	1
Toluene	ND		0.049		mg/Kg		07/09/24 15:34	07/11/24 07:20	1
Xylenes, Total	ND		0.098		mg/Kg		07/09/24 15:34	07/11/24 07:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/09/24 15:34*	*07/11/24 07:20*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		07/10/24 11:23	07/11/24 01:08	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/10/24 11:23	07/11/24 01:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/10/24 11:23*	*07/11/24 01:08*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5900**		300		mg/Kg		07/12/24 07:01	07/16/24 16:35	100

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-40@6'

Date Collected: 07/02/24 12:38
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-34

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/09/24 15:34	07/11/24 07:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*07/09/24 15:34*	*07/11/24 07:42*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/09/24 15:34	07/11/24 07:42	1
Ethylbenzene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 07:42	1
Toluene	ND		0.047		mg/Kg		07/09/24 15:34	07/11/24 07:42	1
Xylenes, Total	ND		0.094		mg/Kg		07/09/24 15:34	07/11/24 07:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/09/24 15:34*	*07/11/24 07:42*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.9		mg/Kg		07/10/24 11:23	07/11/24 01:19	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/10/24 11:23	07/11/24 01:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/10/24 11:23*	*07/11/24 01:19*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**15000**		600		mg/Kg		07/12/24 07:01	07/16/24 16:50	200

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-41@1'

Lab Sample ID: 885-7515-35
Matrix: Solid
Date Collected: 07/02/24 12:39
Date Received: 07/09/24 07:50

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/09/24 16:29	07/11/24 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/09/24 16:29*	*07/11/24 01:38*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 16:29	07/11/24 01:38	1
Ethylbenzene	ND		0.049		mg/Kg		07/09/24 16:29	07/11/24 01:38	1
Toluene	ND		0.049		mg/Kg		07/09/24 16:29	07/11/24 01:38	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 16:29	07/11/24 01:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*48 - 145*	*07/09/24 16:29*	*07/11/24 01:38*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.3		mg/Kg		07/11/24 14:22	07/11/24 16:33	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/11/24 14:22	07/11/24 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/11/24 14:22*	*07/11/24 16:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1500**		60		mg/Kg		07/12/24 07:01	07/12/24 08:40	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-41@3'

Date Collected: 07/02/24 12:43
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-36

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 16:29	07/11/24 02:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*201*	*S1+*	*35 - 166*	*07/09/24 16:29*	*07/11/24 02:48*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 16:29	07/11/24 02:48	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 02:48	1
Toluene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 02:48	1
Xylenes, Total	ND		0.10		mg/Kg		07/09/24 16:29	07/11/24 02:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*195*	*S1+*	*48 - 145*	*07/09/24 16:29*	*07/11/24 02:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.7		mg/Kg		07/11/24 14:22	07/11/24 16:44	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/11/24 14:22	07/11/24 16:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*07/11/24 14:22*	*07/11/24 16:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2700**		150		mg/Kg		07/12/24 07:01	07/16/24 17:05	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-41@4'

Date Collected: 07/02/24 12:47
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-37

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 16:29	07/11/24 03:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 16:29*	*07/11/24 03:58*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 16:29	07/11/24 03:58	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 03:58	1
Toluene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 03:58	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 16:29	07/11/24 03:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/09/24 16:29*	*07/11/24 03:58*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/11/24 14:22	07/11/24 16:55	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/11/24 14:22	07/11/24 16:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/11/24 14:22*	*07/11/24 16:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3800**		150		mg/Kg		07/12/24 07:01	07/16/24 17:21	50

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-41@6'

Date Collected: 07/02/24 12:52
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7515-38

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 16:29	07/11/24 04:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/09/24 16:29*	*07/11/24 04:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 16:29	07/11/24 04:22	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 04:22	1
Toluene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 04:22	1
Xylenes, Total	ND		0.099		mg/Kg		07/09/24 16:29	07/11/24 04:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/09/24 16:29*	*07/11/24 04:22*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		07/11/24 14:22	07/11/24 17:06	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/11/24 14:22	07/11/24 17:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/11/24 14:22*	*07/11/24 17:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14000**		600		mg/Kg		07/12/24 07:01	07/16/24 18:06	200

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-8091/1-A
Matrix: Solid
Analysis Batch: 8221

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8091

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 13:36	07/10/24 13:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*07/09/24 13:36*	*07/10/24 13:30*	*1*

Lab Sample ID: LCS 885-8091/2-A
Matrix: Solid
Analysis Batch: 8221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8091

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	23.7		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*198*	*S1+*	*35 - 166*

Lab Sample ID: MB 885-8103/1-A
Matrix: Solid
Analysis Batch: 8269

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8103

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 15:34	07/10/24 22:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*35 - 166*	*07/09/24 15:34*	*07/10/24 22:38*	*1*

Lab Sample ID: LCS 885-8103/2-A
Matrix: Solid
Analysis Batch: 8269

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8103

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	22.2		mg/Kg		89	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*200*	*S1+*	*35 - 166*

Lab Sample ID: 885-7515-15 MS
Matrix: Solid
Analysis Batch: 8269

Client Sample ID: BH23-35@1'
Prep Type: Total/NA
Prep Batch: 8103

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	ND		24.1	23.0		mg/Kg		95	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: 885-7515-15 MS
Matrix: Solid
Analysis Batch: 8269

Client Sample ID: BH23-35@1'
Prep Type: Total/NA
Prep Batch: 8103

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	214	S1+	35 - 166

Lab Sample ID: 885-7515-15 MSD
Matrix: Solid
Analysis Batch: 8269

Client Sample ID: BH23-35@1'
Prep Type: Total/NA
Prep Batch: 8103

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	ND		24.0	22.2		mg/Kg		93	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	213	S1+	35 - 166

Lab Sample ID: MB 885-8110/1-A
Matrix: Solid
Analysis Batch: 8221

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8110

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/09/24 16:29	07/11/24 01:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		35 - 166	07/09/24 16:29	07/11/24 01:15	1

Lab Sample ID: LCS 885-8110/2-A
Matrix: Solid
Analysis Batch: 8221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8110

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	22.3		mg/Kg		89	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	196	S1+	35 - 166

Lab Sample ID: 885-7515-35 MS
Matrix: Solid
Analysis Batch: 8221

Client Sample ID: BH23-41@1'
Prep Type: Total/NA
Prep Batch: 8110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10	ND		24.7	21.9		mg/Kg		89	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	198	S1+	35 - 166

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC) (Continued)

Lab Sample ID: 885-7515-35 MSD
Matrix: Solid
Analysis Batch: 8221

Client Sample ID: BH23-41@1'
Prep Type: Total/NA
Prep Batch: 8110

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	ND		24.6	21.9		mg/Kg		89	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*201*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-8091/1-A
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8091

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 13:36	07/10/24 13:30	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 13:36	07/10/24 13:30	1
Toluene	ND		0.050		mg/Kg		07/09/24 13:36	07/10/24 13:30	1
Xylenes, Total	ND		0.10		mg/Kg		07/09/24 13:36	07/10/24 13:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*48 - 145*	*07/09/24 13:36*	*07/10/24 13:30*	*1*

Lab Sample ID: LCS 885-8091/3-A
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8091

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.912		mg/Kg		91	70 - 130		
Ethylbenzene			1.00	0.866		mg/Kg		87	70 - 130		
m-Xylene & p-Xylene			2.00	1.75		mg/Kg		87	70 - 130		
o-Xylene			1.00	0.841		mg/Kg		84	70 - 130		
Toluene			1.00	0.865		mg/Kg		86	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*

Lab Sample ID: MB 885-8103/1-A
Matrix: Solid
Analysis Batch: 8270

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8103

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 15:34	07/10/24 22:38	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 15:34	07/10/24 22:38	1
Toluene	ND		0.050		mg/Kg		07/09/24 15:34	07/10/24 22:38	1
Xylenes, Total	ND		0.10		mg/Kg		07/09/24 15:34	07/10/24 22:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/09/24 15:34*	*07/10/24 22:38*	*1*

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 885-8103/3-A
Matrix: Solid
Analysis Batch: 8270

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8103

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.967		mg/Kg		97	70 - 130		
Ethylbenzene			1.00	0.965		mg/Kg		96	70 - 130		
m-Xylene & p-Xylene			2.00	1.92		mg/Kg		96	70 - 130		
o-Xylene			1.00	0.960		mg/Kg		96	70 - 130		
Toluene			1.00	0.965		mg/Kg		97	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*

Lab Sample ID: 885-7515-16 MS
Matrix: Solid
Analysis Batch: 8270

Client Sample ID: BH23-35@3'
Prep Type: Total/NA
Prep Batch: 8103

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene	ND		0.994	0.946		mg/Kg		95	70 - 130		
Ethylbenzene	ND		0.994	0.957		mg/Kg		96	70 - 130		
m-Xylene & p-Xylene	ND		1.99	1.92		mg/Kg		96	70 - 130		
o-Xylene	ND		0.994	0.955		mg/Kg		96	70 - 130		
Toluene	ND		0.994	0.952		mg/Kg		96	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*

Lab Sample ID: 885-7515-16 MSD
Matrix: Solid
Analysis Batch: 8270

Client Sample ID: BH23-35@3'
Prep Type: Total/NA
Prep Batch: 8103

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.984	0.939		mg/Kg		95	70 - 130	1	20
Ethylbenzene	ND		0.984	0.966		mg/Kg		98	70 - 130	1	20
m-Xylene & p-Xylene	ND		1.97	1.94		mg/Kg		99	70 - 130	1	20
o-Xylene	ND		0.984	0.983		mg/Kg		100	70 - 130	3	20
Toluene	ND		0.984	0.950		mg/Kg		96	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

Lab Sample ID: MB 885-8110/1-A
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8110

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/09/24 16:29	07/11/24 01:15	1
Ethylbenzene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 01:15	1
Toluene	ND		0.050		mg/Kg		07/09/24 16:29	07/11/24 01:15	1
Xylenes, Total	ND		0.10		mg/Kg		07/09/24 16:29	07/11/24 01:15	1

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-8110/1-A
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8110

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		48 - 145	07/09/24 16:29	07/11/24 01:15	1

Lab Sample ID: LCS 885-8110/3-A
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.836		mg/Kg		84	70 - 130
Ethylbenzene	1.00	0.796		mg/Kg		80	70 - 130
m-Xylene & p-Xylene	2.00	1.61		mg/Kg		81	70 - 130
o-Xylene	1.00	0.794		mg/Kg		79	70 - 130
Toluene	1.00	0.789		mg/Kg		79	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	88		48 - 145

Lab Sample ID: 885-7515-36 MS
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: BH23-41@3'
Prep Type: Total/NA
Prep Batch: 8110

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.997	0.850		mg/Kg		85	70 - 130
Ethylbenzene	ND		0.997	0.809		mg/Kg		81	70 - 130
m-Xylene & p-Xylene	ND		1.99	1.65		mg/Kg		83	70 - 130
o-Xylene	ND		0.997	0.798		mg/Kg		80	70 - 130
Toluene	ND		0.997	0.814		mg/Kg		82	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		48 - 145

Lab Sample ID: 885-7515-36 MSD
Matrix: Solid
Analysis Batch: 8222

Client Sample ID: BH23-41@3'
Prep Type: Total/NA
Prep Batch: 8110

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		0.996	0.907		mg/Kg		91	70 - 130	6	20
Ethylbenzene	ND		0.996	0.870		mg/Kg		87	70 - 130	7	20
m-Xylene & p-Xylene	ND		1.99	1.75		mg/Kg		88	70 - 130	6	20
o-Xylene	ND		0.996	0.848		mg/Kg		85	70 - 130	6	20
Toluene	ND		0.996	0.866		mg/Kg		87	70 - 130	6	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		48 - 145

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-8147/1-A
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8147

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/10/24 09:15	07/10/24 16:22	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 09:15	07/10/24 16:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*07/10/24 09:15*	*07/10/24 16:22*	*1*

Lab Sample ID: LCS 885-8147/2-A
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8147

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	48.6		mg/Kg		97	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*

Lab Sample ID: 885-7515-14 MS
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: BH23-34@4'
Prep Type: Total/NA
Prep Batch: 8147

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		47.9	45.7		mg/Kg		95	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*

Lab Sample ID: 885-7515-14 MSD
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: BH23-34@4'
Prep Type: Total/NA
Prep Batch: 8147

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		48.7	47.2		mg/Kg		97	44 - 136	3	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*

Lab Sample ID: MB 885-8166/1-A
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8166

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/10/24 11:23	07/10/24 21:11	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/10/24 11:23	07/10/24 21:11	1

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-8166/1-A
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8166

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	85		62 - 134	07/10/24 11:23	07/10/24 21:11	1

Lab Sample ID: LCS 885-8166/2-A
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	45.3		mg/Kg		91	60 - 135		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	86		62 - 134

Lab Sample ID: 885-7515-34 MS
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: BH23-40@6'
Prep Type: Total/NA
Prep Batch: 8166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		46.5	43.0		mg/Kg		93	44 - 136		

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	89		62 - 134

Lab Sample ID: 885-7515-34 MSD
Matrix: Solid
Analysis Batch: 8141

Client Sample ID: BH23-40@6'
Prep Type: Total/NA
Prep Batch: 8166

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		48.2	45.7		mg/Kg		95	44 - 136	6	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	93		62 - 134

Lab Sample ID: MB 885-8261/1-A
Matrix: Solid
Analysis Batch: 8225

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8261

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/11/24 14:22	07/11/24 16:11	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/11/24 14:22	07/11/24 16:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	88		62 - 134	07/11/24 14:22	07/11/24 16:11	1

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 885-8261/2-A
Matrix: Solid
Analysis Batch: 8225

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8261

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	45.1		mg/Kg		90	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*

Lab Sample ID: 885-7515-38 MS
Matrix: Solid
Analysis Batch: 8225

Client Sample ID: BH23-41@6'
Prep Type: Total/NA
Prep Batch: 8261

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		49.8	45.1		mg/Kg		91	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*

Lab Sample ID: 885-7515-38 MSD
Matrix: Solid
Analysis Batch: 8225

Client Sample ID: BH23-41@6'
Prep Type: Total/NA
Prep Batch: 8261

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Diesel Range Organics [C10-C28]	ND		47.4	41.3		mg/Kg		87	44 - 136	9	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-8233/2-A
Matrix: Solid
Analysis Batch: 8273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8233

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/11/24 10:42	07/11/24 12:06	1

Lab Sample ID: LCS 885-8233/3-A
Matrix: Solid
Analysis Batch: 8273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8233

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	31.2		mg/Kg		104	90 - 110		

QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MRL 885-8233/1-A
Matrix: Solid
Analysis Batch: 8273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8233

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	3.30		mg/L		110	50 - 150

Lab Sample ID: MB 885-8240/1-A
Matrix: Solid
Analysis Batch: 8273

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8240

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/11/24 11:55	07/11/24 18:45	1

Lab Sample ID: LCS 885-8240/2-A
Matrix: Solid
Analysis Batch: 8273

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8240

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	31.3		mg/Kg		104	90 - 110

Lab Sample ID: MB 885-8293/2-A
Matrix: Solid
Analysis Batch: 8374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8293

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/12/24 07:01	07/12/24 07:44	1

Lab Sample ID: LCS 885-8293/3-A
Matrix: Solid
Analysis Batch: 8374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8293

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	31.1		mg/Kg		104	90 - 110

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

GC VOA

Prep Batch: 8091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	5030C	
885-7515-2	BH23-25@3'	Total/NA	Solid	5030C	
885-7515-3	BH23-25@4'	Total/NA	Solid	5030C	
885-7515-4	BH23-25@5'	Total/NA	Solid	5030C	
885-7515-5	BH23-25@6'	Total/NA	Solid	5030C	
885-7515-6	BH23-32@1'	Total/NA	Solid	5030C	
885-7515-7	BH23-32@3'	Total/NA	Solid	5030C	
885-7515-8	BH23-32@4'	Total/NA	Solid	5030C	
885-7515-9	BH23-33@1'	Total/NA	Solid	5030C	
885-7515-10	BH23-33@3'	Total/NA	Solid	5030C	
885-7515-11	BH23-33@4'	Total/NA	Solid	5030C	
885-7515-12	BH23-34@1'	Total/NA	Solid	5030C	
885-7515-13	BH23-34@3'	Total/NA	Solid	5030C	
885-7515-14	BH23-34@4'	Total/NA	Solid	5030C	
MB 885-8091/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-8091/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-8091/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 8103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-15	BH23-35@1'	Total/NA	Solid	5030C	
885-7515-16	BH23-35@3'	Total/NA	Solid	5030C	
885-7515-17	BH23-35@4'	Total/NA	Solid	5030C	
885-7515-18	BH23-36@1'	Total/NA	Solid	5030C	
885-7515-19	BH23-36@3'	Total/NA	Solid	5030C	
885-7515-20	BH23-36@4'	Total/NA	Solid	5030C	
885-7515-21	BH23-37@1'	Total/NA	Solid	5030C	
885-7515-22	BH23-37@3'	Total/NA	Solid	5030C	
885-7515-23	BH23-37@4'	Total/NA	Solid	5030C	
885-7515-24	BH23-38@1'	Total/NA	Solid	5030C	
885-7515-25	BH23-38@3'	Total/NA	Solid	5030C	
885-7515-26	BH23-38@4'	Total/NA	Solid	5030C	
885-7515-27	BH23-39@1'	Total/NA	Solid	5030C	
885-7515-28	BH23-39@3'	Total/NA	Solid	5030C	
885-7515-29	BH23-39@4'	Total/NA	Solid	5030C	
885-7515-30	BH23-39@6'	Total/NA	Solid	5030C	
885-7515-31	BH23-40@1'	Total/NA	Solid	5030C	
885-7515-32	BH23-40@3'	Total/NA	Solid	5030C	
885-7515-33	BH23-40@4'	Total/NA	Solid	5030C	
885-7515-34	BH23-40@6'	Total/NA	Solid	5030C	
MB 885-8103/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-8103/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-8103/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-7515-15 MS	BH23-35@1'	Total/NA	Solid	5030C	
885-7515-15 MSD	BH23-35@1'	Total/NA	Solid	5030C	
885-7515-16 MS	BH23-35@3'	Total/NA	Solid	5030C	
885-7515-16 MSD	BH23-35@3'	Total/NA	Solid	5030C	

Prep Batch: 8110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-35	BH23-41@1'	Total/NA	Solid	5030C	

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

GC VOA (Continued)

Prep Batch: 8110 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-36	BH23-41@3'	Total/NA	Solid	5030C	
885-7515-37	BH23-41@4'	Total/NA	Solid	5030C	
885-7515-38	BH23-41@6'	Total/NA	Solid	5030C	
MB 885-8110/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-8110/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-8110/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-7515-35 MS	BH23-41@1'	Total/NA	Solid	5030C	
885-7515-35 MSD	BH23-41@1'	Total/NA	Solid	5030C	
885-7515-36 MS	BH23-41@3'	Total/NA	Solid	5030C	
885-7515-36 MSD	BH23-41@3'	Total/NA	Solid	5030C	

Analysis Batch: 8221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	8015M/D	8091
885-7515-2	BH23-25@3'	Total/NA	Solid	8015M/D	8091
885-7515-3	BH23-25@4'	Total/NA	Solid	8015M/D	8091
885-7515-4	BH23-25@5'	Total/NA	Solid	8015M/D	8091
885-7515-5	BH23-25@6'	Total/NA	Solid	8015M/D	8091
885-7515-6	BH23-32@1'	Total/NA	Solid	8015M/D	8091
885-7515-7	BH23-32@3'	Total/NA	Solid	8015M/D	8091
885-7515-8	BH23-32@4'	Total/NA	Solid	8015M/D	8091
885-7515-9	BH23-33@1'	Total/NA	Solid	8015M/D	8091
885-7515-10	BH23-33@3'	Total/NA	Solid	8015M/D	8091
885-7515-11	BH23-33@4'	Total/NA	Solid	8015M/D	8091
885-7515-12	BH23-34@1'	Total/NA	Solid	8015M/D	8091
885-7515-13	BH23-34@3'	Total/NA	Solid	8015M/D	8091
885-7515-14	BH23-34@4'	Total/NA	Solid	8015M/D	8091
885-7515-35	BH23-41@1'	Total/NA	Solid	8015M/D	8110
885-7515-36	BH23-41@3'	Total/NA	Solid	8015M/D	8110
885-7515-37	BH23-41@4'	Total/NA	Solid	8015M/D	8110
885-7515-38	BH23-41@6'	Total/NA	Solid	8015M/D	8110
MB 885-8091/1-A	Method Blank	Total/NA	Solid	8015M/D	8091
MB 885-8110/1-A	Method Blank	Total/NA	Solid	8015M/D	8110
LCS 885-8091/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8091
LCS 885-8110/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8110
885-7515-35 MS	BH23-41@1'	Total/NA	Solid	8015M/D	8110
885-7515-35 MSD	BH23-41@1'	Total/NA	Solid	8015M/D	8110

Analysis Batch: 8222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	8021B	8091
885-7515-2	BH23-25@3'	Total/NA	Solid	8021B	8091
885-7515-3	BH23-25@4'	Total/NA	Solid	8021B	8091
885-7515-4	BH23-25@5'	Total/NA	Solid	8021B	8091
885-7515-5	BH23-25@6'	Total/NA	Solid	8021B	8091
885-7515-6	BH23-32@1'	Total/NA	Solid	8021B	8091
885-7515-7	BH23-32@3'	Total/NA	Solid	8021B	8091
885-7515-8	BH23-32@4'	Total/NA	Solid	8021B	8091
885-7515-9	BH23-33@1'	Total/NA	Solid	8021B	8091
885-7515-10	BH23-33@3'	Total/NA	Solid	8021B	8091
885-7515-11	BH23-33@4'	Total/NA	Solid	8021B	8091

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

GC VOA (Continued)

Analysis Batch: 8222 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-12	BH23-34@1'	Total/NA	Solid	8021B	8091
885-7515-13	BH23-34@3'	Total/NA	Solid	8021B	8091
885-7515-14	BH23-34@4'	Total/NA	Solid	8021B	8091
885-7515-35	BH23-41@1'	Total/NA	Solid	8021B	8110
885-7515-36	BH23-41@3'	Total/NA	Solid	8021B	8110
885-7515-37	BH23-41@4'	Total/NA	Solid	8021B	8110
885-7515-38	BH23-41@6'	Total/NA	Solid	8021B	8110
MB 885-8091/1-A	Method Blank	Total/NA	Solid	8021B	8091
MB 885-8110/1-A	Method Blank	Total/NA	Solid	8021B	8110
LCS 885-8091/3-A	Lab Control Sample	Total/NA	Solid	8021B	8091
LCS 885-8110/3-A	Lab Control Sample	Total/NA	Solid	8021B	8110
885-7515-36 MS	BH23-41@3'	Total/NA	Solid	8021B	8110
885-7515-36 MSD	BH23-41@3'	Total/NA	Solid	8021B	8110

Analysis Batch: 8269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-15	BH23-35@1'	Total/NA	Solid	8015M/D	8103
885-7515-16	BH23-35@3'	Total/NA	Solid	8015M/D	8103
885-7515-17	BH23-35@4'	Total/NA	Solid	8015M/D	8103
885-7515-18	BH23-36@1'	Total/NA	Solid	8015M/D	8103
885-7515-19	BH23-36@3'	Total/NA	Solid	8015M/D	8103
885-7515-20	BH23-36@4'	Total/NA	Solid	8015M/D	8103
885-7515-21	BH23-37@1'	Total/NA	Solid	8015M/D	8103
885-7515-22	BH23-37@3'	Total/NA	Solid	8015M/D	8103
885-7515-23	BH23-37@4'	Total/NA	Solid	8015M/D	8103
885-7515-24	BH23-38@1'	Total/NA	Solid	8015M/D	8103
885-7515-25	BH23-38@3'	Total/NA	Solid	8015M/D	8103
885-7515-26	BH23-38@4'	Total/NA	Solid	8015M/D	8103
885-7515-27	BH23-39@1'	Total/NA	Solid	8015M/D	8103
885-7515-28	BH23-39@3'	Total/NA	Solid	8015M/D	8103
885-7515-29	BH23-39@4'	Total/NA	Solid	8015M/D	8103
885-7515-30	BH23-39@6'	Total/NA	Solid	8015M/D	8103
885-7515-31	BH23-40@1'	Total/NA	Solid	8015M/D	8103
885-7515-32	BH23-40@3'	Total/NA	Solid	8015M/D	8103
885-7515-33	BH23-40@4'	Total/NA	Solid	8015M/D	8103
885-7515-34	BH23-40@6'	Total/NA	Solid	8015M/D	8103
MB 885-8103/1-A	Method Blank	Total/NA	Solid	8015M/D	8103
LCS 885-8103/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8103
885-7515-15 MS	BH23-35@1'	Total/NA	Solid	8015M/D	8103
885-7515-15 MSD	BH23-35@1'	Total/NA	Solid	8015M/D	8103

Analysis Batch: 8270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-15	BH23-35@1'	Total/NA	Solid	8021B	8103
885-7515-16	BH23-35@3'	Total/NA	Solid	8021B	8103
885-7515-17	BH23-35@4'	Total/NA	Solid	8021B	8103
885-7515-18	BH23-36@1'	Total/NA	Solid	8021B	8103
885-7515-19	BH23-36@3'	Total/NA	Solid	8021B	8103
885-7515-20	BH23-36@4'	Total/NA	Solid	8021B	8103
885-7515-21	BH23-37@1'	Total/NA	Solid	8021B	8103
885-7515-22	BH23-37@3'	Total/NA	Solid	8021B	8103

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

GC VOA (Continued)

Analysis Batch: 8270 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-23	BH23-37@4'	Total/NA	Solid	8021B	8103
885-7515-24	BH23-38@1'	Total/NA	Solid	8021B	8103
885-7515-25	BH23-38@3'	Total/NA	Solid	8021B	8103
885-7515-26	BH23-38@4'	Total/NA	Solid	8021B	8103
885-7515-27	BH23-39@1'	Total/NA	Solid	8021B	8103
885-7515-28	BH23-39@3'	Total/NA	Solid	8021B	8103
885-7515-29	BH23-39@4'	Total/NA	Solid	8021B	8103
885-7515-30	BH23-39@6'	Total/NA	Solid	8021B	8103
885-7515-31	BH23-40@1'	Total/NA	Solid	8021B	8103
885-7515-32	BH23-40@3'	Total/NA	Solid	8021B	8103
885-7515-33	BH23-40@4'	Total/NA	Solid	8021B	8103
885-7515-34	BH23-40@6'	Total/NA	Solid	8021B	8103
MB 885-8103/1-A	Method Blank	Total/NA	Solid	8021B	8103
LCS 885-8103/3-A	Lab Control Sample	Total/NA	Solid	8021B	8103
885-7515-16 MS	BH23-35@3'	Total/NA	Solid	8021B	8103
885-7515-16 MSD	BH23-35@3'	Total/NA	Solid	8021B	8103

GC Semi VOA

Analysis Batch: 8141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-5	BH23-25@6'	Total/NA	Solid	8015M/D	8147
885-7515-6	BH23-32@1'	Total/NA	Solid	8015M/D	8147
885-7515-7	BH23-32@3'	Total/NA	Solid	8015M/D	8147
885-7515-10	BH23-33@3'	Total/NA	Solid	8015M/D	8147
885-7515-11	BH23-33@4'	Total/NA	Solid	8015M/D	8147
885-7515-12	BH23-34@1'	Total/NA	Solid	8015M/D	8147
885-7515-13	BH23-34@3'	Total/NA	Solid	8015M/D	8147
885-7515-14	BH23-34@4'	Total/NA	Solid	8015M/D	8147
885-7515-15	BH23-35@1'	Total/NA	Solid	8015M/D	8166
885-7515-16	BH23-35@3'	Total/NA	Solid	8015M/D	8166
885-7515-17	BH23-35@4'	Total/NA	Solid	8015M/D	8166
885-7515-18	BH23-36@1'	Total/NA	Solid	8015M/D	8166
885-7515-19	BH23-36@3'	Total/NA	Solid	8015M/D	8166
885-7515-20	BH23-36@4'	Total/NA	Solid	8015M/D	8166
885-7515-21	BH23-37@1'	Total/NA	Solid	8015M/D	8166
885-7515-22	BH23-37@3'	Total/NA	Solid	8015M/D	8166
885-7515-23	BH23-37@4'	Total/NA	Solid	8015M/D	8166
885-7515-24	BH23-38@1'	Total/NA	Solid	8015M/D	8166
885-7515-25	BH23-38@3'	Total/NA	Solid	8015M/D	8166
885-7515-26	BH23-38@4'	Total/NA	Solid	8015M/D	8166
885-7515-27	BH23-39@1'	Total/NA	Solid	8015M/D	8166
885-7515-28	BH23-39@3'	Total/NA	Solid	8015M/D	8166
885-7515-30	BH23-39@6'	Total/NA	Solid	8015M/D	8166
885-7515-31	BH23-40@1'	Total/NA	Solid	8015M/D	8166
885-7515-32	BH23-40@3'	Total/NA	Solid	8015M/D	8166
885-7515-33	BH23-40@4'	Total/NA	Solid	8015M/D	8166
885-7515-34	BH23-40@6'	Total/NA	Solid	8015M/D	8166
MB 885-8147/1-A	Method Blank	Total/NA	Solid	8015M/D	8147
MB 885-8166/1-A	Method Blank	Total/NA	Solid	8015M/D	8166
LCS 885-8147/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8147

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

GC Semi VOA (Continued)

Analysis Batch: 8141 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-8166/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8166
885-7515-14 MS	BH23-34@4'	Total/NA	Solid	8015M/D	8147
885-7515-14 MSD	BH23-34@4'	Total/NA	Solid	8015M/D	8147
885-7515-34 MS	BH23-40@6'	Total/NA	Solid	8015M/D	8166
885-7515-34 MSD	BH23-40@6'	Total/NA	Solid	8015M/D	8166

Prep Batch: 8147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	SHAKE	
885-7515-2	BH23-25@3'	Total/NA	Solid	SHAKE	
885-7515-3	BH23-25@4'	Total/NA	Solid	SHAKE	
885-7515-4	BH23-25@5'	Total/NA	Solid	SHAKE	
885-7515-5	BH23-25@6'	Total/NA	Solid	SHAKE	
885-7515-6	BH23-32@1'	Total/NA	Solid	SHAKE	
885-7515-7	BH23-32@3'	Total/NA	Solid	SHAKE	
885-7515-8	BH23-32@4'	Total/NA	Solid	SHAKE	
885-7515-9	BH23-33@1'	Total/NA	Solid	SHAKE	
885-7515-10	BH23-33@3'	Total/NA	Solid	SHAKE	
885-7515-11	BH23-33@4'	Total/NA	Solid	SHAKE	
885-7515-12	BH23-34@1'	Total/NA	Solid	SHAKE	
885-7515-13	BH23-34@3'	Total/NA	Solid	SHAKE	
885-7515-14	BH23-34@4'	Total/NA	Solid	SHAKE	
MB 885-8147/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-8147/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-7515-14 MS	BH23-34@4'	Total/NA	Solid	SHAKE	
885-7515-14 MSD	BH23-34@4'	Total/NA	Solid	SHAKE	

Prep Batch: 8166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-15	BH23-35@1'	Total/NA	Solid	SHAKE	
885-7515-16	BH23-35@3'	Total/NA	Solid	SHAKE	
885-7515-17	BH23-35@4'	Total/NA	Solid	SHAKE	
885-7515-18	BH23-36@1'	Total/NA	Solid	SHAKE	
885-7515-19	BH23-36@3'	Total/NA	Solid	SHAKE	
885-7515-20	BH23-36@4'	Total/NA	Solid	SHAKE	
885-7515-21	BH23-37@1'	Total/NA	Solid	SHAKE	
885-7515-22	BH23-37@3'	Total/NA	Solid	SHAKE	
885-7515-23	BH23-37@4'	Total/NA	Solid	SHAKE	
885-7515-24	BH23-38@1'	Total/NA	Solid	SHAKE	
885-7515-25	BH23-38@3'	Total/NA	Solid	SHAKE	
885-7515-26	BH23-38@4'	Total/NA	Solid	SHAKE	
885-7515-27	BH23-39@1'	Total/NA	Solid	SHAKE	
885-7515-28	BH23-39@3'	Total/NA	Solid	SHAKE	
885-7515-29	BH23-39@4'	Total/NA	Solid	SHAKE	
885-7515-30	BH23-39@6'	Total/NA	Solid	SHAKE	
885-7515-31	BH23-40@1'	Total/NA	Solid	SHAKE	
885-7515-32	BH23-40@3'	Total/NA	Solid	SHAKE	
885-7515-33	BH23-40@4'	Total/NA	Solid	SHAKE	
885-7515-34	BH23-40@6'	Total/NA	Solid	SHAKE	
MB 885-8166/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-8166/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

GC Semi VOA (Continued)

Prep Batch: 8166 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-34 MS	BH23-40@6'	Total/NA	Solid	SHAKE	
885-7515-34 MSD	BH23-40@6'	Total/NA	Solid	SHAKE	

Analysis Batch: 8225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	8015M/D	8147
885-7515-2	BH23-25@3'	Total/NA	Solid	8015M/D	8147
885-7515-3	BH23-25@4'	Total/NA	Solid	8015M/D	8147
885-7515-4	BH23-25@5'	Total/NA	Solid	8015M/D	8147
885-7515-8	BH23-32@4'	Total/NA	Solid	8015M/D	8147
885-7515-9	BH23-33@1'	Total/NA	Solid	8015M/D	8147
885-7515-29	BH23-39@4'	Total/NA	Solid	8015M/D	8166
885-7515-35	BH23-41@1'	Total/NA	Solid	8015M/D	8261
885-7515-36	BH23-41@3'	Total/NA	Solid	8015M/D	8261
885-7515-37	BH23-41@4'	Total/NA	Solid	8015M/D	8261
885-7515-38	BH23-41@6'	Total/NA	Solid	8015M/D	8261
MB 885-8261/1-A	Method Blank	Total/NA	Solid	8015M/D	8261
LCS 885-8261/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8261
885-7515-38 MS	BH23-41@6'	Total/NA	Solid	8015M/D	8261
885-7515-38 MSD	BH23-41@6'	Total/NA	Solid	8015M/D	8261

Prep Batch: 8261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-35	BH23-41@1'	Total/NA	Solid	SHAKE	
885-7515-36	BH23-41@3'	Total/NA	Solid	SHAKE	
885-7515-37	BH23-41@4'	Total/NA	Solid	SHAKE	
885-7515-38	BH23-41@6'	Total/NA	Solid	SHAKE	
MB 885-8261/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-8261/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-7515-38 MS	BH23-41@6'	Total/NA	Solid	SHAKE	
885-7515-38 MSD	BH23-41@6'	Total/NA	Solid	SHAKE	

HPLC/IC

Prep Batch: 8233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	300_Prep	
885-7515-2	BH23-25@3'	Total/NA	Solid	300_Prep	
885-7515-3	BH23-25@4'	Total/NA	Solid	300_Prep	
885-7515-4	BH23-25@5'	Total/NA	Solid	300_Prep	
885-7515-5	BH23-25@6'	Total/NA	Solid	300_Prep	
885-7515-6	BH23-32@1'	Total/NA	Solid	300_Prep	
885-7515-7	BH23-32@3'	Total/NA	Solid	300_Prep	
885-7515-8	BH23-32@4'	Total/NA	Solid	300_Prep	
885-7515-9	BH23-33@1'	Total/NA	Solid	300_Prep	
885-7515-10	BH23-33@3'	Total/NA	Solid	300_Prep	
885-7515-11	BH23-33@4'	Total/NA	Solid	300_Prep	
885-7515-12	BH23-34@1'	Total/NA	Solid	300_Prep	
MB 885-8233/2-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8233/3-A	Lab Control Sample	Total/NA	Solid	300_Prep	
MRL 885-8233/1-A	Lab Control Sample	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

HPLC/IC

Prep Batch: 8240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-13	BH23-34@3'	Total/NA	Solid	300_Prep	
885-7515-14	BH23-34@4'	Total/NA	Solid	300_Prep	
885-7515-15	BH23-35@1'	Total/NA	Solid	300_Prep	
885-7515-16	BH23-35@3'	Total/NA	Solid	300_Prep	
885-7515-17	BH23-35@4'	Total/NA	Solid	300_Prep	
885-7515-18	BH23-36@1'	Total/NA	Solid	300_Prep	
885-7515-19	BH23-36@3'	Total/NA	Solid	300_Prep	
885-7515-20	BH23-36@4'	Total/NA	Solid	300_Prep	
885-7515-21	BH23-37@1'	Total/NA	Solid	300_Prep	
885-7515-22	BH23-37@3'	Total/NA	Solid	300_Prep	
885-7515-23	BH23-37@4'	Total/NA	Solid	300_Prep	
885-7515-24	BH23-38@1'	Total/NA	Solid	300_Prep	
885-7515-25	BH23-38@3'	Total/NA	Solid	300_Prep	
885-7515-26	BH23-38@4'	Total/NA	Solid	300_Prep	
885-7515-27	BH23-39@1'	Total/NA	Solid	300_Prep	
885-7515-28	BH23-39@3'	Total/NA	Solid	300_Prep	
885-7515-29	BH23-39@4'	Total/NA	Solid	300_Prep	
885-7515-30	BH23-39@6'	Total/NA	Solid	300_Prep	
885-7515-31	BH23-40@1'	Total/NA	Solid	300_Prep	
885-7515-32	BH23-40@3'	Total/NA	Solid	300_Prep	
MB 885-8240/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8240/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 8273

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-1	BH23-25@1'	Total/NA	Solid	300.0	8233
885-7515-6	BH23-32@1'	Total/NA	Solid	300.0	8233
885-7515-9	BH23-33@1'	Total/NA	Solid	300.0	8233
885-7515-18	BH23-36@1'	Total/NA	Solid	300.0	8240
885-7515-21	BH23-37@1'	Total/NA	Solid	300.0	8240
MB 885-8233/2-A	Method Blank	Total/NA	Solid	300.0	8233
MB 885-8240/1-A	Method Blank	Total/NA	Solid	300.0	8240
LCS 885-8233/3-A	Lab Control Sample	Total/NA	Solid	300.0	8233
LCS 885-8240/2-A	Lab Control Sample	Total/NA	Solid	300.0	8240
MRL 885-8233/1-A	Lab Control Sample	Total/NA	Solid	300.0	8233

Prep Batch: 8293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-33	BH23-40@4'	Total/NA	Solid	300_Prep	
885-7515-34	BH23-40@6'	Total/NA	Solid	300_Prep	
885-7515-35	BH23-41@1'	Total/NA	Solid	300_Prep	
885-7515-36	BH23-41@3'	Total/NA	Solid	300_Prep	
885-7515-37	BH23-41@4'	Total/NA	Solid	300_Prep	
885-7515-38	BH23-41@6'	Total/NA	Solid	300_Prep	
MB 885-8293/2-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8293/3-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 8374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-2	BH23-25@3'	Total/NA	Solid	300.0	8233
885-7515-3	BH23-25@4'	Total/NA	Solid	300.0	8233

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

HPLC/IC (Continued)

Analysis Batch: 8374 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-4	BH23-25@5'	Total/NA	Solid	300.0	8233
885-7515-5	BH23-25@6'	Total/NA	Solid	300.0	8233
885-7515-7	BH23-32@3'	Total/NA	Solid	300.0	8233
885-7515-8	BH23-32@4'	Total/NA	Solid	300.0	8233
885-7515-10	BH23-33@3'	Total/NA	Solid	300.0	8233
885-7515-11	BH23-33@4'	Total/NA	Solid	300.0	8233
885-7515-12	BH23-34@1'	Total/NA	Solid	300.0	8233
885-7515-13	BH23-34@3'	Total/NA	Solid	300.0	8240
885-7515-14	BH23-34@4'	Total/NA	Solid	300.0	8240
885-7515-15	BH23-35@1'	Total/NA	Solid	300.0	8240
885-7515-16	BH23-35@3'	Total/NA	Solid	300.0	8240
885-7515-17	BH23-35@4'	Total/NA	Solid	300.0	8240
885-7515-19	BH23-36@3'	Total/NA	Solid	300.0	8240
885-7515-20	BH23-36@4'	Total/NA	Solid	300.0	8240
885-7515-22	BH23-37@3'	Total/NA	Solid	300.0	8240
885-7515-23	BH23-37@4'	Total/NA	Solid	300.0	8240
885-7515-24	BH23-38@1'	Total/NA	Solid	300.0	8240
885-7515-25	BH23-38@3'	Total/NA	Solid	300.0	8240
885-7515-26	BH23-38@4'	Total/NA	Solid	300.0	8240
885-7515-27	BH23-39@1'	Total/NA	Solid	300.0	8240
885-7515-28	BH23-39@3'	Total/NA	Solid	300.0	8240
885-7515-29	BH23-39@4'	Total/NA	Solid	300.0	8240
885-7515-30	BH23-39@6'	Total/NA	Solid	300.0	8240
885-7515-31	BH23-40@1'	Total/NA	Solid	300.0	8240
885-7515-32	BH23-40@3'	Total/NA	Solid	300.0	8240
885-7515-35	BH23-41@1'	Total/NA	Solid	300.0	8293
MB 885-8293/2-A	Method Blank	Total/NA	Solid	300.0	8293
LCS 885-8293/3-A	Lab Control Sample	Total/NA	Solid	300.0	8293

Analysis Batch: 8550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7515-33	BH23-40@4'	Total/NA	Solid	300.0	8293
885-7515-34	BH23-40@6'	Total/NA	Solid	300.0	8293
885-7515-36	BH23-41@3'	Total/NA	Solid	300.0	8293
885-7515-37	BH23-41@4'	Total/NA	Solid	300.0	8293
885-7515-38	BH23-41@6'	Total/NA	Solid	300.0	8293

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@1'
Lab Sample ID: 885-7515-1
Date Collected: 07/02/24 10:37
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 17:49
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 17:49
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 11:02
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		20	8273	JT	EET ALB	07/11/24 15:45

Client Sample ID: BH23-25@3'
Lab Sample ID: 885-7515-2
Date Collected: 07/02/24 10:41
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 18:12
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 18:12
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		10	8225	KR	EET ALB	07/11/24 11:43
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 14:14

Client Sample ID: BH23-25@4'
Lab Sample ID: 885-7515-3
Date Collected: 07/02/24 10:47
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 19:00
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 19:00
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 12:24
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 14:27

Client Sample ID: BH23-25@5'
Lab Sample ID: 885-7515-4
Date Collected: 07/02/24 12:59
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 19:23

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-25@5'

Lab Sample ID: 885-7515-4
Matrix: Solid
Date Collected: 07/02/24 12:59
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 19:23
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 12:35
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 14:40

Client Sample ID: BH23-25@6'

Lab Sample ID: 885-7515-5
Matrix: Solid
Date Collected: 07/02/24 13:09
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 19:47
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 19:47
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 18:46
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 15:18

Client Sample ID: BH23-32@1'

Lab Sample ID: 885-7515-6
Matrix: Solid
Date Collected: 07/02/24 10:54
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 20:10
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 20:10
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 18:57
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		20	8273	JT	EET ALB	07/11/24 17:15

Client Sample ID: BH23-32@3'

Lab Sample ID: 885-7515-7
Matrix: Solid
Date Collected: 07/02/24 10:57
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 20:34
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 20:34

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-32@3'

Lab Sample ID: 885-7515-7
Matrix: Solid
Date Collected: 07/02/24 10:57
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		10	8141	KR	EET ALB	07/10/24 19:09
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 15:31

Client Sample ID: BH23-32@4'

Lab Sample ID: 885-7515-8
Matrix: Solid
Date Collected: 07/02/24 11:03
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 20:57
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 20:57
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		10	8225	KR	EET ALB	07/11/24 12:46
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 15:44

Client Sample ID: BH23-33@1'

Lab Sample ID: 885-7515-9
Matrix: Solid
Date Collected: 07/02/24 11:07
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 21:21
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 21:21
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 13:27
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		20	8273	JT	EET ALB	07/11/24 17:54

Client Sample ID: BH23-33@3'

Lab Sample ID: 885-7515-10
Matrix: Solid
Date Collected: 07/02/24 11:11
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 22:07
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 22:07
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 19:42

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-33@3'

Lab Sample ID: 885-7515-10
Matrix: Solid
Date Collected: 07/02/24 11:11
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 15:57

Client Sample ID: BH23-33@4'

Lab Sample ID: 885-7515-11
Matrix: Solid
Date Collected: 07/02/24 11:15
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 22:31
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 22:31
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 19:53
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:42
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 16:10

Client Sample ID: BH23-34@1'

Lab Sample ID: 885-7515-12
Matrix: Solid
Date Collected: 07/02/24 11:19
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 22:54
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 22:54
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 20:05
Total/NA	Prep	300_Prep			8233	RC	EET ALB	07/11/24 10:50
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 16:23

Client Sample ID: BH23-34@3'

Lab Sample ID: 885-7515-13
Matrix: Solid
Date Collected: 07/02/24 11:23
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/10/24 23:41
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/10/24 23:41
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 20:16
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 16:36

Lab Chronicle

Client: Vertex
Job ID: 885-7515-1
Project/Site: Spud 16 10H

Client Sample ID: BH23-34@4'
Lab Sample ID: 885-7515-14
Date Collected: 07/02/24 11:27
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/11/24 00:04
Total/NA	Prep	5030C			8091	JP	EET ALB	07/09/24 13:36
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/11/24 00:04
Total/NA	Prep	SHAKE			8147	KR	EET ALB	07/10/24 09:15
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 20:27
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 16:48

Client Sample ID: BH23-35@1'
Lab Sample ID: 885-7515-15
Date Collected: 07/02/24 11:30
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/10/24 22:59
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/10/24 22:59
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 21:34
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 17:01

Client Sample ID: BH23-35@3'
Lab Sample ID: 885-7515-16
Date Collected: 07/02/24 11:33
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 00:05
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 00:05
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 21:45
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 17:14

Client Sample ID: BH23-35@4'
Lab Sample ID: 885-7515-17
Date Collected: 07/02/24 11:37
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 01:10

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-35@4'
Lab Sample ID: 885-7515-17
Date Collected: 07/02/24 11:37
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 01:10
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 21:56
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 17:53

Client Sample ID: BH23-36@1'
Lab Sample ID: 885-7515-18
Date Collected: 07/02/24 11:42
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 01:32
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 01:32
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 22:07
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		20	8273	JT	EET ALB	07/11/24 20:41

Client Sample ID: BH23-36@3'
Lab Sample ID: 885-7515-19
Date Collected: 07/02/24 11:45
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 01:53
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 01:53
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 22:18
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 18:06

Client Sample ID: BH23-36@4'
Lab Sample ID: 885-7515-20
Date Collected: 07/02/24 11:48
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 02:15
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 02:15

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-36@4'

Lab Sample ID: 885-7515-20
Matrix: Solid
Date Collected: 07/02/24 11:48
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 22:29
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 18:19

Client Sample ID: BH23-37@1'

Lab Sample ID: 885-7515-21
Matrix: Solid
Date Collected: 07/02/24 11:52
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 02:37
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 02:37
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 22:41
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		20	8273	JT	EET ALB	07/11/24 21:20

Client Sample ID: BH23-37@3'

Lab Sample ID: 885-7515-22
Matrix: Solid
Date Collected: 07/02/24 11:54
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 02:59
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 02:59
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 22:52
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 18:31

Client Sample ID: BH23-37@4'

Lab Sample ID: 885-7515-23
Matrix: Solid
Date Collected: 07/02/24 11:58
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 03:20
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 03:20
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 23:14

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-37@4'

Lab Sample ID: 885-7515-23
Matrix: Solid
Date Collected: 07/02/24 11:58
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 18:44

Client Sample ID: BH23-38@1'

Lab Sample ID: 885-7515-24
Matrix: Solid
Date Collected: 07/02/24 12:04
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 03:42
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 03:42
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 23:26
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 18:57

Client Sample ID: BH23-38@3'

Lab Sample ID: 885-7515-25
Matrix: Solid
Date Collected: 07/02/24 12:09
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 04:26
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 04:26
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 23:37
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 19:10

Client Sample ID: BH23-38@4'

Lab Sample ID: 885-7515-26
Matrix: Solid
Date Collected: 07/02/24 12:13
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 04:48
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 04:48
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 23:48
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 19:23

Lab Chronicle

Client: Vertex
Job ID: 885-7515-1
Project/Site: Spud 16 10H

Client Sample ID: BH23-39@1'
Lab Sample ID: 885-7515-27
Date Collected: 07/02/24 12:17
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 05:09
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 05:09
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 23:59
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		50	8374	RC	EET ALB	07/12/24 19:36

Client Sample ID: BH23-39@3'
Lab Sample ID: 885-7515-28
Date Collected: 07/02/24 12:21
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		5	8269	RA	EET ALB	07/11/24 05:31
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 05:31
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/11/24 00:11
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		500	8374	RC	EET ALB	07/12/24 19:49

Client Sample ID: BH23-39@4'
Lab Sample ID: 885-7515-29
Date Collected: 07/02/24 13:04
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		5	8269	RA	EET ALB	07/11/24 05:53
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		5	8270	RA	EET ALB	07/11/24 05:53
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		2	8225	KR	EET ALB	07/11/24 13:38
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 20:27

Client Sample ID: BH23-39@6'
Lab Sample ID: 885-7515-30
Date Collected: 07/02/24 12:22
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 06:15

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-39@6'

Lab Sample ID: 885-7515-30
Matrix: Solid
Date Collected: 07/02/24 12:22
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 06:15
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/11/24 00:34
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		500	8374	RC	EET ALB	07/12/24 20:40

Client Sample ID: BH23-40@1'

Lab Sample ID: 885-7515-31
Matrix: Solid
Date Collected: 07/02/24 12:25
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 06:37
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 06:37
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/11/24 00:45
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		100	8374	RC	EET ALB	07/12/24 20:53

Client Sample ID: BH23-40@3'

Lab Sample ID: 885-7515-32
Matrix: Solid
Date Collected: 07/02/24 12:30
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 06:59
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 06:59
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/11/24 00:57
Total/NA	Prep	300_Prep			8240	RC	EET ALB	07/11/24 11:55
Total/NA	Analysis	300.0		500	8374	RC	EET ALB	07/12/24 21:06

Client Sample ID: BH23-40@4'

Lab Sample ID: 885-7515-33
Matrix: Solid
Date Collected: 07/02/24 12:34
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 07:20
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 07:20

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H

Job ID: 885-7515-1

Client Sample ID: BH23-40@4'

Lab Sample ID: 885-7515-33
Matrix: Solid
Date Collected: 07/02/24 12:34
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/11/24 01:08
Total/NA	Prep	300_Prep			8293	JT	EET ALB	07/12/24 07:01
Total/NA	Analysis	300.0		100	8550	JT	EET ALB	07/16/24 16:35

Client Sample ID: BH23-40@6'

Lab Sample ID: 885-7515-34
Matrix: Solid
Date Collected: 07/02/24 12:38
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8015M/D		1	8269	RA	EET ALB	07/11/24 07:42
Total/NA	Prep	5030C			8103	JP	EET ALB	07/09/24 15:34
Total/NA	Analysis	8021B		1	8270	RA	EET ALB	07/11/24 07:42
Total/NA	Prep	SHAKE			8166	KR	EET ALB	07/10/24 11:23
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/11/24 01:19
Total/NA	Prep	300_Prep			8293	JT	EET ALB	07/12/24 07:01
Total/NA	Analysis	300.0		200	8550	JT	EET ALB	07/16/24 16:50

Client Sample ID: BH23-41@1'

Lab Sample ID: 885-7515-35
Matrix: Solid
Date Collected: 07/02/24 12:39
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/11/24 01:38
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/11/24 01:38
Total/NA	Prep	SHAKE			8261	KR	EET ALB	07/11/24 14:22
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 16:33
Total/NA	Prep	300_Prep			8293	JT	EET ALB	07/12/24 07:01
Total/NA	Analysis	300.0		20	8374	RC	EET ALB	07/12/24 08:40

Client Sample ID: BH23-41@3'

Lab Sample ID: 885-7515-36
Matrix: Solid
Date Collected: 07/02/24 12:43
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/11/24 02:48
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/11/24 02:48
Total/NA	Prep	SHAKE			8261	KR	EET ALB	07/11/24 14:22
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 16:44

Lab Chronicle

Client: Vertex
Job ID: 885-7515-1
Project/Site: Spud 16 10H

Client Sample ID: BH23-41@3'
Lab Sample ID: 885-7515-36
Date Collected: 07/02/24 12:43
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			8293	JT	EET ALB	07/12/24 07:01
Total/NA	Analysis	300.0		50	8550	JT	EET ALB	07/16/24 17:05

Client Sample ID: BH23-41@4'
Lab Sample ID: 885-7515-37
Date Collected: 07/02/24 12:47
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/11/24 03:58
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/11/24 03:58
Total/NA	Prep	SHAKE			8261	KR	EET ALB	07/11/24 14:22
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 16:55
Total/NA	Prep	300_Prep			8293	JT	EET ALB	07/12/24 07:01
Total/NA	Analysis	300.0		50	8550	JT	EET ALB	07/16/24 17:21

Client Sample ID: BH23-41@6'
Lab Sample ID: 885-7515-38
Date Collected: 07/02/24 12:52
Matrix: Solid
Date Received: 07/09/24 07:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8015M/D		1	8221	JP	EET ALB	07/11/24 04:22
Total/NA	Prep	5030C			8110	AT	EET ALB	07/09/24 16:29
Total/NA	Analysis	8021B		1	8222	JP	EET ALB	07/11/24 04:22
Total/NA	Prep	SHAKE			8261	KR	EET ALB	07/11/24 14:22
Total/NA	Analysis	8015M/D		1	8225	KR	EET ALB	07/11/24 17:06
Total/NA	Prep	300_Prep			8293	JT	EET ALB	07/12/24 07:01
Total/NA	Analysis	300.0		200	8550	JT	EET ALB	07/16/24 18:06

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex
Job ID: 885-7515-1
Project/Site: Spud 16 10H

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics (GRO)-C6-C10
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

1 of 3

Chain-of-Custody Record

Client: Vertex (Bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: Spud 16 10 H

Project #: 23E-02857

Project Manager: Chad Hensley
CHensley@Vertexresource.com
RPlogger@vertexresource.com

Sampler: Riley Plogger

On Ice: ☑ Yes ☐ No

# of Coolers: 1 409

Cooler Temp(including CF): 1.6+0.2=1.8 (°C)

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

885-7515 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7.2.24	10:37	soil	BH23-25 @ 1'	4oz jar	Ice	1	X	X					X			
	10:41		BH23-25 @ 3'			2										
	10:47		BH23-25 @ 4'			3										
	12:59		BH23-25 @ 5'			4										
	1:09		BH23-25 @ 6'			5										
	10:54		BH23-32 @ 1'			6										
	10:57		BH23-32 @ 3'			7										
	11:03		BH23-32 @ 4'			8										
	11:07		BH23-33 @ 1'			9										
	11:11		BH23-33 @ 3'			10										
	11:15		BH23-33 @ 4'			11										
↓	11:19	↓	BH23-34 @ 1'	↓	↓	12	↓	↓					↓			

Date	Time	Relinquished by	Received by	Via	Date	Time
					7/8/24	1030
7/8/24	1900			courier	7/9/24	7:50

Remarks:
WO# 21165742
Dale Woodall

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: vertex (Bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

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

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

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: Spud 16 10 H ~~Bottecx~~

Project #: ~~Chad Hen~~ ~~23E-04221~~ 23E-02857

Project Manager: Chad Hensley
CHensley@vertexresource.com
RPlogger@vertexresource.com

Sampler: Riley Plogger
On Ice: ☑ Yes ☐ No
# of Coolers: 1 yog
Cooler Temp(including CF): 1.6+0.2=1.8 (°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.	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, NO₃, NO₂, PO₄, SO₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)					
7.2.24	11:23	Soil	BH23-34 @ 3'	4oz Jar	Ice	13	X	X					X								
↓	11:27	↓	BH23-34 @ 4'	↓	↓	14	↓	↓					↓								
↓	11:30	↓	BH23-35 @ 1'	↓	↓	15	↓	↓					↓								
↓	11:33	↓	BH23-35 @ 3'	↓	↓	16	↓	↓					↓								
↓	11:37	↓	BH23-35 @ 4'	↓	↓	17	↓	↓					↓								
↓	11:42	↓	BH23-36 @ 1'	↓	↓	18	↓	↓					↓								
↓	11:45	↓	BH23-36 @ 3'	↓	↓	19	↓	↓					↓								
↓	11:48	↓	BH23-36 @ 4'	↓	↓	20	↓	↓					↓								
↓	11:52	↓	BH23-37 @ 1'	↓	↓	21	↓	↓					↓								
↓	11:54	↓	BH23-37 @ 3'	↓	↓	22	↓	↓					↓								
↓	11:58	↓	BH23-37 @ 4'	↓	↓	23	↓	↓					↓								
↓	12:04	↓	BH23-38 @ 1'	↓	↓	24	↓	↓					↓								

Date	Time	Relinquished by	Received by	Via	Date	Time
			[signature]		7/8/24	1030
7/8/24	1900	[signature]	[signature]	courier	7/9/24	7:50

Remarks: WO# ~~[illegible]~~ 21165742
Dale Woodall

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: Vertex (Bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

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

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

Turn-Around Time:
☑ Standard ☑ Rush 5 DAY

Project Name: SPUD 16 10H

Project #: 23E-02857

Project Manager: Chad Hensley
CHensley@vertexresource.com

Sampler:
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 1.6+0.2=1.8 (°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.	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)
7.2.24	12:09	Soil	BH23-38 @ 3'	4oz Jar	Ice	25	X	X					X			
	12:13		BH23-38 @ 4'			26										
	12:17		BH23-39 @ 1'			27										
	12:21		BH23-39 @ 3'			28										
	1:04		BH23-39 @ 4'			29										
	12:22		BH23-39 @ 6'			30										
	12:25		BH23-40 @ 1'			31										
	12:30		BH23-40 @ 3'			32										
	12:34		BH23-40 @ 4'			33										
	12:58		BH23-40 @ 6'			34										
	12:39		BH23-41 @ 1'			35										
	12:43		BH23-41 @ 3'			36										

Date	Time	Relinquished by	Received by	Via	Date	Time
					7/8/24	1030
7/8/24	1900			Courier	7/9/24	730

Remarks: WO# 21165742
Dale Woodall

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: Vertex (Bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

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

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

Turn-Around Time:
☑ Standard ☑ Rush 5 DAY

Project Name: Spud 16 10H

Project #: 23E-02857

Project Manager: Chad Hensley
CHensley@vertexresource.com

Sampler: Riley Plogger
On Ice: ☑ Yes ☐ No
# of Coolers: 1 Yoga
Cooler Temp(Including CF): 1.6+0.2=1.8 (°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.	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)
7.2.24	12:47	soil	BH23-41 @ 4'	4oz jar	Ice	37	X	X					X			
7.2.24	12:52	soil	BH23-41 @ 6'	4oz jar	Ice	38	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
			[signature]		7/2/24	1030
7/2/24	1900	[signature]	[signature]	courier	7/3/24	7:50

Remarks: WO# 21165742
Dale Woodall

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.

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-7515-1

Login Number: 7515 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: Casarrubias, Tracy

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Chad Hensley
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 6/5/2024 4:10:03 PM

JOB DESCRIPTION

Spud 16 State #10H

JOB NUMBER

885-5200-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
6/5/2024 4:10:03 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Spud 16 State #10H

Laboratory Job ID: 885-5200-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-5200-1
Project/Site: Spud 16 State #10H

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Vertex
Project: Spud 16 State #10H

Job ID: 885-5200-1

Job ID: 885-5200-1 Eurofins Albuquerque

Job Narrative
885-5200-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
- Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Receipt
The samples were received on 5/29/2024 7:55 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.6°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Client Sample ID: BG24-05

Date Collected: 05/24/24 09:35
Date Received: 05/29/24 07:55

Lab Sample ID: 885-5200-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		05/29/24 11:28	06/03/24 05:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*05/29/24 11:28*	*06/03/24 05:22*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		05/29/24 11:28	06/03/24 05:22	1
Ethylbenzene	ND		0.049		mg/Kg		05/29/24 11:28	06/03/24 05:22	1
Toluene	ND		0.049		mg/Kg		05/29/24 11:28	06/03/24 05:22	1
Xylenes, Total	ND		0.099		mg/Kg		05/29/24 11:28	06/03/24 05:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*05/29/24 11:28*	*06/03/24 05:22*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		05/30/24 14:51	05/31/24 14:04	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		05/30/24 14:51	05/31/24 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*	*05/30/24 14:51*	*05/31/24 14:04*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**720**		60		mg/Kg		05/31/24 07:03	05/31/24 11:00	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Client Sample ID: BG24-06

Date Collected: 05/24/24 10:12
Date Received: 05/29/24 07:55

Lab Sample ID: 885-5200-2

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		05/29/24 11:28	06/03/24 05:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*05/29/24 11:28*	*06/03/24 05:45*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		05/29/24 11:28	06/03/24 05:45	1
Ethylbenzene	ND		0.049		mg/Kg		05/29/24 11:28	06/03/24 05:45	1
Toluene	ND		0.049		mg/Kg		05/29/24 11:28	06/03/24 05:45	1
Xylenes, Total	ND		0.097		mg/Kg		05/29/24 11:28	06/03/24 05:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*05/29/24 11:28*	*06/03/24 05:45*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.6		mg/Kg		05/30/24 14:51	05/31/24 14:15	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		05/30/24 14:51	05/31/24 14:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*95*		*62 - 134*	*05/30/24 14:51*	*05/31/24 14:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		60		mg/Kg		05/31/24 07:03	05/31/24 11:12	20

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Client Sample ID: BG24-07

Date Collected: 05/24/24 10:50
Date Received: 05/29/24 07:55

Lab Sample ID: 885-5200-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		05/29/24 11:28	06/03/24 06:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*05/29/24 11:28*	*06/03/24 06:09*	*1*

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		05/29/24 11:28	06/03/24 06:09	1
Ethylbenzene	ND		0.049		mg/Kg		05/29/24 11:28	06/03/24 06:09	1
Toluene	ND		0.049		mg/Kg		05/29/24 11:28	06/03/24 06:09	1
Xylenes, Total	ND		0.098		mg/Kg		05/29/24 11:28	06/03/24 06:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*05/29/24 11:28*	*06/03/24 06:09*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		05/30/24 14:51	05/31/24 14:25	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		05/30/24 14:51	05/31/24 14:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*97*		*62 - 134*	*05/30/24 14:51*	*05/31/24 14:25*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		05/31/24 07:03	05/31/24 11:24	20

QC Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-5788/1-A
Matrix: Solid
Analysis Batch: 6017

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 5788

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		05/29/24 11:28	06/02/24 19:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*05/29/24 11:28*	*06/02/24 19:36*	*1*

Lab Sample ID: LCS 885-5788/2-A
Matrix: Solid
Analysis Batch: 6017

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 5788

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	25.7		mg/Kg		103	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*211*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-5788/1-A
Matrix: Solid
Analysis Batch: 6019

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 5788

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		05/29/24 11:28	06/02/24 19:36	1
Ethylbenzene	ND		0.050		mg/Kg		05/29/24 11:28	06/02/24 19:36	1
Toluene	ND		0.050		mg/Kg		05/29/24 11:28	06/02/24 19:36	1
Xylenes, Total	ND		0.10		mg/Kg		05/29/24 11:28	06/02/24 19:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*05/29/24 11:28*	*06/02/24 19:36*	*1*

Lab Sample ID: LCS 885-5788/3-A
Matrix: Solid
Analysis Batch: 6019

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 5788

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.971		mg/Kg		97	70 - 130		
Ethylbenzene			1.00	0.933		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene			2.00	1.89		mg/Kg		95	70 - 130		
o-Xylene			1.00	0.925		mg/Kg		92	70 - 130		
Toluene			1.00	0.920		mg/Kg		92	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-5887/1-A
Matrix: Solid
Analysis Batch: 5949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 5887

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		05/30/24 14:51	05/31/24 13:42	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		05/30/24 14:51	05/31/24 13:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*113*		*62 - 134*	*05/30/24 14:51*	*05/31/24 13:42*	*1*

Lab Sample ID: LCS 885-5887/2-A
Matrix: Solid
Analysis Batch: 5949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 5887

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	53.5		mg/Kg		107	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-5912/2-A
Matrix: Solid
Analysis Batch: 5977

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 5912

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.5		mg/Kg		05/31/24 07:03	05/31/24 08:33	1

Lab Sample ID: LCS 885-5912/3-A
Matrix: Solid
Analysis Batch: 5977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 5912

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			15.0	14.2		mg/Kg		95	90 - 110		

Lab Sample ID: MRL 885-5912/1-A
Matrix: Solid
Analysis Batch: 5977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 5912

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			1.50	1.61		mg/L		107	50 - 150		

Lab Sample ID: MB 885-5977/109
Matrix: Solid
Analysis Batch: 5977

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/Kg			06/01/24 01:36	1

QC Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MRL 885-5977/108
Matrix: Solid
Analysis Batch: 5977

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			0.500	0.532		mg/L		106	50 - 150		

QC Association Summary

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

GC VOA

Prep Batch: 5788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	5030C	
885-5200-2	BG24-06	Total/NA	Solid	5030C	
885-5200-3	BG24-07	Total/NA	Solid	5030C	
MB 885-5788/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-5788/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-5788/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 6017

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	8015M/D	5788
885-5200-2	BG24-06	Total/NA	Solid	8015M/D	5788
885-5200-3	BG24-07	Total/NA	Solid	8015M/D	5788
MB 885-5788/1-A	Method Blank	Total/NA	Solid	8015M/D	5788
LCS 885-5788/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	5788

Analysis Batch: 6019

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	8021B	5788
885-5200-2	BG24-06	Total/NA	Solid	8021B	5788
885-5200-3	BG24-07	Total/NA	Solid	8021B	5788
MB 885-5788/1-A	Method Blank	Total/NA	Solid	8021B	5788
LCS 885-5788/3-A	Lab Control Sample	Total/NA	Solid	8021B	5788

GC Semi VOA

Prep Batch: 5887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	SHAKE	
885-5200-2	BG24-06	Total/NA	Solid	SHAKE	
885-5200-3	BG24-07	Total/NA	Solid	SHAKE	
MB 885-5887/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-5887/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 5949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	8015M/D	5887
885-5200-2	BG24-06	Total/NA	Solid	8015M/D	5887
885-5200-3	BG24-07	Total/NA	Solid	8015M/D	5887
MB 885-5887/1-A	Method Blank	Total/NA	Solid	8015M/D	5887
LCS 885-5887/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	5887

HPLC/IC

Prep Batch: 5912

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	300_Prep	
885-5200-2	BG24-06	Total/NA	Solid	300_Prep	
885-5200-3	BG24-07	Total/NA	Solid	300_Prep	
MB 885-5912/2-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-5912/3-A	Lab Control Sample	Total/NA	Solid	300_Prep	
MRL 885-5912/1-A	Lab Control Sample	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

HPLC/IC

Analysis Batch: 5977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-5200-1	BG24-05	Total/NA	Solid	300.0	5912
885-5200-2	BG24-06	Total/NA	Solid	300.0	5912
885-5200-3	BG24-07	Total/NA	Solid	300.0	5912
MB 885-5912/2-A	Method Blank	Total/NA	Solid	300.0	5912
MB 885-5977/109	Method Blank	Total/NA	Solid	300.0	
LCS 885-5912/3-A	Lab Control Sample	Total/NA	Solid	300.0	5912
MRL 885-5912/1-A	Lab Control Sample	Total/NA	Solid	300.0	5912
MRL 885-5977/108	Lab Control Sample	Total/NA	Solid	300.0	

Lab Chronicle

Client: Vertex
Job ID: 885-5200-1
Project/Site: Spud 16 State #10H

Client Sample ID: BG24-05
Lab Sample ID: 885-5200-1
Date Collected: 05/24/24 09:35
Matrix: Solid
Date Received: 05/29/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			5788	AT	EET ALB	05/29/24 11:28
Total/NA	Analysis	8015M/D		1	6017	JP	EET ALB	06/03/24 05:22
Total/NA	Prep	5030C			5788	AT	EET ALB	05/29/24 11:28
Total/NA	Analysis	8021B		1	6019	JP	EET ALB	06/03/24 05:22
Total/NA	Prep	SHAKE			5887	SB	EET ALB	05/30/24 14:51
Total/NA	Analysis	8015M/D		1	5949	JU	EET ALB	05/31/24 14:04
Total/NA	Prep	300_Prep			5912	JT	EET ALB	05/31/24 07:03
Total/NA	Analysis	300.0		20	5977	JT	EET ALB	05/31/24 11:00

Client Sample ID: BG24-06
Lab Sample ID: 885-5200-2
Date Collected: 05/24/24 10:12
Matrix: Solid
Date Received: 05/29/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			5788	AT	EET ALB	05/29/24 11:28
Total/NA	Analysis	8015M/D		1	6017	JP	EET ALB	06/03/24 05:45
Total/NA	Prep	5030C			5788	AT	EET ALB	05/29/24 11:28
Total/NA	Analysis	8021B		1	6019	JP	EET ALB	06/03/24 05:45
Total/NA	Prep	SHAKE			5887	SB	EET ALB	05/30/24 14:51
Total/NA	Analysis	8015M/D		1	5949	JU	EET ALB	05/31/24 14:15
Total/NA	Prep	300_Prep			5912	JT	EET ALB	05/31/24 07:03
Total/NA	Analysis	300.0		20	5977	JT	EET ALB	05/31/24 11:12

Client Sample ID: BG24-07
Lab Sample ID: 885-5200-3
Date Collected: 05/24/24 10:50
Matrix: Solid
Date Received: 05/29/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			5788	AT	EET ALB	05/29/24 11:28
Total/NA	Analysis	8015M/D		1	6017	JP	EET ALB	06/03/24 06:09
Total/NA	Prep	5030C			5788	AT	EET ALB	05/29/24 11:28
Total/NA	Analysis	8021B		1	6019	JP	EET ALB	06/03/24 06:09
Total/NA	Prep	SHAKE			5887	SB	EET ALB	05/30/24 14:51
Total/NA	Analysis	8015M/D		1	5949	JU	EET ALB	05/31/24 14:25
Total/NA	Prep	300_Prep			5912	JT	EET ALB	05/31/24 07:03
Total/NA	Analysis	300.0		20	5977	JT	EET ALB	05/31/24 11:24

Laboratory References:

EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex Job ID: 885-5200-1
Project/Site: Spud 16 State #10H

Laboratory: Eurofins Albuquerque

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New Mexico	State	NM9425, NM0901	02-26-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
300.0	300_Prep	Solid	Chloride
8015M/D	5030C	Solid	Gasoline Range Organics (GRO)-C6-C10
8015M/D	SHAKE	Solid	Diesel Range Organics [C10-C28]
8015M/D	SHAKE	Solid	Motor Oil Range Organics [C28-C40]
8021B	5030C	Solid	Benzene
8021B	5030C	Solid	Ethylbenzene
8021B	5030C	Solid	Toluene
8021B	5030C	Solid	Xylenes, Total

Oregon	NELAP	NM100001	02-26-25

Chain-of-Custody Record

Client: Vertex
(Bill to Devon)
Mailing Address:

Phone #:
email or Fax#:
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☑ Rush 5 Day
Project Name:
Spud 16 State #10H
Project #:
23E-02857
Project Manager:
Chad Hensley
Sampler: Riley Plogger
On Ice: ☑ Yes ☐ No
# of Coolers: 1 Yog.
Cooler Temp(Including CF): 0.6+0=0.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABO
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 8
Tel. 505-345-3975 Fax 505-345-410.
885-5200 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
5-24	9:35	Soil	BG24-05	4 oz	Ice	
5-24	10:12	↓	BG24-06	↓	↓	
5-24	10:50	↓	BG24-07	↓	↓	

Analysis Request

(BTEX) / MTBE / TMB's (8021)	(TPH):8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl, F, Br, NO_3, NO_2, PO_4, SO_4)	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
↓	↓					↓			

Date.	Time:	Relinquished by	Received by	Via:	Date	Time
5/28/24	9:40				5/28/24	940
Date.	Time	Relinquished by	Received by	Via.	Date	Time
5/28/24	1900			courier	5/29/24	7:55

Remarks:
WO #21165742

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.

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-5200-1

Login Number: 5200 **List Source: Eurofins Albuquerque**
List Number: 1
Creator: McQuiston, Steven

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Report to:

Chad Hensley

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com

envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name:	Spud 16 State 10H
Work Order:	E410119
Job Number:	01058-0007
Received:	10/14/2024

Revision: 2

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/17/24

Date Reported: 10/17/24

Chad Hensley
3101 Boyd Drive
Carlsbad, NM 88220

Project Name: Spud 16 State 10H
Workorder: E410119
Date Received: 10/14/2024 8:00:00AM

Chad Hensley,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/14/2024 8:00:00AM, under the Project Name: Spud 16 State 10H.

The analytical test results summarized in this report with the Project Name: Spud 16 State 10H apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
Office: 505-632-1881
rainaschwanz@envirotech-inc.com

Field Offices:

Southern New Mexico Area

Lynn Jarboe
Laboratory Technical Representative
Office: 505-421-LABS(5227)
Cell: 505-320-4759
ljarboe@envirotech-inc.com

Michelle Gonzales
Client Representative
Office: 505-421-LABS(5227)
Cell: 505-947-8222
mgonzales@envirotech-inc.com

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Sample Summary

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/24 15:37

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BS24-14 2'	E410119-01A	Soil	10/11/24	10/14/24	Glass Jar, 2 oz.
BS24-19 2'	E410119-02A	Soil	10/11/24	10/14/24	Glass Jar, 2 oz.
WS24-6 2'	E410119-03A	Soil	10/11/24	10/14/24	Glass Jar, 2 oz.
WS24-9 2'	E410119-04A	Soil	10/11/24	10/14/24	Glass Jar, 2 oz.
WS24-10 1'	E410119-05A	Soil	10/11/24	10/14/24	Glass Jar, 2 oz.

Sample Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

BS24-14 2'

E410119-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Benzene	ND	0.0250	1	10/14/24	10/15/24	
Ethylbenzene	ND	0.0250	1	10/14/24	10/15/24	
Toluene	ND	0.0250	1	10/14/24	10/15/24	
o-Xylene	ND	0.0250	1	10/14/24	10/15/24	
p,m-Xylene	ND	0.0500	1	10/14/24	10/15/24	
Total Xylenes	ND	0.0250	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*98.6 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*95.1 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*102 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*98.6 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*95.1 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*102 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2442028
Diesel Range Organics (C10-C28)	ND	25.0	1	10/14/24	10/14/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/14/24	10/14/24	
Surrogate: n-Nonane		*95.9 %*	*50-200*	*10/14/24*	*10/14/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2442019
Chloride	**8010**	200	10	10/14/24	10/14/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

BS24-19 2'

E410119-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Benzene	ND	0.0250	1	10/14/24	10/15/24	
Ethylbenzene	ND	0.0250	1	10/14/24	10/15/24	
Toluene	ND	0.0250	1	10/14/24	10/15/24	
o-Xylene	ND	0.0250	1	10/14/24	10/15/24	
p,m-Xylene	ND	0.0500	1	10/14/24	10/15/24	
Total Xylenes	ND	0.0250	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*98.7 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*99.4 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*102 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*98.7 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*99.4 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*102 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2442028
Diesel Range Organics (C10-C28)	ND	25.0	1	10/14/24	10/14/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/14/24	10/14/24	
Surrogate: n-Nonane		*97.1 %*	*50-200*	*10/14/24*	*10/14/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2442019
Chloride	**4870**	200	10	10/14/24	10/14/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

WS24-6 2'

E410119-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Benzene	ND	0.0250	1	10/14/24	10/15/24	
Ethylbenzene	ND	0.0250	1	10/14/24	10/15/24	
Toluene	ND	0.0250	1	10/14/24	10/15/24	
o-Xylene	ND	0.0250	1	10/14/24	10/15/24	
p,m-Xylene	ND	0.0500	1	10/14/24	10/15/24	
Total Xylenes	ND	0.0250	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*96.2 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*102 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*96.2 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*102 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2442028
Diesel Range Organics (C10-C28)	ND	25.0	1	10/14/24	10/14/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/14/24	10/14/24	
Surrogate: n-Nonane		*99.5 %*	*50-200*	*10/14/24*	*10/14/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2442019
Chloride	**2690**	40.0	2	10/14/24	10/14/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

WS24-9 2'

E410119-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Benzene	ND	0.0250	1	10/14/24	10/15/24	
Ethylbenzene	ND	0.0250	1	10/14/24	10/15/24	
Toluene	ND	0.0250	1	10/14/24	10/15/24	
o-Xylene	ND	0.0250	1	10/14/24	10/15/24	
p,m-Xylene	ND	0.0500	1	10/14/24	10/15/24	
Total Xylenes	ND	0.0250	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*97.0 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*92.9 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*101 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*97.0 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*92.9 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*101 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2442028
Diesel Range Organics (C10-C28)	ND	25.0	1	10/14/24	10/14/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/14/24	10/14/24	
Surrogate: n-Nonane		*99.4 %*	*50-200*	*10/14/24*	*10/14/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2442019
Chloride	**3640**	200	10	10/14/24	10/14/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

WS24-10 1'

E410119-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Benzene	ND	0.0250	1	10/14/24	10/15/24	
Ethylbenzene	ND	0.0250	1	10/14/24	10/15/24	
Toluene	ND	0.0250	1	10/14/24	10/15/24	
o-Xylene	ND	0.0250	1	10/14/24	10/15/24	
p,m-Xylene	ND	0.0500	1	10/14/24	10/15/24	
Total Xylenes	ND	0.0250	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*97.5 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*100 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2442006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/14/24	10/15/24	
Surrogate: Bromofluorobenzene		*97.5 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*10/14/24*	*10/15/24*	
Surrogate: Toluene-d8		*100 %*	*70-130*	*10/14/24*	*10/15/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: AF			Batch: 2442028
Diesel Range Organics (C10-C28)	ND	25.0	1	10/14/24	10/14/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/14/24	10/14/24	
Surrogate: n-Nonane		*102 %*	*50-200*	*10/14/24*	*10/14/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2442019
Chloride	**7230**	200	10	10/14/24	10/14/24	

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

Volatile Organic Compounds by EPA 8260B

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2442006-BLK1)									Prepared: 10/14/24 Analyzed: 10/15/24
Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: Bromofluorobenzene	*0.487*		*0.500*		*97.3*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.529*		*0.500*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.514*		*0.500*		*103*	*70-130*			
LCS (2442006-BS1)									Prepared: 10/14/24 Analyzed: 10/15/24
Benzene	2.35	0.0250	2.50		94.1	70-130			
Ethylbenzene	2.52	0.0250	2.50		101	70-130			
Toluene	2.42	0.0250	2.50		96.9	70-130			
o-Xylene	2.53	0.0250	2.50		101	70-130			
p,m-Xylene	5.07	0.0500	5.00		101	70-130			
Total Xylenes	7.60	0.0250	7.50		101	70-130			
Surrogate: Bromofluorobenzene	*0.485*		*0.500*		*96.9*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.497*		*0.500*		*99.4*	*70-130*			
Surrogate: Toluene-d8	*0.512*		*0.500*		*102*	*70-130*			
Matrix Spike (2442006-MS1)				**Source: E410119-04**					Prepared: 10/14/24 Analyzed: 10/15/24
Benzene	2.41	0.0250	2.50	ND	96.5	48-131			
Ethylbenzene	2.56	0.0250	2.50	ND	102	45-135			
Toluene	2.48	0.0250	2.50	ND	99.2	48-130			
o-Xylene	2.51	0.0250	2.50	ND	100	43-135			
p,m-Xylene	5.02	0.0500	5.00	ND	100	43-135			
Total Xylenes	7.52	0.0250	7.50	ND	100	43-135			
Surrogate: Bromofluorobenzene	*0.482*		*0.500*		*96.4*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.473*		*0.500*		*94.6*	*70-130*			
Surrogate: Toluene-d8	*0.511*		*0.500*		*102*	*70-130*			
Matrix Spike Dup (2442006-MSD1)				**Source: E410119-04**					Prepared: 10/14/24 Analyzed: 10/15/24
Benzene	2.42	0.0250	2.50	ND	96.7	48-131	0.248	23	
Ethylbenzene	2.53	0.0250	2.50	ND	101	45-135	1.04	27	
Toluene	2.46	0.0250	2.50	ND	98.6	48-130	0.607	24	
o-Xylene	2.53	0.0250	2.50	ND	101	43-135	1.05	27	
p,m-Xylene	5.10	0.0500	5.00	ND	102	43-135	1.71	27	
Total Xylenes	7.64	0.0250	7.50	ND	102	43-135	1.49	27	
Surrogate: Bromofluorobenzene	*0.483*		*0.500*		*96.6*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.505*		*0.500*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.508*		*0.500*		*102*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2442006-BLK1)									Prepared: 10/14/24 Analyzed: 10/15/24
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	*0.487*		*0.500*		*97.3*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.529*		*0.500*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.514*		*0.500*		*103*	*70-130*			
LCS (2442006-BS2)									Prepared: 10/14/24 Analyzed: 10/15/24
Gasoline Range Organics (C6-C10)	54.5	20.0	50.0		109	70-130			
Surrogate: Bromofluorobenzene	*0.505*		*0.500*		*101*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.489*		*0.500*		*97.7*	*70-130*			
Surrogate: Toluene-d8	*0.525*		*0.500*		*105*	*70-130*			
Matrix Spike (2442006-MS2)				**Source: E410119-04**					Prepared: 10/14/24 Analyzed: 10/15/24
Gasoline Range Organics (C6-C10)	54.6	20.0	50.0	ND	109	70-130			
Surrogate: Bromofluorobenzene	*0.502*		*0.500*		*100*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.505*		*0.500*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.516*		*0.500*		*103*	*70-130*			
Matrix Spike Dup (2442006-MSD2)				**Source: E410119-04**					Prepared: 10/14/24 Analyzed: 10/15/24
Gasoline Range Organics (C6-C10)	53.6	20.0	50.0	ND	107	70-130	1.75	20	
Surrogate: Bromofluorobenzene	*0.492*		*0.500*		*98.3*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.469*		*0.500*		*93.8*	*70-130*			
Surrogate: Toluene-d8	*0.514*		*0.500*		*103*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2442028-BLK1)									Prepared: 10/14/24 Analyzed: 10/14/24
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*45.5*		*50.0*		*91.1*	*50-200*			
LCS (2442028-BS1)									Prepared: 10/14/24 Analyzed: 10/14/24
Diesel Range Organics (C10-C28)	249	25.0	250		99.6	38-132			
Surrogate: n-Nonane	*48.9*		*50.0*		*97.7*	*50-200*			
Matrix Spike (2442028-MS1)				**Source: E410120-01**					Prepared: 10/14/24 Analyzed: 10/14/24
Diesel Range Organics (C10-C28)	273	25.0	250	ND	109	38-132			
Surrogate: n-Nonane	*54.7*		*50.0*		*109*	*50-200*			
Matrix Spike Dup (2442028-MSD1)				**Source: E410120-01**					Prepared: 10/14/24 Analyzed: 10/14/24
Diesel Range Organics (C10-C28)	295	25.0	250	ND	118	38-132	8.00	20	
Surrogate: n-Nonane	*57.4*		*50.0*		*115*	*50-200*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	**Reported:**
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/2024 3:37:48PM

Anions by EPA 300.0/9056A

Analyst: IY

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2442019-BLK1)									Prepared: 10/14/24 Analyzed: 10/14/24
Chloride	ND	20.0							
LCS (2442019-BS1)									Prepared: 10/14/24 Analyzed: 10/14/24
Chloride	253	20.0	250		101	90-110			
Matrix Spike (2442019-MS1)				**Source: E410118-03**					Prepared: 10/14/24 Analyzed: 10/14/24
Chloride	586	200	250	347	95.9	80-120			
Matrix Spike Dup (2442019-MSD1)				**Source: E410118-03**					Prepared: 10/14/24 Analyzed: 10/14/24
Chloride	595	200	250	347	99.5	80-120	1.53	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Definitions and Notes

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10H	
3101 Boyd Drive	Project Number:	01058-0007	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/17/24 15:37

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Chain of Custody

Client Information	
Client:	Vertex
Project Name:	Spud 16 State 1H
Project Manager:	Chad Hensley
Address:	3101 Boyd Dr.
City, State, Zip:	Carlsbad, NM 88220
Phone:	575-361-9639
Email:	CHensley@vertexresource.com
	RPioggi@vertexresource.com

Invoice Information	
Company:	(Bill To Devon)
Address:	5315 Buena Vista Dr
City, State, Zip:	Carlsbad, NM 88220
Phone:	575-748-1838
Email:	dale.woodall@dvn.com
Miscellaneous:	

Lab Use Only		TAT				State			
Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX
E410119	9058.0001				X				

EPA Program		
SDWA	CWA	RCRA
Compliance	Y or N	
PWSID #		

Sample Information

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals				Remarks
12:15	10.11.24	Soil	1, 4oz jar	BS24-14 2'		1	X	X	X		X							
12:22	10.11.24	Soil	1, 4oz jar	BS24-19 2'		2	↓	↓	↓		↓							
12:35	10.11.24	Soil	1, 4oz jar	WS24-6 2'		3	↓	↓	↓		↓							
12:45	10.11.24	Soil	1, 4oz jar	WS24-9 2'		4	↓	↓	↓		↓							
1:00	10.11.24	Soil	1, 4oz jar	WS24-10 1'		5	↓	↓	↓		↓							

Additional Instructions: WO#21165742 Dale Woodall

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: ____________

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	10/11/24		[signature]	10.11.24	1220
[signature]	10.11.24	1635	A.M.	10.11.24	1700
A.M.	10.11.24	2400	Caitlin Mar	10.14.24	8:00

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6C on subsequent days.

Lab Use Only

Received on ice: (Y) / N

T1 ________ T2 ________ T3 ________

AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other ________

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech

Envirotech Analytical Laboratory

Printed: 10/14/2024 10:18:17AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.
If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Vertex Resource Services Inc.	Date Received:	10/14/24 08:00	Work Order ID:	E410119
Phone:	(575) 748-0176	Date Logged In:	10/11/24 14:47	Logged In By:	Raina Schwanz
Email:	chensley@vertexresources.com	Due Date:	10/18/24 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC?	Yes	
2. Does the number of samples per sampling site location match the COC	Yes	
3. Were samples dropped off by client or carrier?	Yes	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	No	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT?	Yes	

Sample Cooler

7. Was a sample cooler received?	Yes	
8. If yes, was cooler received in good condition?	Yes	
9. Was the sample(s) received intact, i.e., not broken?	Yes	
10. Were custody/security seals present?	No	
11. If yes, were custody/security seals intact?	NA	
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling	Yes	
13. If no visible ice, record the temperature. Actual sample temperature: 4°C		

Sample Container

14. Are aqueous VOC samples present?	No	
15. Are VOC samples collected in VOA Vials?	NA	
16. Is the head space less than 6-8 mm (pea sized or less)?	NA	
17. Was a trip blank (TB) included for VOC analyses?	NA	
18. Are non-VOC samples collected in the correct containers?	Yes	
19. Is the appropriate volume/weight or number of sample containers collected?	Yes	

Field Label

20. Were field sample labels filled out with the minimum information:		
Sample ID?	Yes	
Date/Time Collected?	Yes	
Collectors name?	Yes	

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved?	No	
22. Are sample(s) correctly preserved?	NA	
24. Is lab filteration required and/or requested for dissolved metals?	No	

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase?	No	
27. If yes, does the COC specify which phase(s) is to be analyzed?	NA	

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory?	No	
29. Was a subcontract laboratory specified by the client and if so who?	NA	Subcontract Lab: NA

Comments/Resolution

Sampler not marked on COC.

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date

envirotech Inc.

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nAB1810133480**
Incident Name	**NAB1810133480 SPUD 16 STATE 10H @ 30-015-41148**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-015-41148] SPUD 16 STATE #010H**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	SPUD 16 STATE 10H
Date Release Discovered	03/19/2018
Surface Owner	Private

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Equipment Failure | Flow Line - Production | Produced Water | Released: 47 BBL | Recovered: 0 BBL | Lost: 47 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	Yes
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**

With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.

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	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*

Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.

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.

I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 12/03/2024

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 26 and 50 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 100 and 200 (ft.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between ½ and 1 (mi.)
Any other fresh water well or spring	Between 500 and 1000 (ft.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Between ½ and 1 (mi.)
Categorize the risk of this well / site being in a karst geology	Medium
A 100-year floodplain	Zero feet, overlying, or within area
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	21000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	6300
GRO+DRO (EPA SW-846 Method 8015M)	2900
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	09/11/2024
On what date will (or did) the final sampling or liner inspection occur	10/11/2024
On what date will (or was) the remediation complete(d)	09/24/2024
What is the estimated surface area (in square feet) that will be reclaimed	3422
What is the estimated volume (in cubic yards) that will be reclaimed	128
What is the estimated surface area (in square feet) that will be remediated	0
What is the estimated volume (in cubic yards) that will be remediated	0
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
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.	
I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 12/03/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only *Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.*	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**390561**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**10/11/2024**
What was the (estimated) number of samples that were to be gathered	**5**
What was the sampling surface area in square feet	**1000**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	0
What was the total volume (cubic yards) remediated	0
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	3422
What was the total volume (in cubic yards) reclaimed	128
Summarize any additional remediation activities not included by answers (above)	Area meets cleanup standards.

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 (in .pdf format) 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.

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.

I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 12/03/2024

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407804
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	We have received your Remediation Closure Report for Incident #NAB1810133480 SPUD 16 STATE 10H, thank you. This Remediation Closure Report is approved.	4/24/2025