



Incident Number: nAPP2317939002,
nAPP2427745812

Remediation Closure Report

Spud 16 State 10H and 11H Battery

Section 16, Township 23 South, Range 29 East

API: 30-015-41148, 30-015-41149

County: Eddy

Vertex File Number: 23E-04221 and 24E-04468

Prepared for:

Devon Energy Production Compalu, LP

Prepared by:

Vertex Resource Services Inc.

Date:

November 2024

Devon Production Company, LP
Spud 16 State 10H and 11H Battery

Remediation Closure Report
November 2024

Remediation Closure Report
Spud 16 State 10H and 11H Battery
Section 16, Township 23 South, Range 29 East
API: 30-015-41148, 30-015-41149
County: Eddy

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11/26/2024

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1.0 Introduction

Devon Energy (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Remediation Closure Report for a Produced Water release that occurred on June 28, 2023, and October 3, 2024, at Spud 16 State 10, Spud 16 State 11H API 30-015-41148, 30-015-41149 (hereafter referred to as the "site"). Devon submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) on July 11, 2023. Incident ID number NAPP2317939002 was assigned to this incident. Devon submitted another initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) on October 9, 2024. Incident ID number was assigned to this incident NAPP2427745812.

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 will be completed following remediation activities as per NMAC 19.15.29.13.

2.0 Incident Description

The first release occurred on June 28, 2023, due to equipment failure on valve where it transitions into poly piping. The incident was reported on the same day of release and involved the release of approximately 14 barrels (bbl.) of produced water on site. Approximately 5 bbl. of free fluid was removed during initial clean-up. Additional details relevant to the release are presented in the C-141 Report. The second release occurred October 3, 2024, due to equipment failure from spill pot at wellhead. The incident was reported the same day and involved the release of approximately 17 Barrels (bbl) of produced water on site, approximately 11 (bbl) of free fluid was removed during initial cleanup. 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 is typical of oil and gas exploration and production sites in the Permian Basin and is currently used for oil and gas production and storage. The following sections specifically describe the release area at the site or in proximity to the constructed pad. (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 historic 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 location (United States Geological Survey, 2023). 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, 2023). At the site, there is a lakebed 185 feet away as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

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Table 1. Closure Criteria Determination			
Site Name: Spud 16 State 10H and 11H			
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)	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	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	10,000 mg/kg *
	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 Vertex requested a variance for 10,000 ppm chloride. Correspondence related to the variance is in appendix A.

5.0 Remediation Activities

5.1 Spud 16 State 10 Battery

Spud 16 State 10H battery initial site inspection of the release area was completed on July 24, 2023, and characterization was completed On October 17, 2023, which identified the area of the release specified in the initial C-141 Report. During characterization of the site, the impacted area per closure criteria was determined to be approximately 10,468 square feet with a perimeter of 1,371 feet. The Daily Field Reports (DFRs) associated with the site visits are included in Appendix C. Characterization sample locations and approximate release areas are presented on Figure 1a. Characterization field Screening and laboratory results are summarized in Table 3a.

5.2 Spud 16 State 11H

Spud 16 State 11H initial site inspection of the release area was completed on October 3, 2024, and characterization was completed On October 4th, 2024, which identified the area of the release specified in the initial C-141 Report. During characterization of the site, the impacted area per closure criteria was determined to be approximately 4,200 square feet with a perimeter of 469 feet. The Daily Field Reports (DFRs) associated with the site visits are included in Appendix B. Characterization sample locations and approximate release areas are presented in Figure 1b. Characterization field screening and laboratory results are summarized in Table 3b. The DFR associated with the site inspection is included in Appendix C.

5.3 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 was set up on June 6, 2024, to review these conditions with the NMOCD and request a variance in chlorides to achieve closure of the following incident, nAPP2317939002. After delineation efforts and review of historical aerial imagery, the state granted the variance for this location not to exceed 10,000 ppm chlorides.

5.4 NMOCD Approved Remedial Actions Taken

5.4a. Spud 16 State 10 Battery

Spud 16 State 10H Remediation efforts began on September 16, 2024, and were finalized on September 20, 2024, Vertex personnel supervised the excavation of impacted soils. Field screening was completed with a total of 61 sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dextsil 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. Soils were removed to a depth of 1 to 2.5' feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility. Field screening results and DFRs documenting various phases of the remediation are presented in Appendix C.

Notification that confirmatory samples were being collected was provided to the NMOCD on October 3, 2024, and is included in Appendix D. Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments. A total of 34 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Eurofins in Albuquerque, 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 3a, and the laboratory data reports are included in Appendix D. All confirmatory samples collected and analyzed were below closure criteria for the site.

5.4b. Spud 16 State 11H

Spud 16 State 11H Remediation efforts began on October 15, 2024, and were finalized on October 17, 2024, Vertex personnel supervised the excavation of impacted soils. Field screening was completed with a total of 34 sample points and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dextsil 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. Soils were removed to a depth of 3' feet bgs. Impacted soil was transported by a licensed waste hauler and disposed of at an approved waste management facility. Field screening results and DFRs documenting various phases of the remediation are presented in Appendix C.

Notifications that confirmatory samples were being collected were provided to the NMOCD as required and are included in Appendix D. Confirmatory composite samples were collected from the base and walls of the excavation in 200 square foot increments with a variance of 10,000 ppm chloride. A total of 61 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Eurofins in Albuquerque, 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 3b, and the laboratory data reports are included in Appendix D. All confirmatory samples collected and analyzed were

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below closure criteria for the site.

5.5 Regulatory Review

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

6.0 Closure Request

Spud 16 State 10H and 11H releases area was fully delineated, remediated, and backfilled with local soils. 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 10,000 ppm chloride. 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

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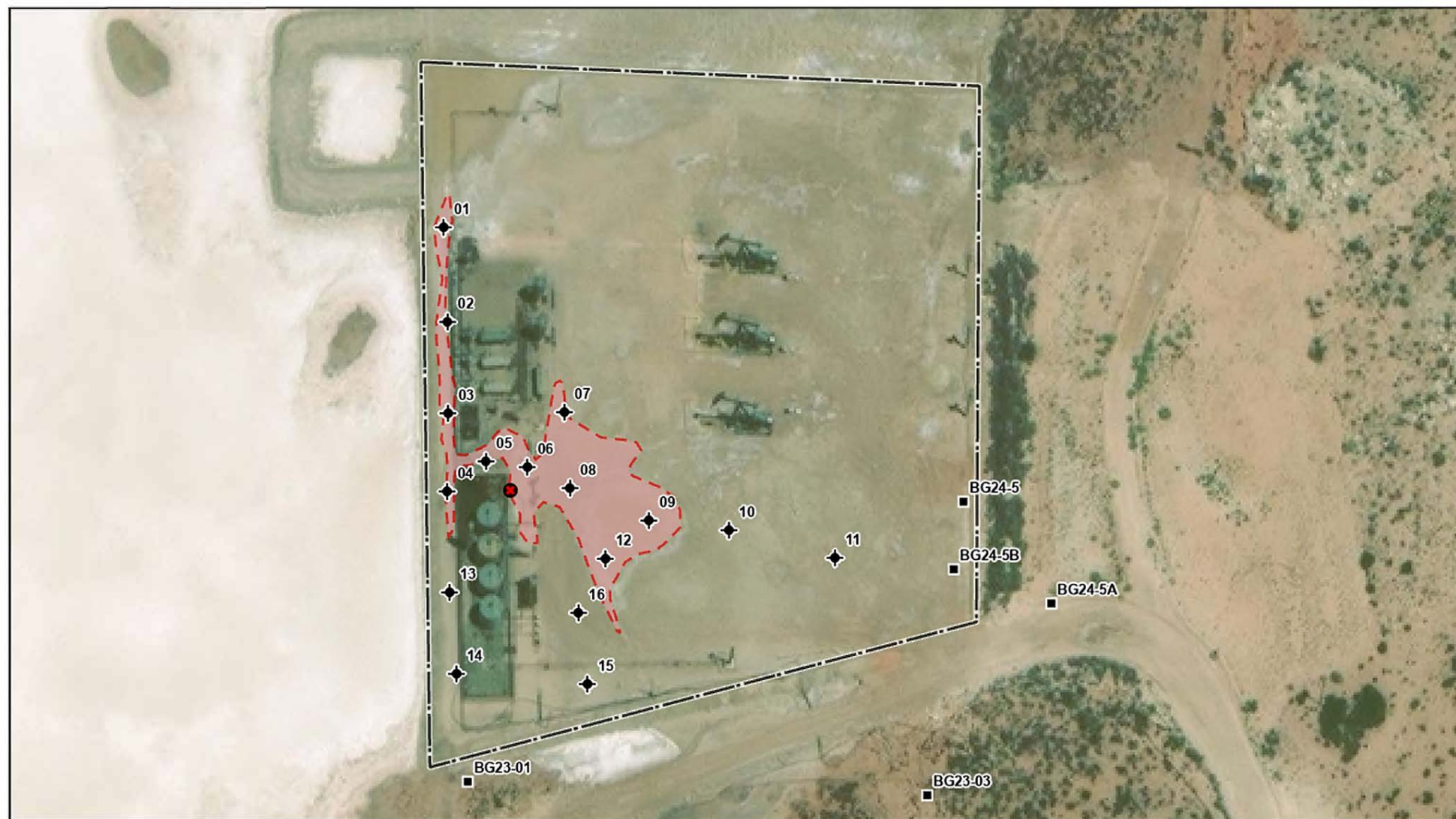
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8.0 Limitations

This report has been prepared for the sole benefit of Devon Energy. 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. Any use of this report by a third party, or any reliance on decisions made based on it, or damage 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



- ◆ Borehole (Prefixed by "BH23-")
- Background Sample
- Release Point
- Approximate Lease Boundary
- ▭ Release Area (~8,604 sq.ft.)



0 25 50 100 ft
NAD 1983 UTM Zone 13N
Date: Nov 08/24

Map Center:
Lat/Long
32.303305°, -103.983265°



Characterization Sampling Schematic Spud 16 State 10 Battery

FIGURE:

1a



Document Path: C:\Projects\USA\Spud 16\Project\23E-04221 - Spud 16.aprx

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, 20XX. Approximate site boundary from sketch by Vertex Professional Services Ltd. (Vertex), 2024. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.



- | | | |
|----------------------------------|----------------------------|--|
| ◆ Borehole (Prefixed by "BH24-") | --- Pipeline (Underground) | Spill Area Excavated (~3,578 sq.ft. 252 ft.) |
| - - - Pipeline (Aboveground) | Approximate Lease Boundary | Spill Area Excavated (~1,897 sq.ft. 214 ft.) |



0 25 50 ft
NAD 1983 UTM Zone 13N
Date: Oct 15/24

Map Center:
Lat/Long
32.303534°, -103.983159°



Characterization Sampling Schematic Spud 16 State 11H

FIGURE:

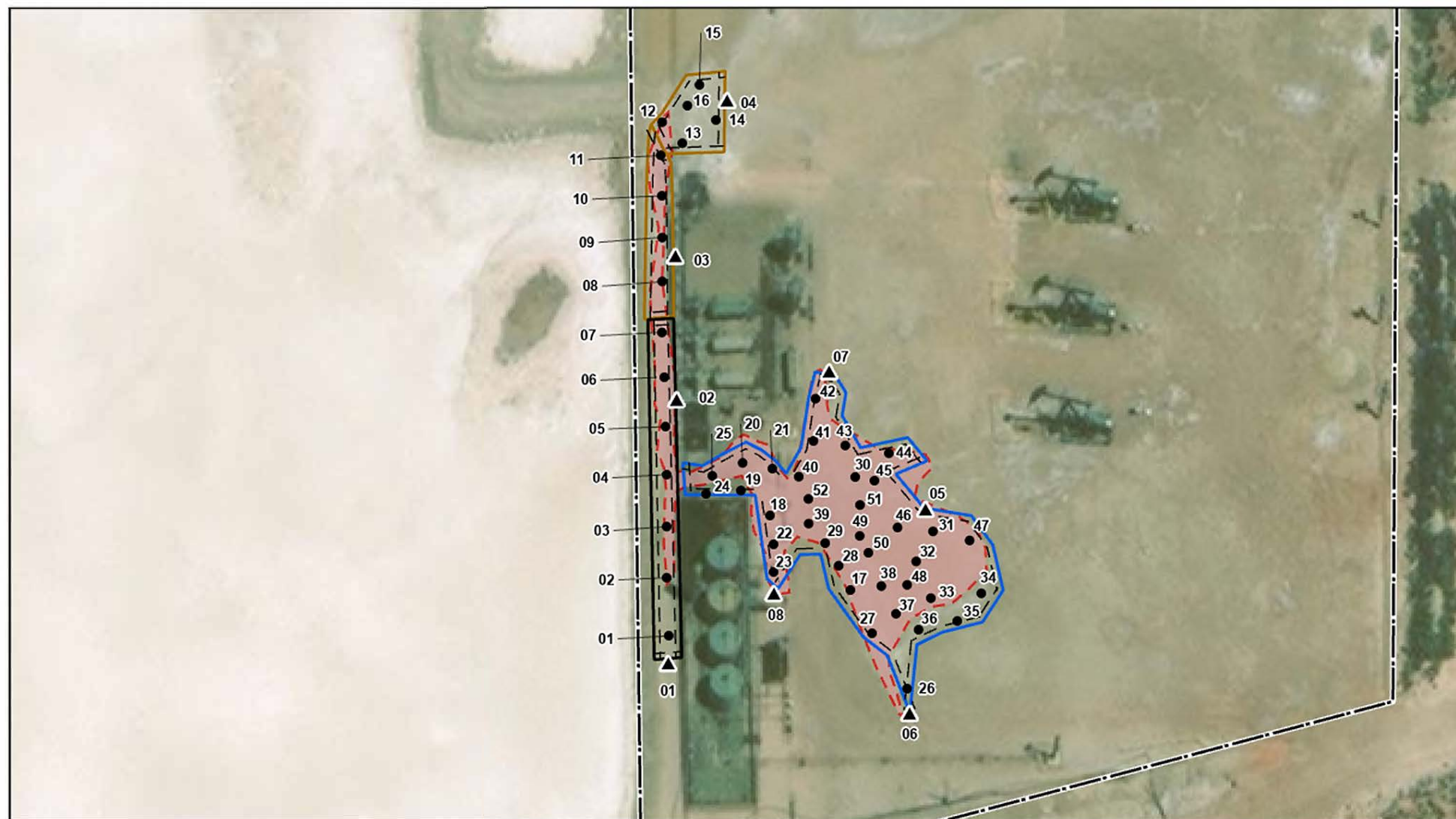
1b



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 imagery by Vertex Professional Services Ltd. (Vertex), 2024. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.



- Base Sample (Prefixed by "BS24-")
- ▲ Wall Sample (Prefixed by "WS24-")
- Approximate Lease Boundary
- Excavation to 1' bgs (~1,995 sq. ft. | 320 ft.)
- Release Area (~8,604 sq.ft.)
- Excavation to 1' bgs (~8,527 sq. ft. | 1,032 ft.)
- Excavation to 2.5' bgs (~1,941 sq. ft. | 339 ft.)



0 25 50 ft
NAD 1983 UTM Zone 13N
Date: Nov 12/24

Map Center:
Lat/Long
32.303311°, -103.983754°



Confirmation Sampling Schematic Spud 16 State 10 Battery

FIGURE:

2a





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, 20XX. Approximate site boundary from sketch by Vertex Professional Services Ltd. (Vertex), 2024. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.



- Base Sample (Prefixed by "BES24-")
- ▲ Wall Sample (Prefixed by "WES24-")
- Pipeline (Aboveground)
- - - Pipeline (Underground)
-  South Excavation to 3' bgs (816 sq.ft. | 119 ft.)
-  North Excavation to 3' bgs (1,420 sq.ft. | 153 ft.)



0 10 20 ft
NAD 1983 UTM Zone 13N
Date: Oct 25/24

Map Center:
Lat/Long
32.30359°, -103.983227°



Confirmation Sampling Schematic Spud 16 State 11H

FIGURE:

2b



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 imagery by Vertex Professional Services Ltd. (Vertex), 2024. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.

TABLES

Client Name: Devon Energy Production Company, LP
 Site Name: Spud 16 State 10 Battery
 NMOCD Tracking #: nAPP2317939002
 Project #: 23E-04221

Table 3a. Initial Characterization Sample Laboratory Results									
Sample Description			Petroleum Hydrocarbons						Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable				
			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)
BG23-01	0	17-Oct-23	ND	ND	ND	ND	ND	ND	11,000
BG23-02	0	17-Oct-23	ND	ND	ND	ND	ND	ND	32,000
BG23-03	0	17-Oct-23	ND	ND	ND	ND	ND	ND	17,000
BG23-05	1	2-Jul-24	ND	ND	ND	ND	ND	ND	4,000
	2	2-Jul-24	ND	ND	ND	ND	ND	ND	5,400
	4	2-Jul-24	ND	ND	ND	ND	ND	ND	7,900
BG23-05A	1	2-Jul-24	ND	ND	ND	ND	ND	ND	3,700
	2	2-Jul-24	ND	ND	ND	ND	ND	ND	3,100
	3	2-Jul-24	ND	ND	ND	ND	ND	ND	1,500
	4	2-Jul-24	ND	ND	ND	ND	ND	ND	1,900
BG23-05B	1	2-Jul-24	ND	ND	ND	ND	ND	ND	3,200
	2	2-Jul-24	ND	ND	ND	ND	ND	ND	4,300
	3	2-Jul-24	ND	ND	ND	ND	ND	ND	2,500
	4	2-Jul-24	ND	ND	ND	ND	ND	ND	7,800
BH23-01	0	24-Jul-23	ND	ND	ND	ND	ND	ND	18,000
	1	24-Jul-23	ND	ND	ND	ND	ND	ND	6,000
BH23-02	0	24-Jul-23	ND	ND	ND	ND	ND	ND	9,200
	2	24-Jul-23	ND	ND	ND	ND	ND	ND	4,200
BH23-03	0	24-Jul-23	ND	ND	ND	ND	ND	ND	18,000
	1	24-Jul-23	ND	ND	ND	ND	ND	ND	15,000
BH23-04	0	24-Jul-23	ND	ND	ND	ND	ND	ND	22,000
	1.5	24-Jul-23	ND	ND	ND	ND	ND	ND	18,000
BH23-05	0	24-Jul-23	ND	ND	ND	ND	ND	ND	18,000
	1	24-Jul-23	ND	ND	ND	ND	ND	ND	1,400
BH23-06	0	24-Jul-23	ND	ND	ND	46	54	100	18,000
	1	2-Jul-24	ND	ND	ND	ND	ND	ND	14,000
	1.5	24-Jul-23	ND	ND	ND	ND	ND	ND	6,100
	3	2-Jul-24	ND	ND	ND	ND	ND	ND	11,000
	4	2-Jul-24	ND	ND	ND	ND	ND	ND	13,000
BH23-07	0	25-Jul-23	ND	ND	ND	32	ND	32	11,000
	2	25-Jul-23	ND	ND	ND	ND	ND	ND	4,900
BH23-08	0	25-Jul-23	ND	ND	ND	ND	ND	ND	14,000
	1	25-Jul-23	ND	ND	ND	ND	ND	ND	9,500
BH23-09	0	25-Jul-23	ND	ND	ND	13	ND	13	11,000
	1.5	25-Jul-23	ND	ND	ND	ND	ND	ND	13,000
BH23-10	0	25-Jul-23	ND	ND	ND	ND	ND	ND	12,000
	2	25-Jul-23	ND	ND	ND	ND	ND	ND	16,000

BH23-11	0	25-Jul-23	ND	ND	ND	ND	ND	ND	7,700
	1	25-Jul-23	ND	ND	ND	ND	ND	ND	5,500
BH23-12	0	17-Oct-23	ND	ND	ND	400	370	770	11,000
	1	17-Oct-23	ND	ND	ND	ND	ND	ND	6,400
	1	2-Jul-24	ND	ND	ND	ND	ND	ND	11,000
	3	2-Jul-24	ND	ND	ND	ND	ND	ND	15,000
	4	2-Jul-24	ND	ND	ND	ND	ND	ND	16,000
BH23-13	0	17-Oct-23	ND	ND	ND	9	ND	9	24,000
	1	17-Oct-23	ND	ND	ND	ND	ND	ND	17,000
BH23-14	0	17-Oct-23	ND	ND	ND	ND	ND	ND	21,000
	1	17-Oct-23	ND	ND	ND	ND	ND	ND	14,000
BH23-15	0	17-Oct-23	ND	ND	ND	ND	ND	ND	20,000
	1	17-Oct-23	ND	ND	ND	ND	ND	ND	18,000
BH23-16	1	2-Jul-24	ND	ND	ND	ND	ND	ND	11,000
	3	2-Jul-24	ND	ND	ND	ND	ND	ND	15,000
	4	2-Jul-24	ND	ND	ND	ND	ND	ND	16,000

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

Client Name: Devon Energy Production Company, LP

Site Name: Spud 16 State 11H

NMOCD Tracking #: nAPP2427745812

Project #: 24E-04468

Table 3b. Initial Characterization Sample Laboratory Results									
Sample Description			Petroleum Hydrocarbons						Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable				
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	Total Petroleum Hydrocarbons (TPH)	
(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			
Chloride Variance of 10,000 mg/kg									
BH24-01	0	October 3, 2024	ND	ND	ND	93	49	142	12,000
BH24-02	0	October 3, 2024	ND	ND	ND	70	ND	70	31,000
BH24-03	0	October 3, 2024	ND	ND	ND	16	ND	16	15,000
BH24-04	0	October 3, 2024	ND	ND	ND	13	ND	13	8,900
BH24-05	0	October 3, 2024	ND	ND	ND	23	ND	23	20,000
BH24-06	0	October 3, 2024	ND	ND	ND	570	120	690	20,000
BH24-07	0	October 3, 2024	ND	ND	ND	480	850	1330	7,500
BH24-08	0	October 3, 2024	ND	ND	ND	140	160	300	9,900
BH24-09	0	October 3, 2024	ND	ND	ND	44	60	104	18,000
BH24-10	0	October 3, 2024	ND	ND	ND	6300	1500	7800	10,000
TT24-01	1	October 4, 2024	ND	ND	ND	140	350	490	3,700
	2	October 4, 2024	ND	ND	ND	ND	ND	ND	5,000
TT24-02	1	October 4, 2024	ND	ND	ND	18	ND	18	2,200
	2	October 4, 2024	ND	ND	ND	ND	ND	ND	2,700
TT24-03	1	October 4, 2024	ND	ND	ND	ND	ND	ND	5,300
	2	October 4, 2024	ND	ND	ND	ND	ND	ND	4,400
TT24-04	1	October 4, 2024	ND	ND	ND	ND	ND	ND	7,500
	2	October 4, 2024	ND	ND	ND	ND	ND	ND	4,800
TT24-05	1	October 4, 2024	ND	ND	ND	ND	ND	ND	1,600
	2	October 4, 2024	ND	ND	ND	ND	ND	ND	1,800

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NMOCD Remediation Closure Criteria

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Closure Criteria

Client Name: Devon Energy Production Company, LP

Site Name: Spud 16 State 10 Battery

NMOCD Tracking #: nAPP2317939002

Project #: 23E-04221

Table 4a. Confirmation Sample Laboratory Results									
Sample Description			Petroleum Hydrocarbons						Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable				
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	Total Petroleum Hydrocarbons (TPH)	
Chloride Variance of 10,000 mg/kg									
BS24-01	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	6,400
BS24-02	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	7,500
BS24-03	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	6,700
BS24-04	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	6,900
BS24-05	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	7,100
BS24-06	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	7,300
BS24-07	2.5	20-Sep-24	ND	ND	ND	ND	ND	ND	6,600
BS24-08	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,800
BS24-09	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,700
BS24-10	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,800
BS24-11	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,100
BS24-12	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,000
BS24-13	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,900
BS24-14	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,300
BS24-15	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,300
BS24-16	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,500
BS24-25	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,500
BS24-26	1	20-Sep-24	ND	ND	ND	ND	ND	ND	8,400
BS24-27	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,700
BS24-28	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,800
BS24-29	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,800
BS24-30	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,000
BS24-31	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,700
BS24-32	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,100
BS24-33	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,500
BS24-34	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,300
BS24-35	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,900
BS24-36	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,400
BS24-37	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,700
BS24-38	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,800
BS24-39	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,300
BS24-40	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,800
BS24-41	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,800
BS24-42	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,400
BS24-43	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,300
BS24-44	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,500
BS24-45	1	20-Sep-24	ND	ND	ND	ND	ND	ND	11,000
	1	21-Nov-24	ND	ND	ND	ND	ND	ND	7,620
BS24-46	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,500
BS24-47	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,500

BS24-48	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,700
BS24-49	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,400
BS24-50	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,300
BS24-51	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,300
BS24-52	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,000
WS24-01	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,500
WS24-02	1	20-Sep-24	ND	ND	ND	ND	ND	ND	4,800
WS24-03	1	20-Sep-24	ND	ND	ND	ND	ND	ND	7,200
WS24-04	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,400
WS24-05	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,100
WS24-06	1	20-Sep-24	ND	ND	ND	ND	ND	ND	6,700
WS24-07	1	20-Sep-24	ND	ND	ND	ND	ND	ND	5,900
WS24-08	1	20-Sep-24	ND	ND	ND	ND	ND	ND	8,100

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

Client Name: Devon Energy Production Company, LP

Site Name: Spud 16 State 11H

NMOCD Tracking #: nAPP2427745812

Project #: 24E-04468

Table 4b. Confirmation Sample Laboratory Results														
Sample Description			Petroleum Hydrocarbons						Inorganic					
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable									
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	Total Petroleum Hydrocarbons (TPH)						
										(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
										Chloride Variance of 10,000 mg/kg				
BES24-01	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7220					
BES24-02	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	4530					
BES24-03	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	4180					
BES24-04	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	3780					
BES24-05	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7620					
BES24-06	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7380					
BES24-07	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	9390					
BES24-08	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	4250					
BES24-09	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6580					
BES24-10	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	9730					
BES24-11	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7240					
BES24-12	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6410					
BES24-13	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	5570					
BES24-14	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7480					
BES24-15	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	5450					
BES24-16	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6350					
BES24-17	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6250					
BES24-18	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	3680					
BES24-19	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	5930					
BES24-20	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	5730					
BES24-21	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6310					
BES24-22	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6020					
BES24-23	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	6170					
BES24-24	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7020					
BES24-25	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	9350					
BES24-26	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	7190					
BES24-27	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	4770					
BES24-28	3'	October 17, 2024	ND	ND	ND	ND	ND	ND	3360					
WES24-01	0-3'	October 17, 2024	ND	ND	ND	25.8	ND	ND	5310					
WES24-02	0-3'	October 17, 2024	ND	ND	ND	ND	ND	ND	4050					

Client Name: Devon Energy Production Company, LP

Site Name: Spud 16 State 11H

NMOCD Tracking #: nAPP2427745812

Project #: 24E-04468

Table 4b. Confirmation Sample Laboratory Results									
Sample Description			Petroleum Hydrocarbons						Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile		Extractable				
			Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	Total Petroleum Hydrocarbons (TPH)	
(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)			
Chloride Variance of 10,000 mg/kg									
WES24-03	0-3'	October 17, 2024	ND	ND	ND	ND	ND	ND	4890
WES24-04	0-3'	October 17, 2024	ND	ND	ND	25.7	ND	ND	6240
WES24-05	0-3'	October 17, 2024	ND	ND	ND	ND	ND	ND	3450
WES24-06	0-3'	October 17, 2024	ND	ND	ND	ND	ND	ND	5340

"ND" Not Detected at the Reporting Limit

"- " indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

APPENDIX A - NMOCD C-141 Report(s)

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

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

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

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

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

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

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

Initial Response

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

<input type="checkbox"/> The source of the release has been stopped.	
<input type="checkbox"/> The impacted area has been secured to protect human health and the environment.	
<input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.	
<input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: _____	Title: _____
Signature: <u>Kendra Ruiz</u>	Date: _____
email: _____	Telephone: _____
<u>OCD Only</u>	
Received by: <u>Shelly Wells</u>	Date: <u>7/13/2023</u>

Spill Volume(Bbls) Calculator	
<i>Inputs in blue, Outputs in red</i>	
Contaminated Soil measurement	
Area (square feet)	Depth(inches)
<u>6535.769</u>	<u>0.250</u>
Cubic Feet of Soil Impacted	<u>136.162</u>
Barrels of Soil Impacted	<u>24.27</u>
Soil Type	Clay/Sand
Barrels of Oil Assuming 100% Saturation	<u>3.64</u>
Saturation	Fluid present when squeezed
Estimated Barrels of Oil Released	1.82
Free Standing Fluid Only	
Area (square feet)	Depth(inches)
<u>2,827</u>	<u>0.250</u>
Standing fluid	<u>10.498</u>
Total fluids spilled	<u>14.139</u>

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

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

CONDITIONS

Action 238773

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 238773
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
scwells	None	7/13/2023

Incident ID	nAPP2317939002
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u><50</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

<p>Characterization Report Checklist: <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.<input checked="" type="checkbox"/> Field data<input checked="" type="checkbox"/> Data table of soil contaminant concentration data<input checked="" type="checkbox"/> Depth to water determination<input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release<input checked="" type="checkbox"/> Boring or excavation logs<input checked="" type="checkbox"/> Photographs including date and GIS information<input checked="" type="checkbox"/> Topographic/Aerial maps<input checked="" type="checkbox"/> 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

Page 4

Incident ID	nAPP2317939002
District RP	
Facility ID	
Application ID	

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

Printed Name: Dale Woodall Title: Env. Professional

Signature: _____ Date: _____

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

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2317939002
District RP	
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: [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@dmv.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 11/4/2024

-

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 and 11H			
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)	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-Code	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-Code	basin	County	Q 6	Q 4	Q 16	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

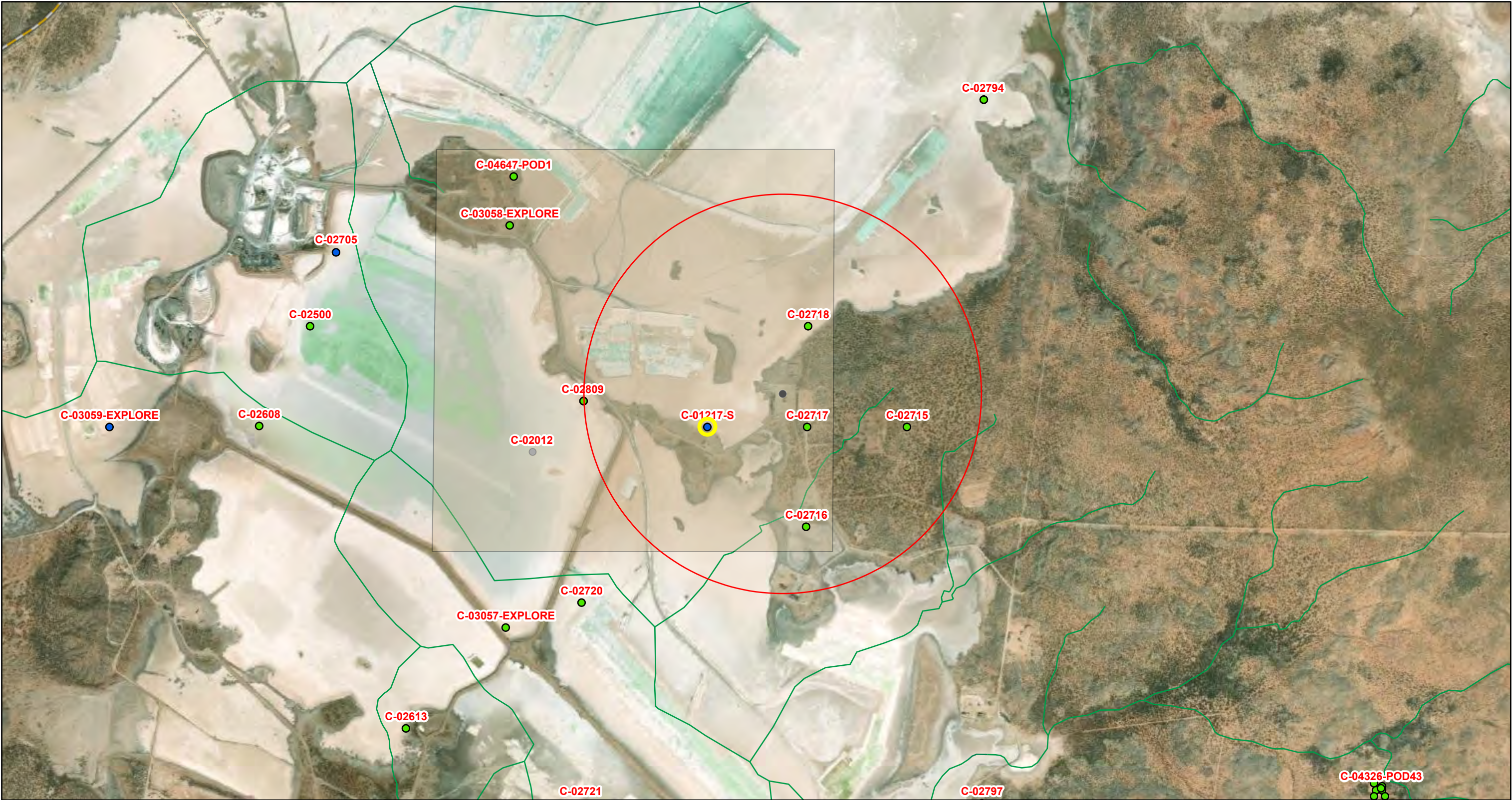
The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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Page 2 of 2

WATER COLUMN/ AVERAGE
DEPTH TO WATER

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

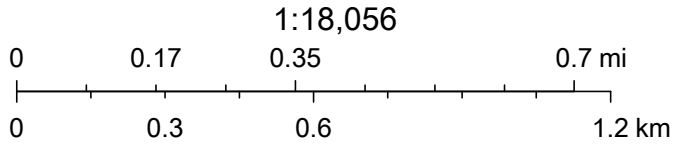
NHD Flowlines

Artificial Path

Connector

Stream River

SiteBoundaries




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

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
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

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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)										(NAD83 UTM in meters)	
		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

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10/20/23 10:47 AM

Page 1 of 1

POD SUMMARY - C 01217 S




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	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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

10/20/23 10:59 AM

Page 1 of 1

POD SUMMARY - C 02705

Revised June 1972

STATE ENGINEER OFFICE
WELL RECORD

444309

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 $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ 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		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
48	55	7	Sand+fn gravel	35

Section 3. RECORD OF CASING

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

Section 4. RECORD OF MUDDING AND CEMENTING

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

Section 5. PLUGGING RECORD

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

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
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

[illegible]

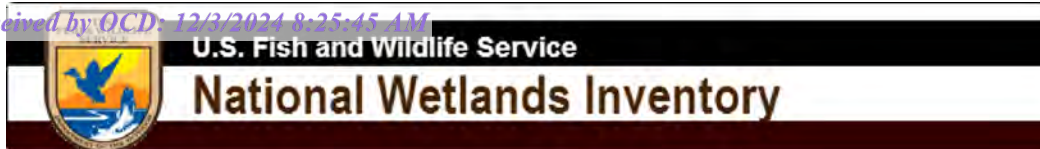
Section 7. REMARKS AND ADDITIONAL INFORMATION

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.

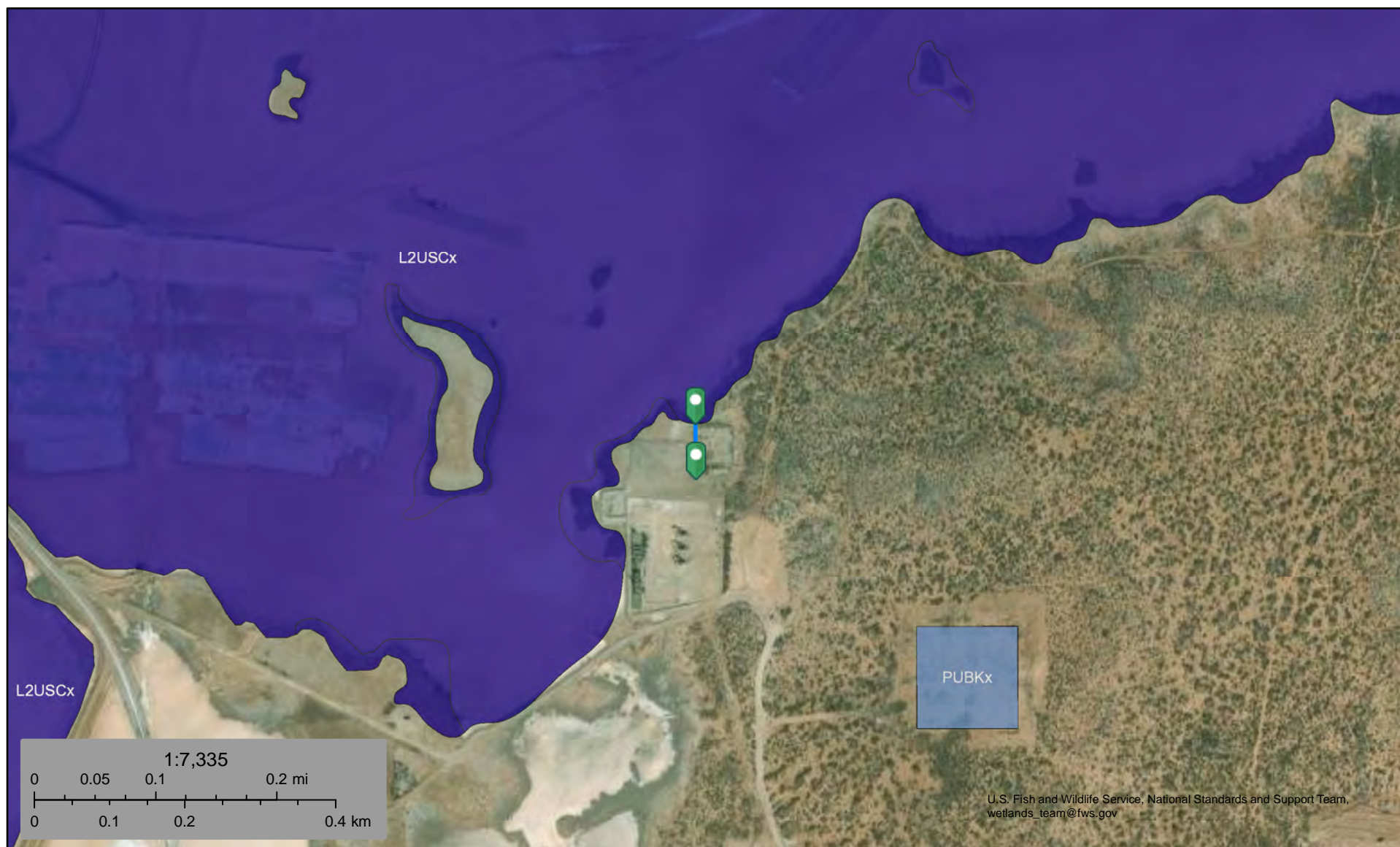
The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Driller

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



Spud 16 State #010H Lake 0.04 miles



October 20, 2023

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

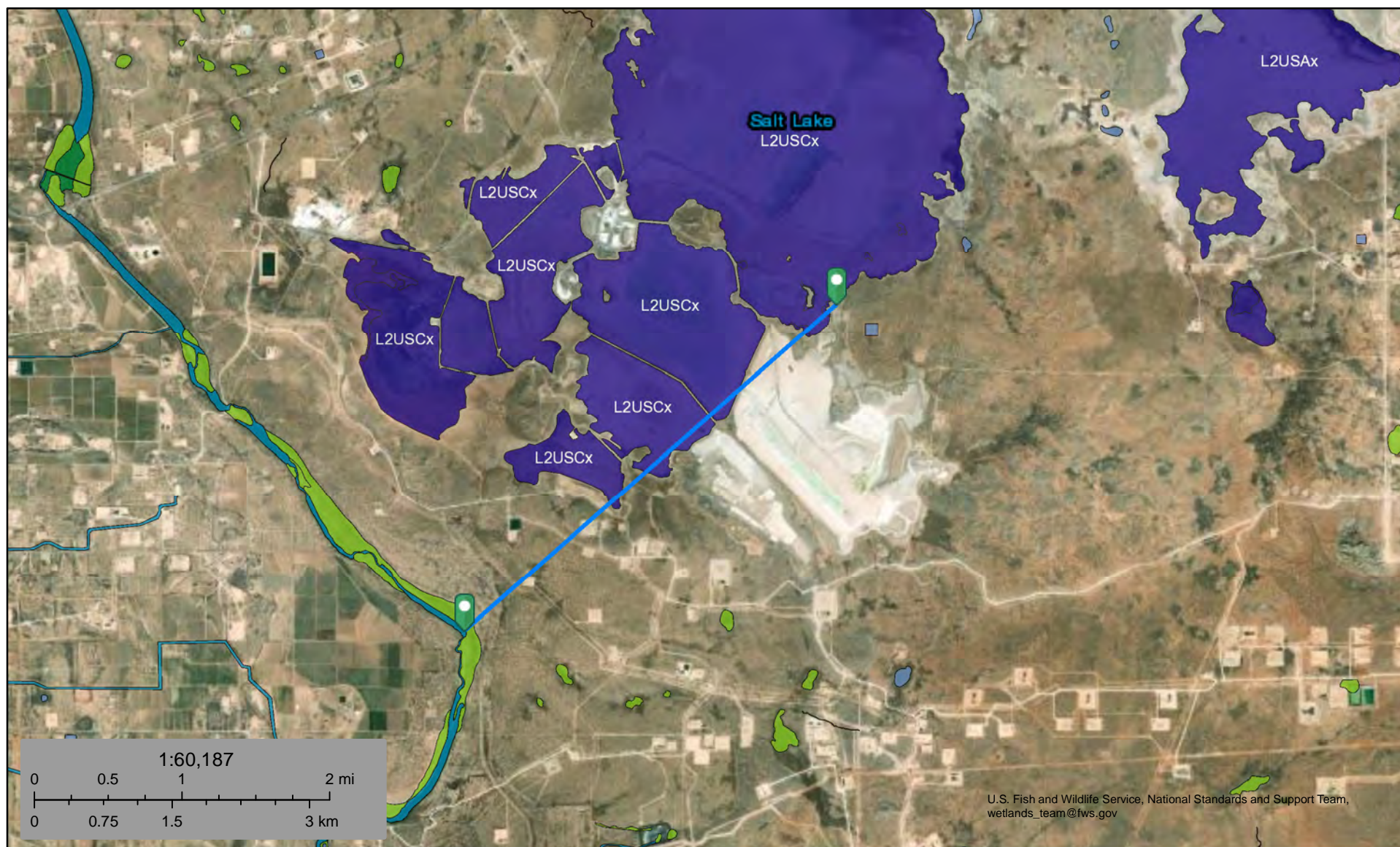
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- 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.



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.

Nearest Residence
9,480 feet away (3.69 miles)

Legend

- Line Measure
- Nearest Residence
- Spud 16 State 10 Battery

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

C=the file is closed)

(quarters are smallest to largest)























(NAD83 UTM in meters)

WR File Nbr	Sub				County	POD Number	Well		Source	q q q					X	Y	Distance		
	basin	Use	Diversion	Owner			Tag	Code Grant		64	16	4	Sec	Tws				Rng	
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

(R=POD has been replaced
and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)
C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)























(acre ft per annum)

WR File Nbr	Sub				County	POD Number	Well		Source	q q q					X	Y	Distance			
	basin	Use	Diversion	Owner			Tag	Code Grant		6416	4	Sec	Tws	Rng						
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























(R=POD has been replaced
and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)
C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)

(acre ft per annum)

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	
						C 04326 POD7					3	2	3	23	23S	29E	598157	3572894		2943	
						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 POD3					3	2	3	23	23S	29E	598134	3572815		2969	
						C 04326 POD25					3	2	3	23	23S	29E	598123	3572747		3000	
					ED	C 04326 POD35					3	2	3	23	23S	29E	598142	3572767		3004	
						C 04326 POD29					3	2	3	23	23S	29E	598145	3572769		3005	
						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	
						C 04326 POD42					2	3	23	23S	29E	598113	3572694		3025		
						C 04456 POD1					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	
						C 04326 POD14					Shallow	4	2	3	23	23S	29E	598190	3572765		3044
						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 POD4					1	4	1	23	23S	29E	598126	3572657		3057	
						C 04326 POD12					4	2	3	23	23S	29E	598228	3572790		3061	
					ED	C 04326 POD17					4	2	3	23	23S	29E	598198	3572729		3072	























(R=POD has been replaced
and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)
C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)

(acre ft per annum)










WR File Nbr	Sub				County	POD Number	Well		Source	q q q				X	Y	Distance			
	basin	Use	Diversion	Owner			Tag	Code Grant		6416	4	Sec	Tws				Rng		
					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

(R=POD has been replaced
and no longer serves this file, (quarters are 1=NW 2=NE 3=SW 4=SE)
C=the file is closed) (quarters are smallest to largest) (NAD83 UTM in meters)

(acre ft per annum)

WR File Nbr	Sub				County	POD Number	Well		Source	q q q					X	Y	Distance		
	basin	Use	Diversion	Owner			Tag	Code Grant		6416	4	Sec	Tws	Rng					
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, (quarters are 1=NW 2=NE 3=SW 4=SE) C=the file is closed) (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 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



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		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
			1	2					
183422	EXPL	2000-06-22	PMT	APR	C 02718	T	0	0	

Current Points of Diversion

POD Number	Well Tag	Source	Q				X	Y	Other Location Desc	
			64	Q16	Q4	Sec Tws Rng				
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

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

10/20/23 4:09 PM

WATER RIGHT SUMMARY



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

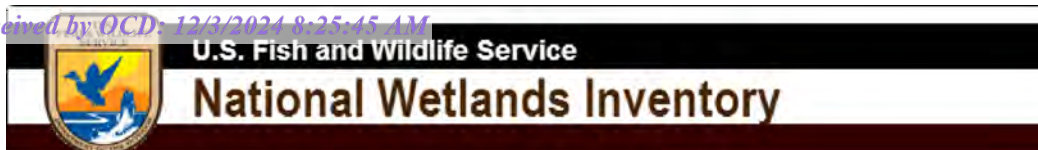
	Trn #	Doc	File/Act	Status		Transaction Desc.	From/ To	Acres	Diversion	Consumptive
				1	2					
 get images	465160	72121	1982-05-25	PMT	APR	C 02012	T		3	

Current Points of Diversion

(NAD83 UTM in meters)											
Q Q Q											
POD Number	Well Tag	Source	64	16	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

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SPUD 16 STATE 10H Wetland



May 17, 2023

Wetlands

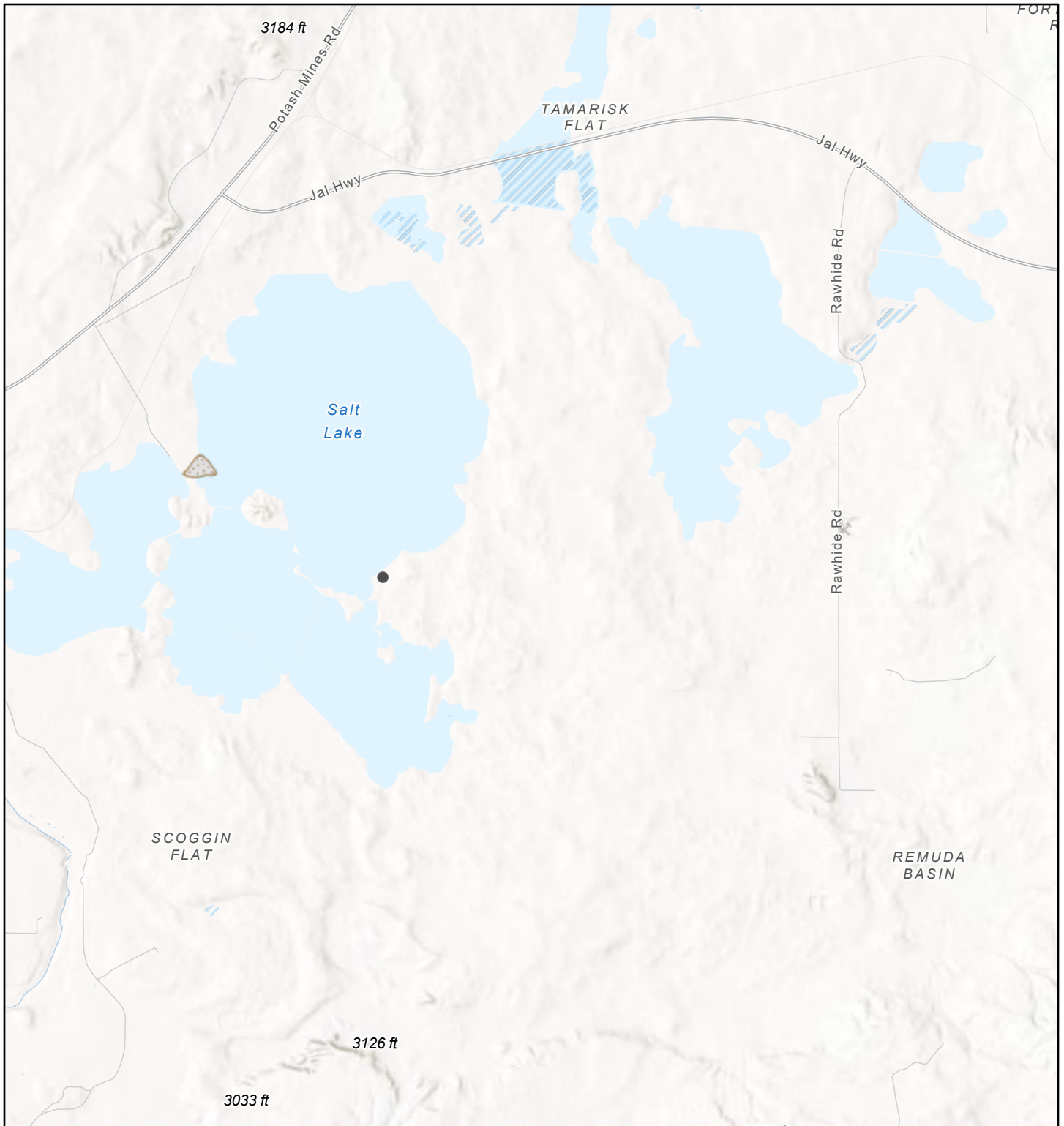
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- 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.

08 - Mines - Spud 16 State 10 Battery



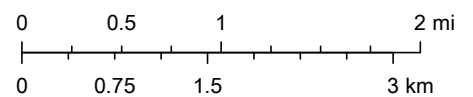
7/19/2023, 4:47:32 PM

Registered Mines

 Aggregate, Stone etc.

 Salt

1:72,224



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

Map navigation controls: Home, Previous, Next, Full Screen, Print, and a search bar.

Legend

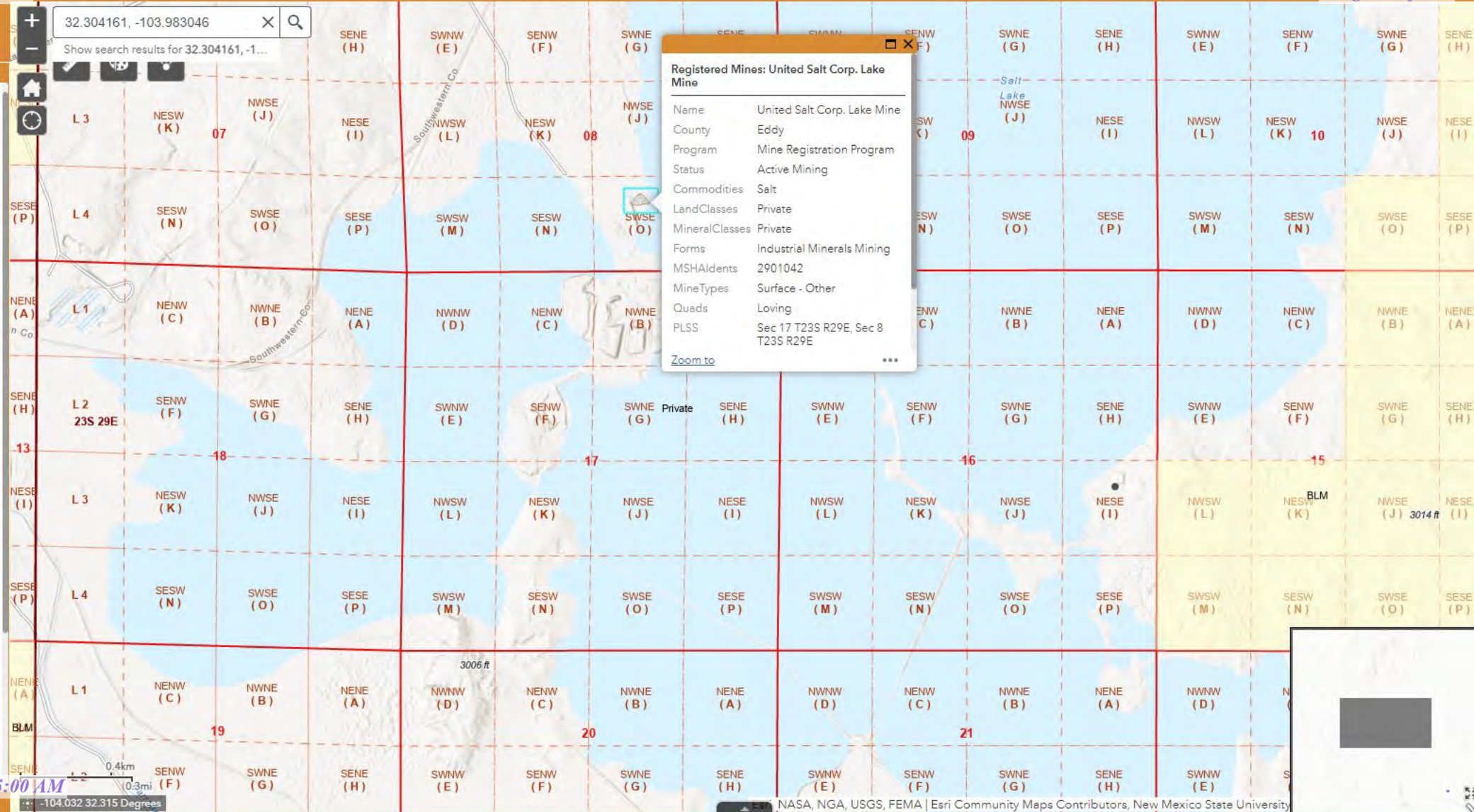
Registered Mines

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

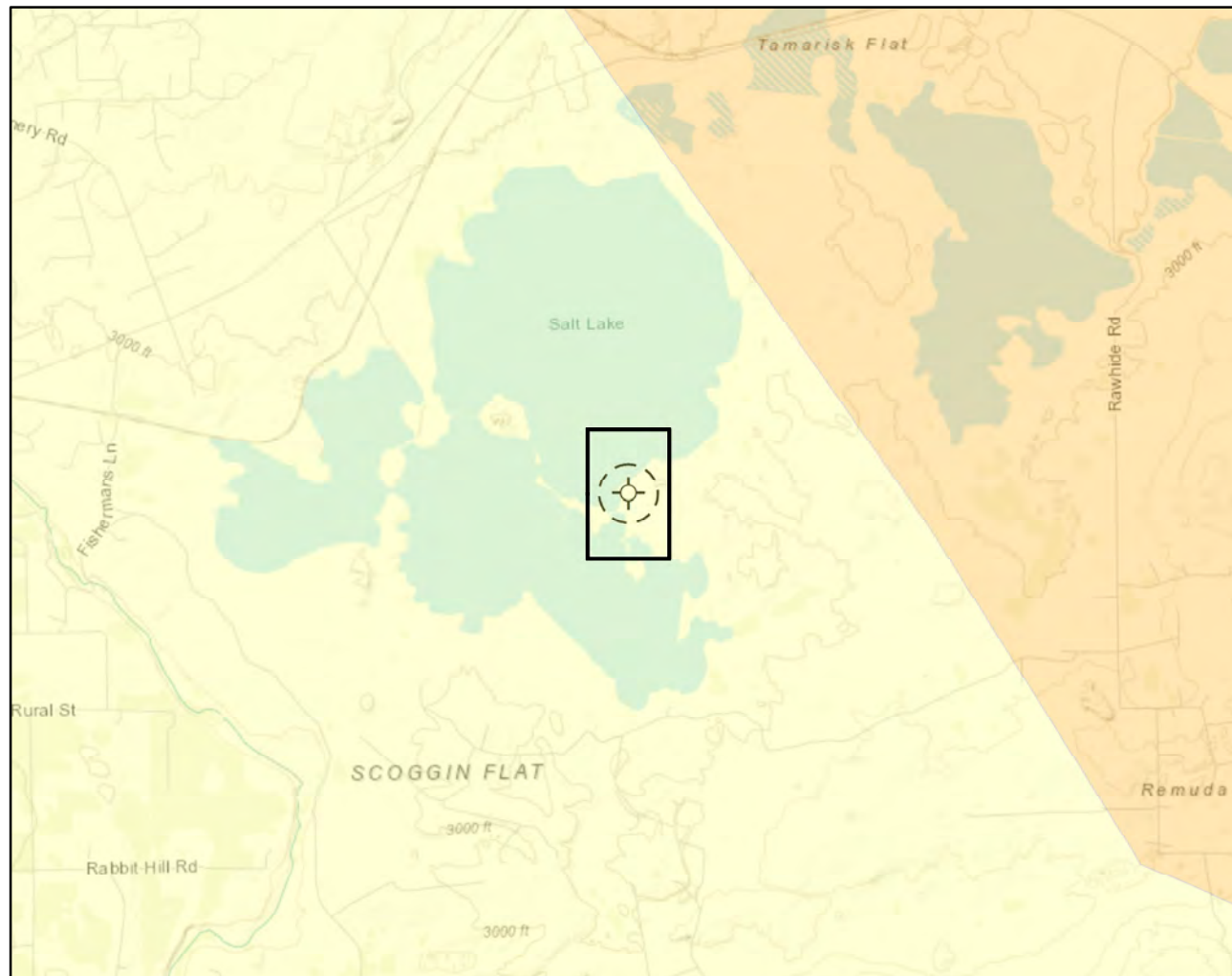
Mineral_and_Surface_Ownership

Land Ownership

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



Document Path: G:\Projects\US PROJECTS\Devon Energy Corporation\2023\23E-02867 - Spud 16 State 10H\Figure X Karst Potential Schematic- Spud 16 State 10H (23E-02867) - Request#15884.mxd



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.



Map Center:
Lat/Long: 32.304161, -103.983046

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



**Karst Potential Schematic
Spud 16 State 10H**

FIGURE:

X



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.

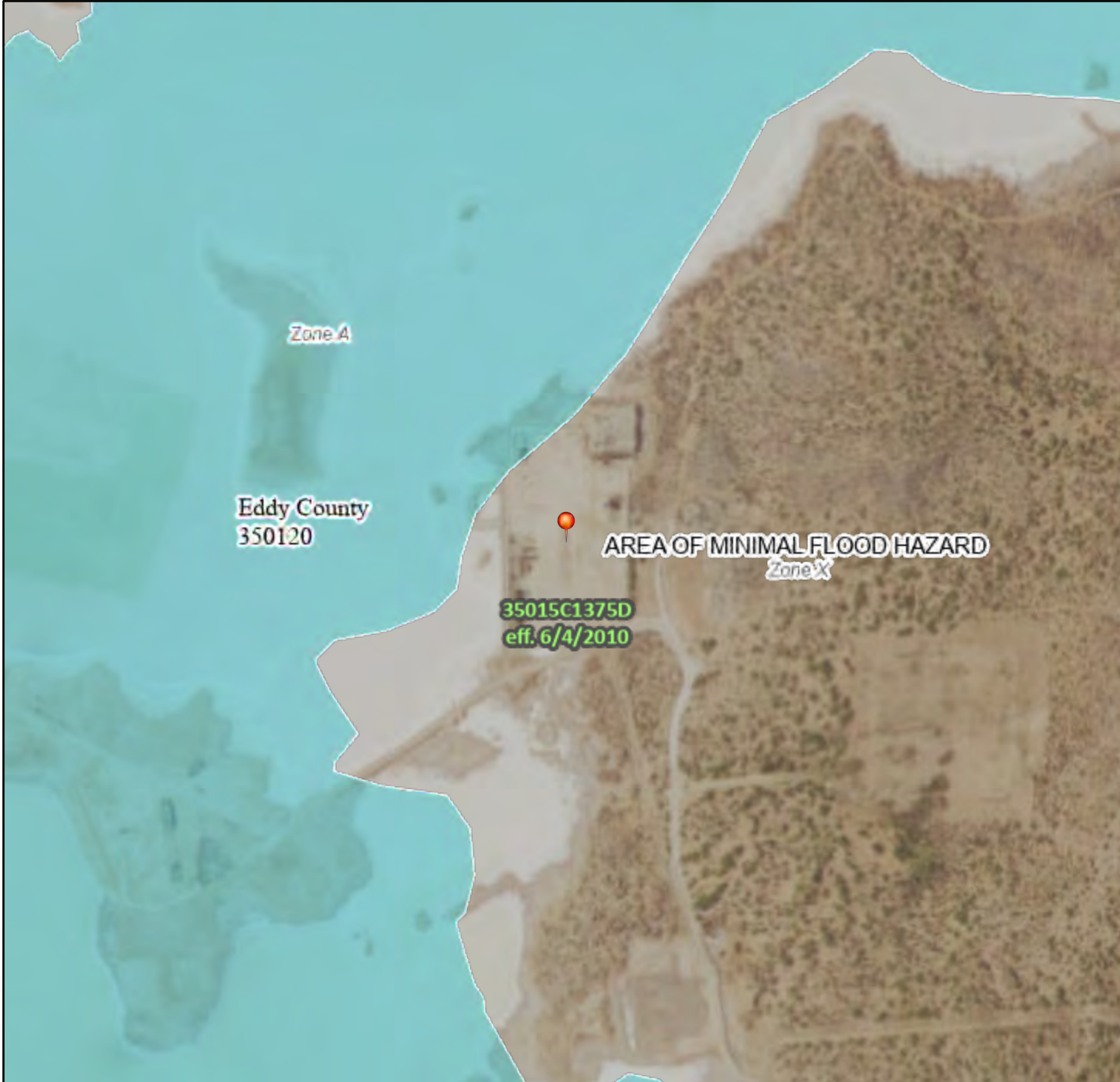
Note: Inset Map, Georeferenced image from ESRI, 2022; Overview Map: ESRI World Topographic. Karst potential data sourced from Roswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management. (2018). Karst Potential.

VERSATILITY. EXPERTISE.

National Flood Hazard Layer FIRMette



103°59'19"W 32°18'28"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000 103°58'41"W 32°17'58"N

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 Water Surface Elevation
		17.5 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

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.

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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

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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

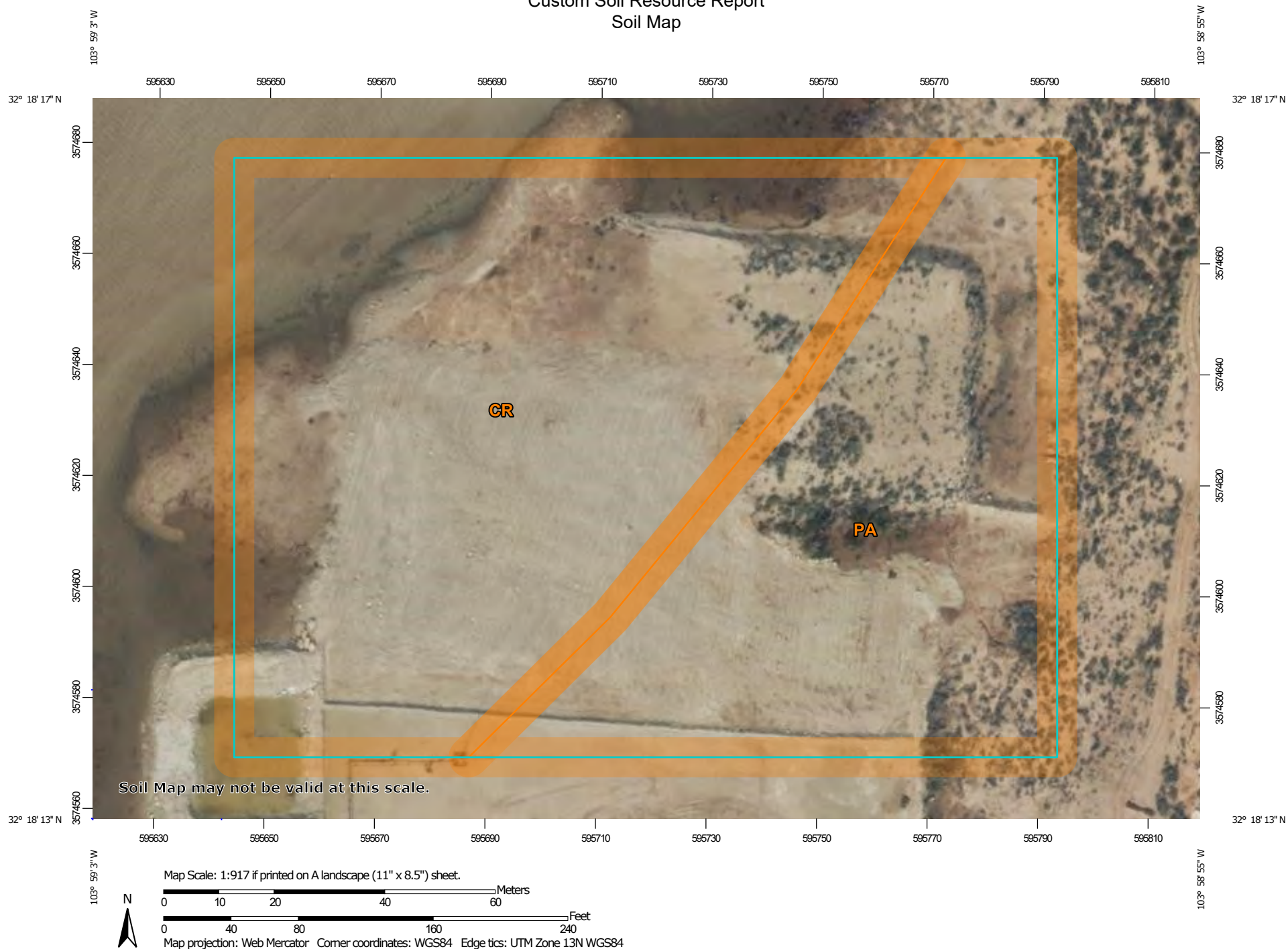
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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.


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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.

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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

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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.

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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

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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

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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

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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 criteria, 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 from 180 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%

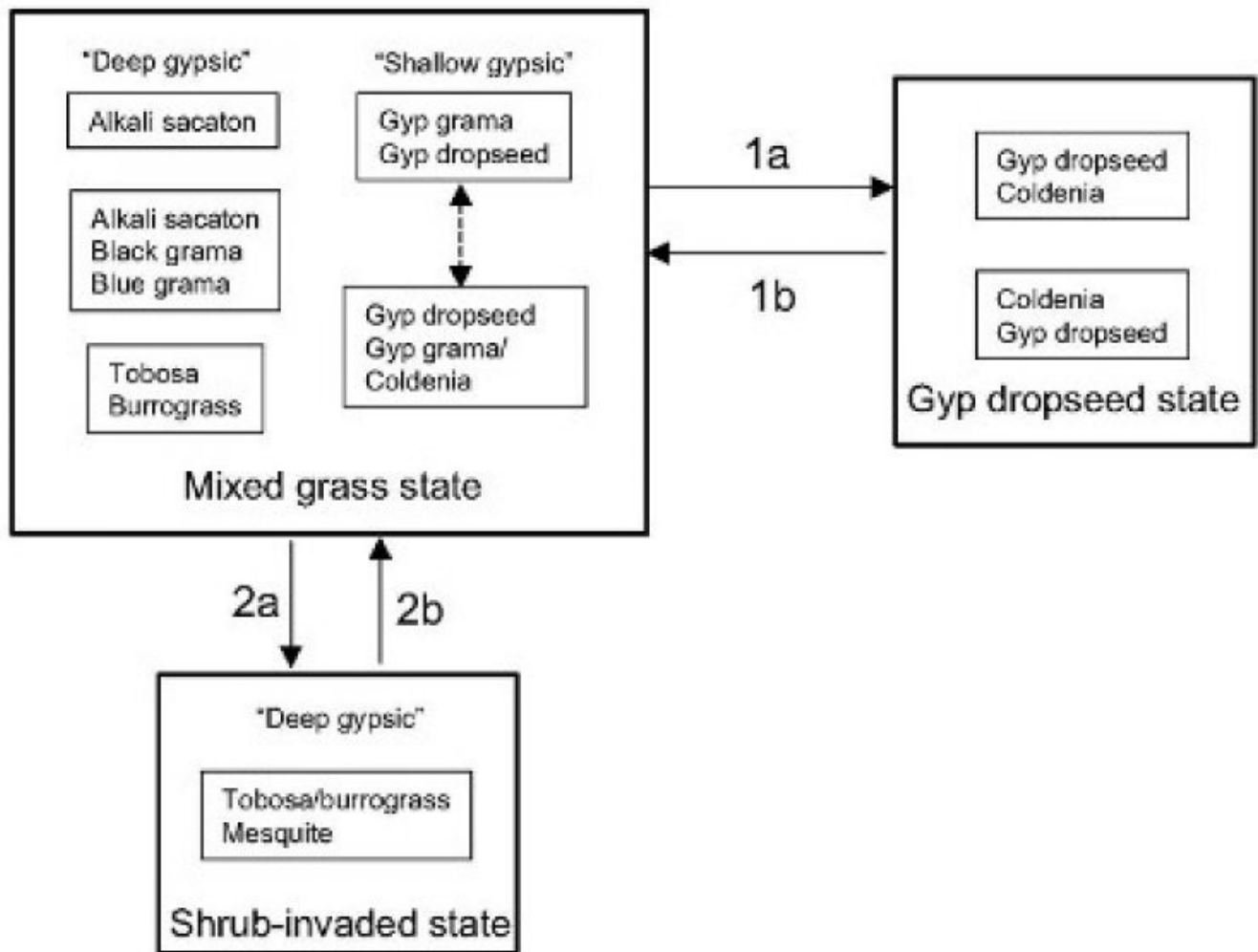
Ecological dynamics

Overview

The vegetation of this site often intergrades with that of Loamy sites, depending on the amounts of gypsum, soil texture, and depths of gypic 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 ") gypic horizons and 2) a gyp grama (*Bouteloua breviseta*) and gyp dropseed (*Sporobolus nealleyi*)-dominated community on soils with shallow (< 10") gypic 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 gypic 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 gypic horizons within the site that are dominated by tobosa or burrograss. Erosion of A horizons bring gypic horizons closer to the surface and can shift community composition to dominance by gyp dropseed, coldenia, and bare soil.

State and transition model

State-Transition model: MLRA 42, SD-2 & 3, Gyp Upland



1a. Erosion and loss of soil fertility

1b. Soil addition

2a. Reduced fire or heavy grazing with shrub seed addition

2b. Shrub removal

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	<i>Sporobolus airoides</i>	266–323	–
2	Warm Season			29–88	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	29–88	–
3	Warm Season			6–59	
	gypsum grama	BOBR	<i>Bouteloua breviseta</i>	6–59	–
4	Warm Season			18–88	
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	18–88	–
	plains bristlegrass	SEVU2	<i>Setaria vulpiseta</i>	18–88	–
5	Warm Season			6–18	
	gyp dropseed	SPNE	<i>Sporobolus nealleyi</i>	6–18	–
6	Warm Season			6–18	
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	6–18	–
7	Warm Season			6–18	
	blue grama	BOGR2	<i>Bouteloua gracilis</i>	6–18	–
8	Warm Season			18–88	
	threeawn	ARIST	<i>Aristida</i>	18–88	–
	low woollygrass	DAPU7	<i>Dasyochloa pulchella</i>	18–88	–
	ear muhly	MUAR	<i>Muhlenbergia arenacea</i>	18–88	–
Shrub/Vine					
9	Shrub			18–41	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	18–41	–
	jointfir	EPHED	<i>Ephedra</i>	18–41	–
	littleleaf sumac	RHMI3	<i>Rhus microphylla</i>	18–41	–
10	Shrub			6–18	
	javelina bush	COER5	<i>Condalia ericoides</i>	6–18	–
	knifeleaf condalia	COSP3	<i>Condalia spathulata</i>	6–18	–
	crown of thorns	KOSP	<i>Koeberlinia spinosa</i>	6–18	–
11	Cactus			6–18	
	pricklypear	OPUNT	<i>Opuntia</i>	6–18	–
	yucca	YUCCA	<i>Yucca</i>	6–18	–
Forb					
12	Forb			29–59	
	woody crinklemat	TICAC	<i>Tiquilia canescens</i> var. <i>canescens</i>	29–59	–
13	Forb			6–88	
	Forb, annual	2FA	<i>Forb, annual</i>	6–88	–
	trailing windmills	ALIN	<i>Allionia incarnata</i>	6–88	–
	daisy	CHRY2	<i>Chrysanthemum</i>	6–88	–
	golden tickseed	COTI3	<i>Coreopsis tinctoria</i>	6–88	–
	leatherweed	CRPOP	<i>Croton pottsii</i> var. <i>pottsii</i>	6–88	–
	Seven River Hills buckwheat	ERGY	<i>Eriogonum gypsophilum</i>	6–88	–

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

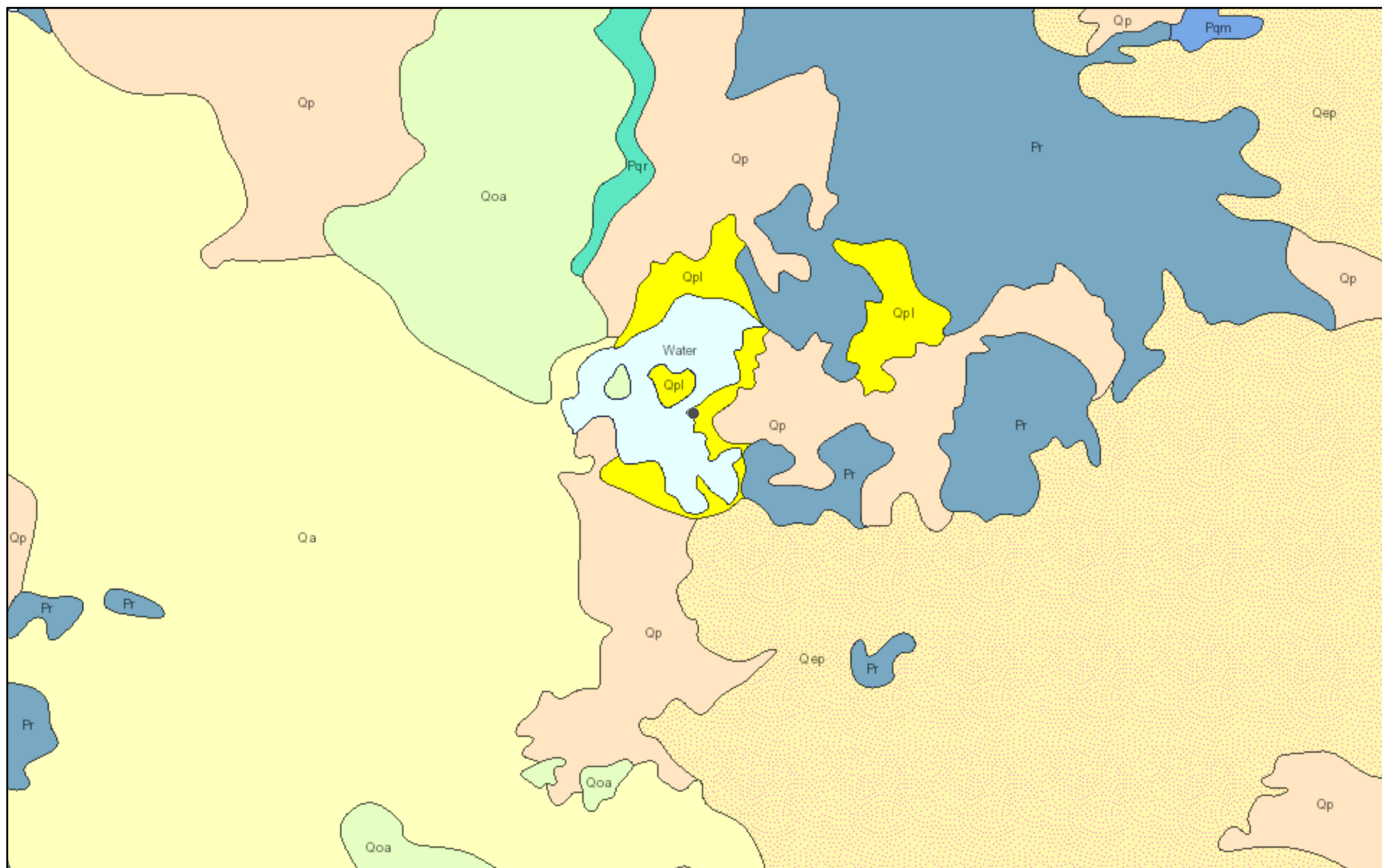
14. **Average percent litter cover (%) and depth (in):**

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:**

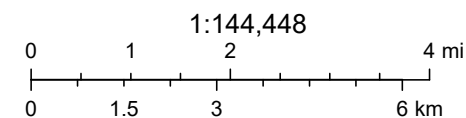
Spud 16 State 10H Geology



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

Lithologic Units

- Playa—Alluvium and evaporite deposits (Holocene)
- Water—Perennial 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

APPENDIX C – Daily Field and Sampling Report(s)



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/24/2023
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	7/24/2023 10:49 PM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/24/2023 8:04 AM
Departed Site	7/24/2023 3:01 PM

Field Notes

15:03 Completed safety paperwork and initial line locate upon arrive

16:48 Determined the spill area and begin delineation efforts

16:49 Obtained BH23-01 to 06. Refusal occurred at BH23-01, 03 and 05 at 1 foot follow by BH23-02 at 2 foot and finally at BH23-04 and 06 at 1.5 foot

Next Steps & Recommendations

1 Continue delineation

Daily Site Visit Report



Site Photos

Viewing Direction: South



Point of release (POR)

Viewing Direction: South



Unknown contaminants around the anchor point

Viewing Direction: South



Conduite path that releases travel down

Viewing Direction: South



BH23-01



Daily Site Visit Report

Viewing Direction: South



BH23-2

Viewing Direction: South



BH23-03

Viewing Direction: South



BH23-4

Viewing Direction: East



BH23-05



Daily Site Visit Report

Viewing Direction: East



Descriptive Photo - 17
Viewing Direction: East
Date: 8/13/23
Created: 7/24/2023 12:28:40 PM
Lat: 32.58771; Long: -103.58575

BH23-06

Viewing Direction: North



Descriptive Photo - 2
Viewing Direction: North
Date: POR
Created: 7/24/2023 8:28:43 AM

POR

Viewing Direction: Northwest



Descriptive Photo - 3
Viewing Direction: Northwest
Date: Release area north of POR
Created: 7/24/2023 9:30:18 AM

Release area north of POR

Viewing Direction: South



Descriptive Photo - 4
Viewing Direction: South
Date: Release area west of POR
Created: 7/24/2023 9:31:36 AM

Release area west of POR



Daily Site Visit Report

Viewing Direction: North



Release area spreading north along west berm

Viewing Direction: North



Release area spreading north along west berm

Viewing Direction: North



Release area spreading north along west berm

Viewing Direction: South



North toe of release area spreading north along west berm



Daily Site Visit Report

Viewing Direction: South



Release area on the open pad

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature: 
Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	7/25/2023
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	7/25/2023 10:43 PM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/25/2023 8:30 AM
Departed Site	7/25/2023 3:04 PM

Field Notes

- 8:41** Completed safety paperwork and initial line locate upon arrival
- 8:41** Continued delineation efforts
- 14:57** Obtained BH23-07 to 11, all sample obtained at 0 and 2 foot. Refused occurred at BH23-8 and 11 at 1 foot, as well as BH23-9 at 1.5 foot
- 15:01** As site is in immediate proximity to salt lakes, ground is cemented, and combined with 4-6" convoy stones, preventing most bore holes from reaching further than 1' bgs.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: South



BH23-07

Viewing Direction: South



BH23-08

Viewing Direction: North



BH23-09

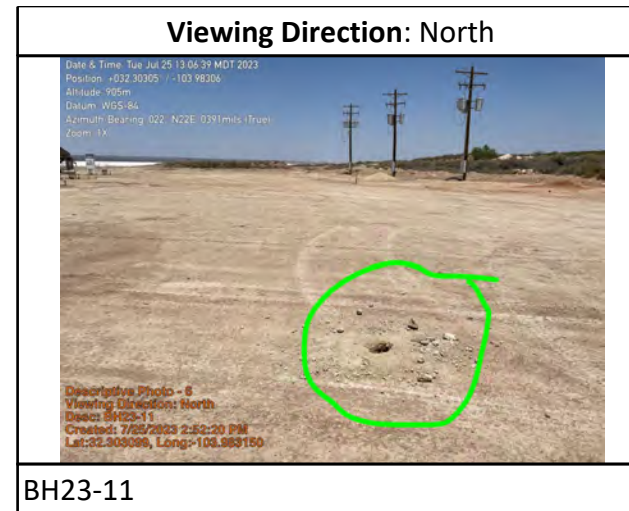
Viewing Direction: North



BH23-09 close-up of limestone pebbles from the BH



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Deusavan Costa Filho

Signature:

A handwritten signature in black ink, appearing to be 'Deusavan Costa Filho', written over a horizontal line.

Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	10/17/2023
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	10/18/2023 12:02 AM
Client Contact Name:	Dale Woodall	API #:	
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	10/17/2023 8:15 AM
Departed Site	10/17/2023 4:30 PM

Field Notes

- 15:53** Collected samples at 0 foot and 1 foot due to very rocky and gravelly clay soil which was difficult to collect from with various hand tools. 09:30 to 15:00
- 15:57** Field screened samples for chlorides with silver nitrate titration and TPH with Dextsil Petroflag. 10:40 to 16:25
Collected background samples due to difficulty with determining horizontal delineation of release.
Surface of pad and surrounding area near salt basin and potash mine exhibits ground surface of evaporates.
- 16:20** Prepared samples for lab.

Next Steps & Recommendations

- 1 Send samples to lab and collect lab data

Daily Site Visit Report



Site Photos

Viewing Direction: West



Site information placard

Viewing Direction: Southwest



BH23-12 0 ft, 1 ft. Very rocky and gravelly clay soil, difficult to obtain sample.

Viewing Direction: South



BH23-13 0 ft, 1 ft refusal by hand. Very rocky and gravelly clay soil, difficult to obtain sample.




Viewing Direction: North



BH23-14 0 ft, 1 ft. Very rocky and gravelly clay soil, difficult to obtain sample.



Daily Site Visit Report

<p>Viewing Direction: North</p>  <p><small>Descriptive Photo - 5 Viewing Direction: North Desc: BG23-01 0ft, off pad, just outside of SW corner of berm containment around pad. Created: 10/17/2023 2:53:11 PM Lat:32.302448, Long:-103.983601</small></p> <p>BG23-01 0ft, off pad, just outside of SW corner of berm containment around pad.</p>	<p>Viewing Direction: North</p>  <p><small>Descriptive Photo - 6 Viewing Direction: North Desc: BG23-02 0ft, off pad, south of pad, across lease road. Created: 10/17/2023 2:54:26 PM Lat:32.302379, Long:-103.983601</small></p> <p>BG23-02 0ft, off pad, south of pad, across lease road.</p>
<p>Viewing Direction: Northwest</p>  <p><small>Descriptive Photo - 7 Viewing Direction: Northwest Desc: BG23-03 0ft, off pad, south of pad, across lease road. Created: 10/17/2023 2:56:17 PM Lat:32.302448, Long:-103.983601</small></p> <p>BG23-03 0ft, off pad, south of pad, across lease road.</p>	<p>Viewing Direction: North</p>  <p><small>Descriptive Photo - 8 Viewing Direction: North Desc: BH23-15 0 ft, 1 ft. Very rocky and gravelly clay soil, difficult to obtain a Created: 10/17/2023 3:46:17 PM Lat:32.302379, Long:-103.983601</small></p> <p>BH23-15 0 ft, 1 ft. Very rocky and gravelly clay soil, difficult to obtain sample.</p>

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature:

A handwritten signature in black ink, appearing to read 'Steph M', written over a faint horizontal line.



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/14/2024
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	6/19/2024 7:28 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	6/14/2024 11:55 AM
Departed Site	6/14/2024 12:00 PM

Field Notes

11:47 Make up jsa
11:47 Mark area for one call

Next Steps & Recommendations

1 Wait for one call to clear and do delineation on samples

Daily Site Visit Report



Site Photos

Viewing Direction: North



Area marked for one call
BH23-6

Viewing Direction: South



Area marked for one call BH23-12

Viewing Direction: North



Photo of placard

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Riley Plogger

Signature:

A handwritten signature in black ink, consisting of several overlapping, sweeping strokes, positioned above a thin horizontal line. The word 'signature' is printed in small text below the line.



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/27/2024
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	7/1/2024 5:25 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	6/27/2024 3:50 PM
Departed Site	6/27/2024 5:15 PM

Field Notes

17:05 Make up JSA

17:06 Excavate BH24-6, 12 &16
Excavate BG24-5,5A,5B. 04 &03

17:06 Field Screen samples with petroflag

Next Steps & Recommendations

1 Jar and send off samples to lab for analysis

Daily Site Visit Report



Site Photos

Viewing Direction: West



BH24-16 @ 4'

Viewing Direction: North



BH24-6 @ 4'

Viewing Direction: South



BH24-12 @ 4'

Viewing Direction: North



BG24-5B



Daily Site Visit Report

Viewing Direction: North



BG24-5 @ 4'

Viewing Direction: West



BG24-5A

Viewing Direction: North



BG24-4 @ 4'





Viewing Direction: West



BG24-3 @ 4'







Daily Site Visit Report

<p>Viewing Direction: Southeast</p>  <p>Descriptive Photo - 10 Viewing Direction: Southeast Device Area of BG24-6 Created: 6/27/2024 1:15:11 PM Lat:32.303254, Long:-103.983700</p>	<p>Viewing Direction: South</p>  <p>Descriptive Photo - 10 Viewing Direction: South Device Area of BG24-12 Created: 6/27/2024 1:16:35 PM Lat:32.303700, Long:-103.983818</p>
Area of BH24-6	Area of BH24-12
<p>Viewing Direction: North</p>  <p>Descriptive Photo - 11 Viewing Direction: North Device Area of BH24-16 Created: 6/27/2024 1:20:20 PM Lat:32.303161, Long:-103.983500</p>	<p>Viewing Direction: North</p>  <p>Descriptive Photo - 12 Viewing Direction: North Device Area of BG24-5 Created: 6/27/2024 1:21:18 PM Lat:32.303021, Long:-103.983500</p>
Area of BH24-16	Area of BG24-5



Daily Site Visit Report

<p>Viewing Direction: North</p>  <p>Area of BG24-04</p>	<p>Viewing Direction: North</p>  <p>Area of BG24-03</p>
<p>Viewing Direction: North</p>  <p>Area of BG24-02</p>	<p>Viewing Direction: North</p>  <p>Area of BG24-01</p>

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Riley Plogger

Signature:


Signature



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/18/2024
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	9/19/2024 4:33 AM
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	9/18/2024 8:30 AM
Departed Site	9/18/2024 3:40 PM

Field Notes

9:03 Arrived on site and signed JSA's.

22:26 Titrated 8 samples.

Crew completed excavation, but waiting for further sampling to be completed.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: West



Crew excavating north of CTB upon arrival

Viewing Direction: North



Sample area BS24-1 through 12
Behind CTB.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Meghan Veliz

Signature:

A handwritten signature in black ink, appearing to read 'Meghan Veliz', written over a thin horizontal line. Below the line, the word 'Signature' is printed in a small font.



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/19/2024
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	10/1/2024 4:37 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	9/19/2024 8:30 AM
Departed Site	9/20/2024 3:40 PM

Field Notes

9:22 Arrived on site and signed JSA's 8:35am

9:23 Crew is cleaning up area.
Confirmation sampling is continuing.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: West



Sample area WS24-01

Viewing Direction: East



Sample area WS24-02

Viewing Direction: East



Sample area WS24-04

Viewing Direction: West



Sample area WS24-03



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Meghan Veliz

Signature:

A handwritten signature in black ink, appearing to read 'Meghan Veliz', written over a thin horizontal line. Below the line, the word 'Signature' is printed in a small, light gray font.



Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	9/20/2024
Site Location Name:	Spud 16 State 10 Battery	Report Run Date:	10/1/2024 4:39 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	9/20/2024 8:30 AM
Departed Site	9/20/2024 4:00 PM

Field Notes

9:00 Arrived on site, signed JSA's.

Next Steps & Recommendations

1

Daily Site Visit Report



Site Photos

Viewing Direction: North



Sample area BS24-17 and WS24-05

Viewing Direction: West



Excavating another foot down behind CTB.

Viewing Direction: Southwest



Sample area of WS24-06 through 10 and BS24-18 through 25

Viewing Direction: North



Sample area BS24-26 through 46 and WS24-11 through 14.



Daily Site Visit Report

Viewing Direction: East



Southern portion BS24-26-37

Viewing Direction: East



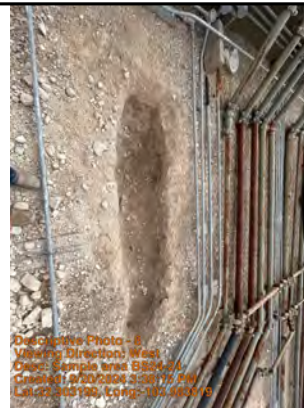
Northern portion BS24-38-48

Viewing Direction: South



Sample area BS24-22 and 23

Viewing Direction: West



Sample area BS24-24



Daily Site Visit Report

Viewing Direction: West



Sample area BS24-25

Viewing Direction: Southwest



Excavation behind CTB at 2.5'

Viewing Direction: Northwest



Excavation behind separators at 2.5'

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Meghan Veliz

Signature:

A handwritten signature in black ink, appearing to read 'Meghan Veliz', written over a thin horizontal line. Below the line, the word 'Signature' is printed in a small, light gray font.

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



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

August 07, 2023

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

RE: Spud 16 State 10 Battery

OrderNo.: 2307D13

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 10 sample(s) on 7/27/2023 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,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2307D13

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-08 0.0'

Project: Spud 16 State 10 Battery

Collection Date: 7/25/2023 9:20:00 AM

Lab ID: 2307D13-003

Matrix: SOIL

Received Date: 7/27/2023 7:20:00 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	7/31/2023 4:28:32 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/31/2023 4:28:32 PM
Surr: DNOP	98.8	69-147		%Rec	1	7/31/2023 4:28:32 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/1/2023 4:12:17 PM
Surr: BFB	92.0	15-244		%Rec	1	8/1/2023 4:12:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/1/2023 4:12:17 PM
Toluene	ND	0.049		mg/Kg	1	8/1/2023 4:12:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/1/2023 4:12:17 PM
Xylenes, Total	ND	0.098		mg/Kg	1	8/1/2023 4:12:17 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	8/1/2023 4:12:17 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	14000	600		mg/Kg	200	8/2/2023 6:20:53 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307D13

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-08 1.0'

Project: Spud 16 State 10 Battery

Collection Date: 7/25/2023 9:30:00 AM

Lab ID: 2307D13-004

Matrix: SOIL

Received Date: 7/27/2023 7:20:00 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	7/31/2023 4:39:34 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/31/2023 4:39:34 PM
Surr: DNOP	102	69-147		%Rec	1	7/31/2023 4:39:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/1/2023 5:23:12 PM
Surr: BFB	96.3	15-244		%Rec	1	8/1/2023 5:23:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/1/2023 5:23:12 PM
Toluene	ND	0.048		mg/Kg	1	8/1/2023 5:23:12 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/1/2023 5:23:12 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/1/2023 5:23:12 PM
Surr: 4-Bromofluorobenzene	114	39.1-146		%Rec	1	8/1/2023 5:23:12 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	9500	590		mg/Kg	200	8/2/2023 6:33:17 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307D13

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-09 0.0'

Project: Spud 16 State 10 Battery

Collection Date: 7/25/2023 9:40:00 AM

Lab ID: 2307D13-005

Matrix: SOIL

Received Date: 7/27/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	13	9.3		mg/Kg	1	7/31/2023 4:50:34 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/31/2023 4:50:34 PM
Surr: DNOP	112	69-147		%Rec	1	7/31/2023 4:50:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/1/2023 6:33:58 PM
Surr: BFB	98.5	15-244		%Rec	1	8/1/2023 6:33:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/1/2023 6:33:58 PM
Toluene	ND	0.049		mg/Kg	1	8/1/2023 6:33:58 PM
Ethylbenzene	ND	0.049		mg/Kg	1	8/1/2023 6:33:58 PM
Xylenes, Total	ND	0.099		mg/Kg	1	8/1/2023 6:33:58 PM
Surr: 4-Bromofluorobenzene	118	39.1-146		%Rec	1	8/1/2023 6:33:58 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	11000	600		mg/Kg	200	8/2/2023 6:45:42 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2307D13
Date Reported: 8/7/2023

CLIENT: Devon Energy
Project: Spud 16 State 10 Battery
Lab ID: 2307D13-006
Matrix: SOIL
Client Sample ID: BH23-09 1.5'
Collection Date: 7/25/2023 9:50:00 AM
Received Date: 7/27/2023 7:20:00 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	7/31/2023 5:01:36 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/31/2023 5:01:36 PM
Surr: DNOP	98.7	69-147		%Rec	1	7/31/2023 5:01:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/1/2023 6:57:31 PM
Surr: BFB	96.2	15-244		%Rec	1	8/1/2023 6:57:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/1/2023 6:57:31 PM
Toluene	ND	0.047		mg/Kg	1	8/1/2023 6:57:31 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/1/2023 6:57:31 PM
Xylenes, Total	ND	0.094		mg/Kg	1	8/1/2023 6:57:31 PM
Surr: 4-Bromofluorobenzene	115	39.1-146		%Rec	1	8/1/2023 6:57:31 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	13000	600		mg/Kg	200	8/2/2023 6:58:07 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Devon Energy
Project: Spud 16 State 10 Battery
Lab ID: 2307D13-007

Client Sample ID: BH23-10 0.0'
Collection Date: 7/25/2023 10:00:00 AM
Received Date: 7/27/2023 7:20:00 AM

Matrix: SOIL

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	7/31/2023 5:12:37 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/31/2023 5:12:37 PM
Surr: DNOP	99.6	69-147		%Rec	1	7/31/2023 5:12:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/1/2023 7:21:02 PM
Surr: BFB	97.9	15-244		%Rec	1	8/1/2023 7:21:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/1/2023 7:21:02 PM
Toluene	ND	0.050		mg/Kg	1	8/1/2023 7:21:02 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/1/2023 7:21:02 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/1/2023 7:21:02 PM
Surr: 4-Bromofluorobenzene	118	39.1-146		%Rec	1	8/1/2023 7:21:02 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	12000	600		mg/Kg	200	8/2/2023 9:44:10 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2307D13
Date Reported: 8/7/2023

CLIENT: Devon Energy
Project: Spud 16 State 10 Battery
Lab ID: 2307D13-008
Matrix: SOIL
Client Sample ID: BH23-10 2.0'
Collection Date: 7/25/2023 10:10:00 AM
Received Date: 7/27/2023 7:20:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: DGH
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/31/2023 5:23:37 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/31/2023 5:23:37 PM
Surr: DNOP	82.2	69-147		%Rec	1	7/31/2023 5:23:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/1/2023 7:44:31 PM
Surr: BFB	99.8	15-244		%Rec	1	8/1/2023 7:44:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/1/2023 7:44:31 PM
Toluene	ND	0.047		mg/Kg	1	8/1/2023 7:44:31 PM
Ethylbenzene	ND	0.047		mg/Kg	1	8/1/2023 7:44:31 PM
Xylenes, Total	ND	0.095		mg/Kg	1	8/1/2023 7:44:31 PM
Surr: 4-Bromofluorobenzene	122	39.1-146		%Rec	1	8/1/2023 7:44:31 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	16000	600		mg/Kg	200	8/2/2023 9:56:33 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307D13

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-11 0.0'

Project: Spud 16 State 10 Battery

Collection Date: 7/25/2023 10:20:00 AM

Lab ID: 2307D13-009

Matrix: SOIL

Received Date: 7/27/2023 7:20:00 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	7/31/2023 5:34:35 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/31/2023 5:34:35 PM
Surr: DNOP	99.9	69-147		%Rec	1	7/31/2023 5:34:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/1/2023 8:08:02 PM
Surr: BFB	94.7	15-244		%Rec	1	8/1/2023 8:08:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.024		mg/Kg	1	8/1/2023 8:08:02 PM
Toluene	ND	0.048		mg/Kg	1	8/1/2023 8:08:02 PM
Ethylbenzene	ND	0.048		mg/Kg	1	8/1/2023 8:08:02 PM
Xylenes, Total	ND	0.096		mg/Kg	1	8/1/2023 8:08:02 PM
Surr: 4-Bromofluorobenzene	115	39.1-146		%Rec	1	8/1/2023 8:08:02 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	7700	300		mg/Kg	100	8/2/2023 10:08:58 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Devon Energy
Project: Spud 16 State 10 Battery
Lab ID: 2307D13-010

Matrix: SOIL

Client Sample ID: BH23-11 1.0'
Collection Date: 7/25/2023 10:30:00 AM
Received Date: 7/27/2023 7:20:00 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	7/31/2023 5:45:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/31/2023 5:45:37 PM
Surr: DNOP	104	69-147		%Rec	1	7/31/2023 5:45:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: JJP
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/1/2023 8:31:29 PM
Surr: BFB	99.2	15-244		%Rec	1	8/1/2023 8:31:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: JJP
Benzene	ND	0.025		mg/Kg	1	8/1/2023 8:31:29 PM
Toluene	ND	0.050		mg/Kg	1	8/1/2023 8:31:29 PM
Ethylbenzene	ND	0.050		mg/Kg	1	8/1/2023 8:31:29 PM
Xylenes, Total	ND	0.10		mg/Kg	1	8/1/2023 8:31:29 PM
Surr: 4-Bromofluorobenzene	119	39.1-146		%Rec	1	8/1/2023 8:31:29 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	5500	300		mg/Kg	100	8/2/2023 10:21:22 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 Quantitative 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#: 2307D13
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 10 Battery

Sample ID: MB-76604	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 76604	RunNo: 98654								
Prep Date: 8/1/2023	Analysis Date: 8/1/2023	SeqNo: 3593433			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76604	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 76604	RunNo: 98654								
Prep Date: 8/1/2023	Analysis Date: 8/1/2023	SeqNo: 3593434			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.8	90	110			

Sample ID: MB-76595	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 76595	RunNo: 98664								
Prep Date: 8/1/2023	Analysis Date: 8/1/2023	SeqNo: 3593632			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: LCS-76595	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 76595	RunNo: 98664								
Prep Date: 8/1/2023	Analysis Date: 8/1/2023	SeqNo: 3593633			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	101	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 Quantitative 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#: 2307D13
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 10 Battery

Sample ID: MB-76511	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76511	RunNo: 98568								
Prep Date: 7/27/2023	Analysis Date: 7/28/2023	SeqNo: 3590172			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		101	69	147			

Sample ID: LCS-76511	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76511	RunNo: 98568								
Prep Date: 7/27/2023	Analysis Date: 7/28/2023	SeqNo: 3590173			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	5.0		5.000		99.7	69	147			

Sample ID: LCS-76550	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76550	RunNo: 98603								
Prep Date: 7/28/2023	Analysis Date: 7/31/2023	SeqNo: 3591743			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	100	61.9	130			
Surr: DNOP	4.7		5.000		94.4	69	147			

Sample ID: MB-76550	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76550	RunNo: 98603								
Prep Date: 7/28/2023	Analysis Date: 7/31/2023	SeqNo: 3591744			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		95.0	69	147			

Sample ID: LCS-76582	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76582	RunNo: 98632								
Prep Date: 7/31/2023	Analysis Date: 8/1/2023	SeqNo: 3593241			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	5.3		5.000		105	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 Quantitative 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#: 2307D13

07-Aug-23

Client: Devon Energy

Project: Spud 16 State 10 Battery

Sample ID: MB-76582	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76582	RunNo: 98632								
Prep Date: 7/31/2023	Analysis Date: 8/1/2023	SeqNo: 3593242		Units: %Rec						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		105	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 Quantitative 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#: 2307D13

07-Aug-23

Client: Devon Energy

Project: Spud 16 State 10 Battery

Sample ID: Ics-76543	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76543	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 7/31/2023	SeqNo: 3591155	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	2000		1000		199	15	244			

Sample ID: Ics-76540	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76540	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 8/1/2023	SeqNo: 3591602	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	84.2	70	130			
Surr: BFB	1900		1000		187	15	244			

Sample ID: mb-76540	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76540	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 8/1/2023	SeqNo: 3591603	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		90.6	15	244			

Sample ID: mb-76543	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76543	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 7/31/2023	SeqNo: 3591604	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	960		1000		96.1	15	244			

Sample ID: Ics-76505	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76505	RunNo: 98640								
Prep Date: 7/27/2023	Analysis Date: 8/1/2023	SeqNo: 3592408	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.9	70	130			
Surr: BFB	2100		1000		209	15	244			

Sample ID: mb-76505	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76505	RunNo: 98640								
Prep Date: 7/27/2023	Analysis Date: 8/1/2023	SeqNo: 3592409	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	980		1000		98.4	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 Quantitative 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#: 2307D13
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 10 Battery

Sample ID: Ics-76571	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76571	RunNo: 98626								
Prep Date: 7/31/2023	Analysis Date: 8/1/2023	SeqNo: 3593250			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1900		1000		191	15	244			

Sample ID: mb-76571	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76571	RunNo: 98626								
Prep Date: 7/31/2023	Analysis Date: 8/1/2023	SeqNo: 3593251			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	970		1000		97.4	15	244			

Sample ID: 2307d13-003ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH23-08 0.0'	Batch ID: 76540	RunNo: 98626								
Prep Date: 7/28/2023	Analysis Date: 8/1/2023	SeqNo: 3593253			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.9	24.63	0	88.2	70	130			
Surr: BFB	1900		985.2		191	15	244			

Sample ID: 2307d13-003amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH23-08 0.0'	Batch ID: 76540	RunNo: 98626								
Prep Date: 7/28/2023	Analysis Date: 8/1/2023	SeqNo: 3593254			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.9	24.53	0	87.5	70	130	1.26	20	
Surr: BFB	1900		981.4		193	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 Quantitative 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#: 2307D13

07-Aug-23

Client: Devon Energy

Project: Spud 16 State 10 Battery

Sample ID: LCS-76543	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76543	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 7/31/2023	SeqNo: 3591156	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		114	39.1	146			

Sample ID: LCS-76540	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76540	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 8/1/2023	SeqNo: 3591640	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	102	70	130			
Toluene	1.0	0.050	1.000	0	103	70	130			
Ethylbenzene	1.0	0.050	1.000	0	105	70	130			
Xylenes, Total	3.2	0.10	3.000	0	105	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	39.1	146			

Sample ID: mb-76540	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 76540	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 8/1/2023	SeqNo: 3591641	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		110	39.1	146			

Sample ID: mb-76543	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 76543	RunNo: 98601								
Prep Date: 7/28/2023	Analysis Date: 7/31/2023	SeqNo: 3591642	Units: %Rec							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		114	39.1	146			

Sample ID: lcs-76505	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 76505	RunNo: 98640								
Prep Date: 7/27/2023	Analysis Date: 8/1/2023	SeqNo: 3592421	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	84.8	70	130			
Toluene	0.86	0.050	1.000	0	86.0	70	130			
Ethylbenzene	0.88	0.050	1.000	0	88.1	70	130			
Xylenes, Total	2.6	0.10	3.000	0	88.1	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative 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

Page 16 of 18

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2307D13

07-Aug-23

Client: Devon Energy
Project: Spud 16 State 10 Battery

Sample ID: ics-76505	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 76505		RunNo: 98640							
Prep Date: 7/27/2023	Analysis Date: 8/1/2023		SeqNo: 3592421		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.95		1.000		95.4	39.1	146			

Sample ID: mb-76505	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 76505		RunNo: 98640							
Prep Date: 7/27/2023	Analysis Date: 8/1/2023		SeqNo: 3592422		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	0.96		1.000		95.6	39.1	146			

Sample ID: LCS-76571	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 76571		RunNo: 98626							
Prep Date: 7/31/2023	Analysis Date: 8/1/2023		SeqNo: 3593284		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		117	39.1	146			

Sample ID: mb-76571	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 76571		RunNo: 98626							
Prep Date: 7/31/2023	Analysis Date: 8/1/2023		SeqNo: 3593285		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		117	39.1	146			

Sample ID: 2307d13-004ams	SampType: MS		TestCode: EPA Method 8021B: Volatiles							
Client ID: BH23-08 1.0'	Batch ID: 76540		RunNo: 98626							
Prep Date: 7/28/2023	Analysis Date: 8/1/2023		SeqNo: 3593288		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.024	0.9588	0	99.2	70	130			
Toluene	0.96	0.048	0.9588	0	100	70	130			
Ethylbenzene	0.98	0.048	0.9588	0	102	70	130			
Xylenes, Total	3.0	0.096	2.876	0	103	70	130			
Surr: 4-Bromofluorobenzene	1.1		0.9588		115	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 Quantitative 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

Page 17 of 18

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2307D13

07-Aug-23

Client: Devon Energy

Project: Spud 16 State 10 Battery

Sample ID: 2307d13-004amsd	SampType: MSD			TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-08 1.0'	Batch ID: 76540			RunNo: 98626						
Prep Date: 7/28/2023	Analysis Date: 8/1/2023			SeqNo: 3593289		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.024	0.9533	0	104	70	130	4.09	20	
Toluene	1.0	0.048	0.9533	0	106	70	130	4.97	20	
Ethylbenzene	1.0	0.048	0.9533	0	109	70	130	5.79	20	
Xylenes, Total	3.1	0.095	2.860	0	110	70	130	6.06	20	
Surr: 4-Bromofluorobenzene	1.1		0.9533		120	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 Quantitative 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

Page 18 of 18



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: 2307D13

RcptNo: 1

Received By: Tracy Casarrubias 7/27/2023 7:20:00 AM

Completed By: Tracy Casarrubias 7/27/2023 8:27:24 AM

Reviewed By: SCM 07/27/23

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 $>0^{\circ}\text{C}$ 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: Jm 7/27/23

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 7/27/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes	Yogi		

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 Days

Project Name:

Spud 16 Skate 10 Battery

Project #:

23E-041221

Project Manager:

Kent Stallings

Sampler:

AH DCP

On Ice:

☒ Yes ☐ No

4091

of Coolers:

1

Cooler Temp (including CF): 3.3-0-3.3 (°C)

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

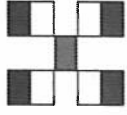
Cl⁻, Br⁻, NO₃⁻, NO₂⁻, PO₄³⁻, SO₄²⁻

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

Analysis Request



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date: Time: Relinquished by:

Received by: Via: Date Time

7/20/23 8:00

Remarks:

CC: Kent Stallings

Date: Time: Relinquished by:

Received by: Via: Date Time

7/20/23 7:20

Remarks:

Kstallings@vertextx.ca



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

August 07, 2023

Kent Stallings

Devon Energy

6488 Seven Rivers Highway

Artesia, NM 88210

TEL: (505) 350-1336

FAX:

RE: Spud 16 State 1D Battery

OrderNo.: 2307B80

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 7/26/2023 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,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-01 0'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 9:00:00 AM

Lab ID: 2307B80-001

Matrix: SOIL

Received Date: 7/26/2023 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	7/29/2023 2:15:47 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/29/2023 2:15:47 AM
Surr: DNOP	98.3	69-147		%Rec	1	7/29/2023 2:15:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/28/2023 7:40:00 PM
Surr: BFB	82.5	15-244		%Rec	1	7/28/2023 7:40:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	7/28/2023 7:40:00 PM
Toluene	ND	0.049		mg/Kg	1	7/28/2023 7:40:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/28/2023 7:40:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	7/28/2023 7:40:00 PM
Surr: 4-Bromofluorobenzene	78.5	39.1-146		%Rec	1	7/28/2023 7:40:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	18000	1500		mg/Kg	500	8/1/2023 11:57:04 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-01 1'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 9:10:00 AM

Lab ID: 2307B80-002

Matrix: SOIL

Received Date: 7/26/2023 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	9.7		mg/Kg	1	7/29/2023 2:26:44 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/29/2023 2:26:44 AM
Surr: DNOP	101	69-147		%Rec	1	7/29/2023 2:26:44 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/28/2023 8:02:00 PM
Surr: BFB	80.6	15-244		%Rec	1	7/28/2023 8:02:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	7/28/2023 8:02:00 PM
Toluene	ND	0.048		mg/Kg	1	7/28/2023 8:02:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/28/2023 8:02:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/28/2023 8:02:00 PM
Surr: 4-Bromofluorobenzene	80.1	39.1-146		%Rec	1	7/28/2023 8:02:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	6000	300		mg/Kg	100	8/2/2023 12:09:29 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2307B80
Date Reported: 8/7/2023

CLIENT: Devon Energy
Project: Spud 16 State 1D Battery
Lab ID: 2307B80-003
Matrix: SOIL
Client Sample ID: BH23-02 0'
Collection Date: 7/24/2023 9:20:00 AM
Received Date: 7/26/2023 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/29/2023 1:20:47 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/29/2023 1:20:47 AM
Surr: DNOP	96.0	69-147		%Rec	1	7/29/2023 1:20:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/28/2023 8:24:00 PM
Surr: BFB	81.4	15-244		%Rec	1	7/28/2023 8:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	7/28/2023 8:24:00 PM
Toluene	ND	0.049		mg/Kg	1	7/28/2023 8:24:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	7/28/2023 8:24:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/28/2023 8:24:00 PM
Surr: 4-Bromofluorobenzene	77.2	39.1-146		%Rec	1	7/28/2023 8:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	9200	590		mg/Kg	200	8/2/2023 12:21:54 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-02 2'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 9:30:00 AM

Lab ID: 2307B80-004

Matrix: SOIL

Received Date: 7/26/2023 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	9.6		mg/Kg	1	7/28/2023 7:04:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/28/2023 7:04:54 PM
Surr: DNOP	105	69-147		%Rec	1	7/28/2023 7:04:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/29/2023 9:48:00 AM
Surr: BFB	79.3	15-244		%Rec	1	7/29/2023 9:48:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	7/29/2023 9:48:00 AM
Toluene	ND	0.049		mg/Kg	1	7/29/2023 9:48:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	7/29/2023 9:48:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	7/29/2023 9:48:00 AM
Surr: 4-Bromofluorobenzene	77.9	39.1-146		%Rec	1	7/29/2023 9:48:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	4200	150		mg/Kg	50	8/2/2023 12:34:18 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Devon Energy

Client Sample ID: BH23-03 0'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 9:40:00 AM

Lab ID: 2307B80-005

Matrix: SOIL

Received Date: 7/26/2023 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	8.7		mg/Kg	1	7/27/2023 6:37:25 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	7/27/2023 6:37:25 PM
Surr: DNOP	105	69-147		%Rec	1	7/27/2023 6:37:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/29/2023 10:54:00 AM
Surr: BFB	79.8	15-244		%Rec	1	7/29/2023 10:54:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	7/29/2023 10:54:00 AM
Toluene	ND	0.046		mg/Kg	1	7/29/2023 10:54:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	7/29/2023 10:54:00 AM
Xylenes, Total	ND	0.093		mg/Kg	1	7/29/2023 10:54:00 AM
Surr: 4-Bromofluorobenzene	79.9	39.1-146		%Rec	1	7/29/2023 10:54:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	18000	600		mg/Kg	200	8/2/2023 12:46:43 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-03 1'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 9:50:00 AM

Lab ID: 2307B80-006

Matrix: SOIL

Received Date: 7/26/2023 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	9.7		mg/Kg	1	7/27/2023 6:48:23 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/27/2023 6:48:23 PM
Surr: DNOP	113	69-147		%Rec	1	7/27/2023 6:48:23 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/29/2023 11:59:00 AM
Surr: BFB	78.5	15-244		%Rec	1	7/29/2023 11:59:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	7/29/2023 11:59:00 AM
Toluene	ND	0.046		mg/Kg	1	7/29/2023 11:59:00 AM
Ethylbenzene	ND	0.046		mg/Kg	1	7/29/2023 11:59:00 AM
Xylenes, Total	ND	0.092		mg/Kg	1	7/29/2023 11:59:00 AM
Surr: 4-Bromofluorobenzene	77.6	39.1-146		%Rec	1	7/29/2023 11:59:00 AM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	15000	600		mg/Kg	200	8/2/2023 12:59:07 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

CLIENT: Devon Energy

Client Sample ID: BH23-04 0'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 10:00:00 AM

Lab ID: 2307B80-007

Matrix: SOIL

Received Date: 7/26/2023 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	7/27/2023 6:59:19 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/27/2023 6:59:19 PM
Surr: DNOP	111	69-147		%Rec	1	7/27/2023 6:59:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/29/2023 12:21:00 PM
Surr: BFB	81.6	15-244		%Rec	1	7/29/2023 12:21:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	7/29/2023 12:21:00 PM
Toluene	ND	0.048		mg/Kg	1	7/29/2023 12:21:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/29/2023 12:21:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	7/29/2023 12:21:00 PM
Surr: 4-Bromofluorobenzene	78.9	39.1-146		%Rec	1	7/29/2023 12:21:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	22000	1500		mg/Kg	500	8/2/2023 1:11:32 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-04 1.5'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 10:10:00 AM

Lab ID: 2307B80-008

Matrix: SOIL

Received Date: 7/26/2023 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	9.2		mg/Kg	1	7/27/2023 7:10:13 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/27/2023 7:10:13 PM
Surr: DNOP	123	69-147		%Rec	1	7/27/2023 7:10:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/29/2023 12:43:00 PM
Surr: BFB	82.1	15-244		%Rec	1	7/29/2023 12:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	7/29/2023 12:43:00 PM
Toluene	ND	0.047		mg/Kg	1	7/29/2023 12:43:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/29/2023 12:43:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/29/2023 12:43:00 PM
Surr: 4-Bromofluorobenzene	78.3	39.1-146		%Rec	1	7/29/2023 12:43:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	18000	600		mg/Kg	200	8/2/2023 1:23:57 AM

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-05 0'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 10:20:00 AM

Lab ID: 2307B80-009

Matrix: SOIL

Received Date: 7/26/2023 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	9.5		mg/Kg	1	7/27/2023 7:21:05 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/27/2023 7:21:05 PM
Surr: DNOP	107	69-147		%Rec	1	7/27/2023 7:21:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/29/2023 1:04:00 PM
Surr: BFB	81.5	15-244		%Rec	1	7/29/2023 1:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.024		mg/Kg	1	7/29/2023 1:04:00 PM
Toluene	ND	0.048		mg/Kg	1	7/29/2023 1:04:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	7/29/2023 1:04:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	7/29/2023 1:04:00 PM
Surr: 4-Bromofluorobenzene	80.7	39.1-146		%Rec	1	7/29/2023 1:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: RBC
Chloride	18000	1500		mg/Kg	500	8/2/2023 5:43:39 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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CLIENT: Devon Energy

Client Sample ID: BH23-05 1'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 10:30:00 AM

Lab ID: 2307B80-010

Matrix: SOIL

Received Date: 7/26/2023 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	7/27/2023 7:32:03 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/27/2023 7:32:03 PM
Surr: DNOP	106	69-147		%Rec	1	7/27/2023 7:32:03 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/29/2023 1:26:00 PM
Surr: BFB	83.4	15-244		%Rec	1	7/29/2023 1:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.023		mg/Kg	1	7/29/2023 1:26:00 PM
Toluene	ND	0.047		mg/Kg	1	7/29/2023 1:26:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	7/29/2023 1:26:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	7/29/2023 1:26:00 PM
Surr: 4-Bromofluorobenzene	80.6	39.1-146		%Rec	1	7/29/2023 1:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	14000	590		mg/Kg	200	8/2/2023 2:13:35 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

Analytical Report

Lab Order 2307B80

Date Reported: 8/7/2023

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Devon Energy

Client Sample ID: BH23-06 1.5'

Project: Spud 16 State 1D Battery

Collection Date: 7/24/2023 10:50:00 AM

Lab ID: 2307B80-012

Matrix: SOIL

Received Date: 7/26/2023 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	9.6		mg/Kg	1	7/27/2023 8:04:39 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/27/2023 8:04:39 PM
Surr: DNOP	131	69-147		%Rec	1	7/27/2023 8:04:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: KMN
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/29/2023 2:10:00 PM
Surr: BFB	79.9	15-244		%Rec	1	7/29/2023 2:10:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: KMN
Benzene	ND	0.025		mg/Kg	1	7/29/2023 2:10:00 PM
Toluene	ND	0.050		mg/Kg	1	7/29/2023 2:10:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	7/29/2023 2:10:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	7/29/2023 2:10:00 PM
Surr: 4-Bromofluorobenzene	78.6	39.1-146		%Rec	1	7/29/2023 2:10:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SNS
Chloride	6100	300		mg/Kg	100	8/2/2023 2:38:24 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 Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of standard limits. If undiluted results may be estimated.		

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2307B80
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 1D Battery

Sample ID: MB-76577		SampType: mblk		TestCode: EPA Method 300.0: Anions						
Client ID: PBS		Batch ID: 76577		RunNo: 98638						
Prep Date: 7/31/2023		Analysis Date: 7/31/2023		SeqNo: 3592326			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-76577		SampType: lcs		TestCode: EPA Method 300.0: Anions						
Client ID: LCSS		Batch ID: 76577		RunNo: 98638						
Prep Date: 7/31/2023		Analysis Date: 7/31/2023		SeqNo: 3592327			Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.4	90	110			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative 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#: 2307B80
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 1D Battery

Sample ID: LCS-76495	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76495	RunNo: 98570								
Prep Date: 7/26/2023	Analysis Date: 7/27/2023	SeqNo: 3589391	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	107	61.9	130			
Surr: DNOP	5.5		5.000		110	69	147			

Sample ID: MB-76495	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76495	RunNo: 98570								
Prep Date: 7/26/2023	Analysis Date: 7/27/2023	SeqNo: 3589392	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		124	69	147			

Sample ID: 2307B80-004AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-02 2'	Batch ID: 76495	RunNo: 98583								
Prep Date: 7/26/2023	Analysis Date: 7/28/2023	SeqNo: 3589760	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	9.2	46.00	0	92.6	54.2	135			
Surr: DNOP	4.5		4.600		97.4	69	147			

Sample ID: 2307B80-004AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH23-02 2'	Batch ID: 76495	RunNo: 98583								
Prep Date: 7/26/2023	Analysis Date: 7/28/2023	SeqNo: 3589761	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	8.9	44.44	0	97.1	54.2	135	1.29	29.2	
Surr: DNOP	4.4		4.444		98.7	69	147	0	0	

Sample ID: LCS-76487	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 76487	RunNo: 98583								
Prep Date: 7/26/2023	Analysis Date: 7/28/2023	SeqNo: 3589774	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.00	0	95.9	61.9	130			
Surr: DNOP	4.9		5.000		97.9	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 Quantitative 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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2307B80

07-Aug-23

Client: Devon Energy

Project: Spud 16 State 1D Battery

Sample ID: MB-76487	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 76487	RunNo: 98583								
Prep Date: 7/26/2023	Analysis Date: 7/28/2023	SeqNo: 3589776		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		95.4	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 Quantitative 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#: 2307B80
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 1D Battery

Sample ID: Ics-76468	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76468	RunNo: 98596								
Prep Date: 7/26/2023	Analysis Date: 7/28/2023	SeqNo: 3590488			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	95.8	70	130			
Surr: BFB	2000		1000		199	15	244			

Sample ID: mb-76468	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76468	RunNo: 98596								
Prep Date: 7/26/2023	Analysis Date: 7/28/2023	SeqNo: 3590489			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	850		1000		85.1	15	244			

Sample ID: Ics-76474	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 76474	RunNo: 98596								
Prep Date: 7/26/2023	Analysis Date: 7/29/2023	SeqNo: 3590537			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	85.8	70	130			
Surr: BFB	1900		1000		194	15	244			

Sample ID: mb-76474	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 76474	RunNo: 98596								
Prep Date: 7/26/2023	Analysis Date: 7/29/2023	SeqNo: 3590538			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	790		1000		79.5	15	244			

Sample ID: 2307B80-004ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH23-02 2'	Batch ID: 76474	RunNo: 98596								
Prep Date: 7/26/2023	Analysis Date: 7/29/2023	SeqNo: 3590540			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	24.75	0	82.8	70	130			
Surr: BFB	1800		990.1		182	15	244			

Sample ID: 2307B80-004amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH23-02 2'	Batch ID: 76474	RunNo: 98596								
Prep Date: 7/26/2023	Analysis Date: 7/29/2023	SeqNo: 3590541			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	5.0	24.75	0	82.8	70	130			
Surr: BFB	1800		990.1		182	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 Quantitative 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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2307B80

07-Aug-23

Client: Devon Energy

Project: Spud 16 State 1D Battery

Sample ID: 2307B80-004amsd		SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range					
Client ID: BH23-02 2'		Batch ID: 76474			RunNo: 98596					
Prep Date: 7/26/2023		Analysis Date: 7/29/2023			SeqNo: 3590541		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.9	24.63	0	80.0	70	130	3.98	20	
Surr: BFB	1800		985.2		182	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 Quantitative 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#: 2307B80

07-Aug-23

Client: Devon Energy
Project: Spud 16 State 1D Battery

Sample ID: ics-76468	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 76468			RunNo: 98596						
Prep Date: 7/26/2023	Analysis Date: 7/28/2023			SeqNo: 3590566		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	87.5	70	130			
Toluene	0.88	0.050	1.000	0	88.5	70	130			
Ethylbenzene	0.90	0.050	1.000	0	90.5	70	130			
Xylenes, Total	2.7	0.10	3.000	0	90.8	70	130			
Surr: 4-Bromofluorobenzene	0.82		1.000		82.1	39.1	146			

Sample ID: mb-76468	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 76468			RunNo: 98596						
Prep Date: 7/26/2023	Analysis Date: 7/28/2023			SeqNo: 3590567		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	0.80		1.000		80.4	39.1	146			

Sample ID: ics-76474	SampType: LCS			TestCode: EPA Method 8021B: Volatiles						
Client ID: LCSS	Batch ID: 76474			RunNo: 98596						
Prep Date: 7/26/2023	Analysis Date: 7/29/2023			SeqNo: 3590616		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	85.7	70	130			
Toluene	0.86	0.050	1.000	0	86.3	70	130			
Ethylbenzene	0.88	0.050	1.000	0	88.0	70	130			
Xylenes, Total	2.6	0.10	3.000	0	88.2	70	130			
Surr: 4-Bromofluorobenzene	0.81		1.000		81.2	39.1	146			

Sample ID: mb-76474	SampType: MBLK			TestCode: EPA Method 8021B: Volatiles						
Client ID: PBS	Batch ID: 76474			RunNo: 98596						
Prep Date: 7/26/2023	Analysis Date: 7/29/2023			SeqNo: 3590617		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	0.78		1.000		78.5	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 Quantitative 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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2307B80
07-Aug-23

Client: Devon Energy
Project: Spud 16 State 1D Battery

Sample ID: 2307B80-005ams		SampType: MS		TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-03 0'		Batch ID: 76474		RunNo: 98596						
Prep Date: 7/26/2023		Analysis Date: 7/29/2023		SeqNo: 3590620		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.77	0.023	0.9242	0	83.5	70	130			
Toluene	0.79	0.046	0.9242	0	85.2	70	130			
Ethylbenzene	0.81	0.046	0.9242	0	87.2	70	130			
Xylenes, Total	2.4	0.092	2.773	0	87.2	70	130			
Surr: 4-Bromofluorobenzene	0.73		0.9242		79.2	39.1	146			

Sample ID: 2307B80-005amsd		SampType: MSD		TestCode: EPA Method 8021B: Volatiles						
Client ID: BH23-03 0'		Batch ID: 76474		RunNo: 98596						
Prep Date: 7/26/2023		Analysis Date: 7/29/2023		SeqNo: 3590621		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.79	0.023	0.9268	0	85.6	70	130	2.81	20	
Toluene	0.81	0.046	0.9268	0	87.0	70	130	2.34	20	
Ethylbenzene	0.82	0.046	0.9268	0	89.0	70	130	2.36	20	
Xylenes, Total	2.5	0.093	2.780	0	89.5	70	130	2.81	20	
Surr: 4-Bromofluorobenzene	0.74		0.9268		79.7	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 Quantitative 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

Page 19 of 19



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: 2307B80

RcptNo: 1

Received By: Tracy Casarrubias 7/26/2023 7:15:00 AM

Completed By: Tracy Casarrubias 7/26/2023 7:59:35 AM

Reviewed By: *7/26/23*

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 $>0^{\circ}\text{C}$ 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: *SCM 07/26/23*

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 7/26/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.5	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) _____

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
7-24-23	9:00	Soil	BH23-01	01	ice	23071380
	9:10		BH23-01	1'		001
	9:20		BH23-02	0'		002
	9:30		BH23-02	2'		003
	9:40		BH23-03	0'		004
	9:50		BH23-03	1'		005
	10:00		BH23-04	0'		006
	10:10		BH23-04	1.5'		007
	10:20		BH23-05	0'		008
	10:30		BH23-05	1'		009
	10:40		BH23-06	0'		010
	10:50		BH23-06	1.5'		011
						012

Date: _____ Time: _____

Relinquished by: _____

Date: 7/25/23 Time: 1900

Relinquished by: Alumina

Turn-Around Time:

☒ Standard ☒ Rush 5 Day

Project Name:

Svd 16 State 10 Battery

Project #:

23E - 04221

Project Manager:

Kent Stallings

Sampler: AH

On Ice: ☒ Yes ☐ No many

of Coolers: 1

Cooler Temp (including CF): 0.6 - 0.1 = 0.5 (°C)

Container Type and #

Preservative Type

HEAL No.

BTX 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

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

Analysis Request

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Remarks:

cc Kent Stallings

kstallings@vertextx.co

Received by: _____ Date: 7/25/23 Time: 1415

Received by: _____ Date: 7/25/23 Time: 1415

Received by: _____ Date: 7/25/23 Time: 1415

Received by: _____ Date: 7/25/23 Time: 1415

Received by: _____ Date: 7/25/23 Time: 1415



Environment Testing

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

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.
Released to Imaging: 12/3/2024 11:15:00 AM

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

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Definitions/Glossary

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

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.
α	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.

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

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

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

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

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

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

Lab Sample ID: 885-5200-3

Date Collected: 05/24/24 10:50

Matrix: Solid

Date Received: 05/29/24 07:55

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

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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						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 6017						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						Client Sample ID: Lab Control Sample			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 6017						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						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 6019						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						Client Sample ID: Lab Control Sample			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 6019						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

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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				Client Sample ID: Lab Control Sample			
Matrix: Solid				Prep Type: Total/NA			
Analysis Batch: 5977							
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	

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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
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

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
Date Collected: 05/24/24 10:12
Date Received: 05/29/24 07:55

Lab Sample ID: 885-5200-2
Matrix: Solid

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
Date Collected: 05/24/24 10:50
Date Received: 05/29/24 07:55

Lab Sample ID: 885-5200-3
Matrix: Solid

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
Project/Site: Spud 16 State #10H

Job ID: 885-5200-1

Laboratory: Eurofins Albuquerque

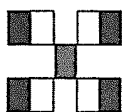
Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

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: <u>Vertex</u>		Turn-Around Time: <input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Rush <u>5 Day</u>		Project Name: <u>SPUD 16 State #10H</u>									
Mailing Address: <u>(Bill to Devon)</u>		Project #: <u>23E-02857</u>		Project Manager: <u>Chad Hensley</u>									
Phone #: _____		Project Manager: _____		Sampler: <u>Riley Proger</u>									
email or Fax#: _____		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		# of Coolers: <u>1</u>									
QA/QC Package: <input type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation)		Accreditation: <input type="checkbox"/> Az Compliance <input type="checkbox"/> NELAC <input type="checkbox"/> Other _____		Cooler Temp (Including CF): <u>0.6-0.6</u> (°C)									
Date		Time		Matrix		Sample Name		Container Type and #		Preservative Type		HEAL No.	
5-24		9:35		soil		B624-05		402		Ice			
5-24		10:12		↓		B624-06		↓					
5-24		10:50		↓		B624-07		↓					
Date:		Time:		Relinquished by:		Received by:		Via:		Date:		Time:	
5/24/24		9:40		Karl McGe		Mumma		5/24/24		9:40			
Date:		Time:		Relinquished by:		Received by:		Via:		Date:		Time:	
5/24/24		1700		Mumma		Mumma		5/24/24		7:01			

6/5/2024

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 LABO

www.hallenvironmental.com



4901 Hawkins NE - Albuquerque, NM 8*

Tel. 505-345-3975
Fax 505-345-410,
885-5200 COC

Analysis Request

[illegible]

Remarks:

wo #21165742

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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	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chad Hensley
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 7/25/2024 12:28:44 PM

JOB DESCRIPTION

Spud 16 10H Battery

JOB NUMBER

885-7510-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

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
7/25/2024 12:28:44 PM

Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Spud 16 10H Battery

Laboratory Job ID: 885-7510-1

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Definitions/Glossary

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

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 Battery

Job ID: 885-7510-1

Job ID: 885-7510-1

Eurofins Albuquerque

Job Narrative 885-7510-1

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

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

Method 8015D_DRO: Surrogate recovery for the following samples were outside the upper control limit: BG23-5B@1' (885-7510-13), BG23-5A@2' (885-7510-18) and BG23-5A@3' (885-7510-19). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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.

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-06@1'

Lab Sample ID: 885-7510-1

Date Collected: 07/02/24 13:20

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		5.0	mg/Kg		07/09/24 10:28	07/10/24 12:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		35 - 166			07/09/24 10:28	07/10/24 12:05	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 10:28	07/10/24 12:05	1
Ethylbenzene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 12:05	1
Toluene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 12:05	1
Xylenes, Total	ND		0.10	mg/Kg		07/09/24 10:28	07/10/24 12:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		48 - 145			07/09/24 10:28	07/10/24 12:05	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]	14		9.9	mg/Kg		07/09/24 16:22	07/10/24 11:54	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		07/09/24 16:22	07/10/24 11:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	95		62 - 134			07/09/24 16:22	07/10/24 11:54	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14000		1500	mg/Kg		07/10/24 09:01	07/11/24 20:05	500

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-06@3'

Lab Sample ID: 885-7510-2

Date Collected: 07/02/24 13:27

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		5.0	mg/Kg		07/09/24 10:28	07/10/24 13:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		35 - 166			07/09/24 10:28	07/10/24 13:11	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 10:28	07/10/24 13:11	1
Ethylbenzene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 13:11	1
Toluene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 13:11	1
Xylenes, Total	ND		0.10	mg/Kg		07/09/24 10:28	07/10/24 13:11	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 13:11	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		07/09/24 16:22	07/10/24 12:05	1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		07/09/24 16:22	07/10/24 12:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	114		62 - 134			07/09/24 16:22	07/10/24 12:05	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11000		1500	mg/Kg		07/10/24 09:01	07/11/24 20:17	500

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-06@4'

Lab Sample ID: 885-7510-3

Date Collected: 07/02/24 13:32

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 10:28	07/10/24 14:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		35 - 166			07/09/24 10:28	07/10/24 14:16	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 10:28	07/10/24 14:16	1
Ethylbenzene	ND		0.049	mg/Kg		07/09/24 10:28	07/10/24 14:16	1
Toluene	ND		0.049	mg/Kg		07/09/24 10:28	07/10/24 14:16	1
Xylenes, Total	ND		0.099	mg/Kg		07/09/24 10:28	07/10/24 14:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		48 - 145			07/09/24 10:28	07/10/24 14:16	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		07/09/24 16:22	07/10/24 12:15	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		07/09/24 16:22	07/10/24 12:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	89		62 - 134			07/09/24 16:22	07/10/24 12:15	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13000		610	mg/Kg		07/10/24 09:01	07/11/24 20:30	200

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-12@1'

Lab Sample ID: 885-7510-4

Date Collected: 07/02/24 13:40

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 10:28	07/10/24 14:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		35 - 166			07/09/24 10:28	07/10/24 14:38	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 10:28	07/10/24 14:38	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 14:38	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 14:38	1
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 14:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 14:38	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		9.9	mg/Kg		07/09/24 16:22	07/10/24 12:26	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		07/09/24 16:22	07/10/24 12:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	98		62 - 134			07/09/24 16:22	07/10/24 12:26	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5500		300	mg/Kg		07/10/24 09:01	07/11/24 20:42	100

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-12@3'

Lab Sample ID: 885-7510-5

Date Collected: 07/02/24 13:45

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 10:28	07/10/24 15:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		35 - 166			07/09/24 10:28	07/10/24 15:00	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 10:28	07/10/24 15:00	1
Ethylbenzene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 15:00	1
Toluene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 15:00	1
Xylenes, Total	ND		0.095	mg/Kg		07/09/24 10:28	07/10/24 15:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		48 - 145			07/09/24 10:28	07/10/24 15:00	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		9.9	mg/Kg		07/09/24 16:22	07/10/24 12:37	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		07/09/24 16:22	07/10/24 12:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	90		62 - 134			07/09/24 16:22	07/10/24 12:37	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6200		600	mg/Kg		07/10/24 09:01	07/11/24 20:54	200

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-12@4'

Lab Sample ID: 885-7510-6

Date Collected: 07/02/24 13:50

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 10:28	07/10/24 15:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		35 - 166			07/09/24 10:28	07/10/24 15:21	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 10:28	07/10/24 15:21	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 15:21	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 15:21	1
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 15:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		48 - 145			07/09/24 10:28	07/10/24 15:21	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		8.8	mg/Kg		07/09/24 16:22	07/10/24 12:47	1
Motor Oil Range Organics [C28-C40]	ND		44	mg/Kg		07/09/24 16:22	07/10/24 12:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	88		62 - 134			07/09/24 16:22	07/10/24 12:47	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9400		600	mg/Kg		07/10/24 09:01	07/11/24 21:07	200

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-16@1

Lab Sample ID: 885-7510-7

Date Collected: 07/02/24 13:55

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 10:28	07/10/24 15:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		35 - 166			07/09/24 10:28	07/10/24 15:43	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 10:28	07/10/24 15:43	1
Ethylbenzene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 15:43	1
Toluene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 15:43	1
Xylenes, Total	ND		0.094	mg/Kg		07/09/24 10:28	07/10/24 15:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		48 - 145			07/09/24 10:28	07/10/24 15:43	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		07/09/24 16:22	07/10/24 12:58	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		07/09/24 16:22	07/10/24 12:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	93		62 - 134			07/09/24 16:22	07/10/24 12:58	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11000		600	mg/Kg		07/10/24 09:01	07/11/24 21:19	200

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-16@3'

Lab Sample ID: 885-7510-8

Date Collected: 07/02/24 14:02

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 10:28	07/10/24 16:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		35 - 166			07/09/24 10:28	07/10/24 16:05	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 10:28	07/10/24 16:05	1
Ethylbenzene	ND		0.049	mg/Kg		07/09/24 10:28	07/10/24 16:05	1
Toluene	ND		0.049	mg/Kg		07/09/24 10:28	07/10/24 16:05	1
Xylenes, Total	ND		0.098	mg/Kg		07/09/24 10:28	07/10/24 16:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		48 - 145			07/09/24 10:28	07/10/24 16:05	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		9.7	mg/Kg		07/09/24 16:22	07/10/24 13:09	1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		07/09/24 16:22	07/10/24 13:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	90		62 - 134			07/09/24 16:22	07/10/24 13:09	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	15000		600	mg/Kg		07/10/24 09:01	07/11/24 21:31	200

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-16@4'

Lab Sample ID: 885-7510-9

Date Collected: 07/02/24 14:07

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 10:28	07/10/24 16:27	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		35 - 166			07/09/24 10:28	07/10/24 16:27	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 10:28	07/10/24 16:27	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 16:27	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 16:27	1
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 16:27	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		48 - 145			07/09/24 10:28	07/10/24 16:27	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		07/09/24 16:22	07/10/24 13:20	1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		07/09/24 16:22	07/10/24 13:20	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	97		62 - 134			07/09/24 16:22	07/10/24 13:20	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16000		1500	mg/Kg		07/10/24 09:01	07/11/24 21:44	500

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-05@1' Lab Sample ID: 885-7510-10
Date Collected: 07/02/24 14:09 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 10:28	07/10/24 16:49	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	100		35 - 166			07/09/24 10:28	07/10/24 16:49	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 10:28	07/10/24 16:49	1	
Ethylbenzene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 16:49	1	
Toluene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 16:49	1	
Xylenes, Total	ND		0.095	mg/Kg		07/09/24 10:28	07/10/24 16:49	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		48 - 145			07/09/24 10:28	07/10/24 16:49	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]	ND		9.3	mg/Kg		07/09/24 16:22	07/10/24 13:30	1	
Motor Oil Range Organics [C28-C40]	ND		47	mg/Kg		07/09/24 16:22	07/10/24 13:30	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	108		62 - 134			07/09/24 16:22	07/10/24 13:30	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	4000		150	mg/Kg		07/10/24 09:01	07/11/24 21:56	50	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-05@2'

Lab Sample ID: 885-7510-11

Date Collected: 07/02/24 14:14

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 10:28	07/10/24 17:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		35 - 166			07/09/24 10:28	07/10/24 17:33	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 10:28	07/10/24 17:33	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 17:33	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 17:33	1
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 17:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 17:33	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		07/09/24 16:22	07/10/24 13:52	1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		07/09/24 16:22	07/10/24 13:52	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	131		62 - 134			07/09/24 16:22	07/10/24 13:52	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5400		300	mg/Kg		07/10/24 09:01	07/11/24 22:33	100

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-05@4'

Lab Sample ID: 885-7510-12

Date Collected: 07/02/24 14:19

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		4.8	mg/Kg		07/09/24 10:28	07/10/24 17:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		35 - 166			07/09/24 10:28	07/10/24 17:54	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 10:28	07/10/24 17:54	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 17:54	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 17:54	1
Xylenes, Total	ND		0.095	mg/Kg		07/09/24 10:28	07/10/24 17:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		48 - 145			07/09/24 10:28	07/10/24 17:54	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		9.1	mg/Kg		07/09/24 16:22	07/10/24 14:03	1
Motor Oil Range Organics [C28-C40]	ND		45	mg/Kg		07/09/24 16:22	07/10/24 14:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	121		62 - 134			07/09/24 16:22	07/10/24 14:03	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7900		300	mg/Kg		07/10/24 09:01	07/11/24 22:46	100

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5B@1'

Lab Sample ID: 885-7510-13

Date Collected: 07/02/24 14:29

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 10:28	07/10/24 18:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		35 - 166			07/09/24 10:28	07/10/24 18:16	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 10:28	07/10/24 18:16	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 18:16	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 18:16	1
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 18:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 18:16	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		07/09/24 16:22	07/10/24 14:14	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		07/09/24 16:22	07/10/24 14:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	139	S1+	62 - 134			07/09/24 16:22	07/10/24 14:14	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3200		150	mg/Kg		07/10/24 09:01	07/11/24 22:58	50

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5B@2'

Lab Sample ID: 885-7510-14

Date Collected: 07/02/24 14:31

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 10:28	07/10/24 18:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		35 - 166			07/09/24 10:28	07/10/24 18:38	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 10:28	07/10/24 18:38	1
Ethylbenzene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 18:38	1
Toluene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 18:38	1
Xylenes, Total	ND		0.094	mg/Kg		07/09/24 10:28	07/10/24 18:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		48 - 145			07/09/24 10:28	07/10/24 18:38	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]	50		9.6	mg/Kg		07/09/24 16:22	07/10/24 14:24	1
Motor Oil Range Organics [C28-C40]	470		48	mg/Kg		07/09/24 16:22	07/10/24 14:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	107		62 - 134			07/09/24 16:22	07/10/24 14:24	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4300		150	mg/Kg		07/10/24 09:01	07/11/24 23:10	50

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5B@3'

Lab Sample ID: 885-7510-15

Date Collected: 07/02/24 14:34

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		5.0	mg/Kg		07/09/24 10:28	07/10/24 19:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		35 - 166			07/09/24 10:28	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 10:28	07/10/24 19:00	1
Ethylbenzene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 19:00	1
Toluene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 19:00	1
Xylenes, Total	ND		0.10	mg/Kg		07/09/24 10:28	07/10/24 19:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		48 - 145			07/09/24 10:28	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		9.9	mg/Kg		07/09/24 16:22	07/10/24 14:35	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		07/09/24 16:22	07/10/24 14:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	118		62 - 134			07/09/24 16:22	07/10/24 14:35	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2500		150	mg/Kg		07/10/24 09:01	07/11/24 23:23	50

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5B@4'
Date Collected: 07/02/24 14:37
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-16
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 10:28	07/10/24 19:22	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	101		35 - 166			07/09/24 10:28	07/10/24 19:22	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 10:28	07/10/24 19:22	1	
Ethylbenzene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 19:22	1	
Toluene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 19:22	1	
Xylenes, Total	ND		0.094	mg/Kg		07/09/24 10:28	07/10/24 19:22	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	90		48 - 145			07/09/24 10:28	07/10/24 19:22	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		8.6	mg/Kg		07/09/24 16:22	07/10/24 14:46	1	
Motor Oil Range Organics [C28-C40]	ND		43	mg/Kg		07/09/24 16:22	07/10/24 14:46	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	121		62 - 134			07/09/24 16:22	07/10/24 14:46	1	

Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	7800		300	mg/Kg		07/10/24 09:01	07/11/24 23:35	100	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5A@1'

Lab Sample ID: 885-7510-17

Date Collected: 07/02/24 14:40

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 10:28	07/10/24 19:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		35 - 166			07/09/24 10:28	07/10/24 19:44	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 10:28	07/10/24 19:44	1
Ethylbenzene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 19:44	1
Toluene	ND		0.047	mg/Kg		07/09/24 10:28	07/10/24 19:44	1
Xylenes, Total	ND		0.095	mg/Kg		07/09/24 10:28	07/10/24 19:44	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 19:44	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		8.5	mg/Kg		07/09/24 16:22	07/10/24 14:57	1
Motor Oil Range Organics [C28-C40]	ND		43	mg/Kg		07/09/24 16:22	07/10/24 14:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	115		62 - 134			07/09/24 16:22	07/10/24 14:57	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3700		150	mg/Kg		07/10/24 09:01	07/11/24 23:47	50

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5A@2'

Lab Sample ID: 885-7510-18

Date Collected: 07/02/24 14:47

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 10:28	07/10/24 20:05	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		35 - 166			07/09/24 10:28	07/10/24 20:05	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 10:28	07/10/24 20:05	1	
Ethylbenzene	ND		0.049	mg/Kg		07/09/24 10:28	07/10/24 20:05	1	
Toluene	ND		0.049	mg/Kg		07/09/24 10:28	07/10/24 20:05	1	
Xylenes, Total	ND		0.097	mg/Kg		07/09/24 10:28	07/10/24 20:05	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 20:05	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		9.6	mg/Kg		07/09/24 16:22	07/10/24 15:08	1	
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		07/09/24 16:22	07/10/24 15:08	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	149	S1+	62 - 134			07/09/24 16:22	07/10/24 15:08	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	3100		150	mg/Kg		07/10/24 10:30	07/12/24 00:00	50	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5A@3'
Date Collected: 07/02/24 14:52
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-19
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		4.8	mg/Kg		07/09/24 10:28	07/10/24 20:27	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	92		35 - 166			07/09/24 10:28	07/10/24 20:27	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 10:28	07/10/24 20:27	1	
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 20:27	1	
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 20:27	1	
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 20:27	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 20:27	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		07/09/24 16:22	07/10/24 15:26	1	
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		07/09/24 16:22	07/10/24 15:26	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	185	S1+	62 - 134			07/09/24 16:22	07/10/24 15:26	1	

Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	1500	F1	60	mg/Kg		07/10/24 10:30	07/11/24 02:28	20	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5A@4'

Lab Sample ID: 885-7510-20

Date Collected: 07/02/24 14:55

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 10:28	07/10/24 20:49	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		35 - 166			07/09/24 10:28	07/10/24 20:49	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 10:28	07/10/24 20:49	1
Ethylbenzene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 20:49	1
Toluene	ND		0.048	mg/Kg		07/09/24 10:28	07/10/24 20:49	1
Xylenes, Total	ND		0.096	mg/Kg		07/09/24 10:28	07/10/24 20:49	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		48 - 145			07/09/24 10:28	07/10/24 20:49	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]	ND		9.8	mg/Kg		07/09/24 16:22	07/10/24 15:37	1
Motor Oil Range Organics [C28-C40]	ND		49	mg/Kg		07/09/24 16:22	07/10/24 15:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	122		62 - 134			07/09/24 16:22	07/10/24 15:37	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1900		60	mg/Kg		07/10/24 10:30	07/11/24 03:45	20

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-8067/1-A

Matrix: Solid

Analysis Batch: 8267

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 8067

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 10:28	07/10/24 11:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		35 - 166			07/09/24 10:28	07/10/24 11:44	1

Lab Sample ID: LCS 885-8067/2-A

Matrix: Solid

Analysis Batch: 8267

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 8067

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	25.0	26.5		mg/Kg		106	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	207	S1+	35 - 166				

Lab Sample ID: 885-7510-1 MS

Matrix: Solid

Analysis Batch: 8267

Client Sample ID: BH23-06@1'

Prep Type: Total/NA

Prep Batch: 8067

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	ND		24.9	24.0		mg/Kg		96	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	208	S1+	35 - 166						

Lab Sample ID: 885-7510-1 MSD

Matrix: Solid

Analysis Batch: 8267

Client Sample ID: BH23-06@1'

Prep Type: Total/NA

Prep Batch: 8067

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		25.0	23.2		mg/Kg		93	70 - 130	3	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	192	S1+	35 - 166								

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-8067/1-A

Matrix: Solid

Analysis Batch: 8268

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 8067

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		07/09/24 10:28	07/10/24 11:44	1
Ethylbenzene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 11:44	1
Toluene	ND		0.050	mg/Kg		07/09/24 10:28	07/10/24 11:44	1

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-8067/1-A

Matrix: Solid

Analysis Batch: 8268

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 8067

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10	mg/Kg		07/09/24 10:28	07/10/24 11:44	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145			07/09/24 10:28	07/10/24 11:44	1

Lab Sample ID: LCS 885-8067/3-A

Matrix: Solid

Analysis Batch: 8268

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 8067

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.898		mg/Kg		90	70 - 130
Ethylbenzene	1.00	0.900		mg/Kg		90	70 - 130
m-Xylene & p-Xylene	2.00	1.80		mg/Kg		90	70 - 130
o-Xylene	1.00	0.898		mg/Kg		90	70 - 130
Toluene	1.00	0.893		mg/Kg		89	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	92		48 - 145				

Lab Sample ID: 885-7510-2 MS

Matrix: Solid

Analysis Batch: 8268

Client Sample ID: BH23-06@3'

Prep Type: Total/NA

Prep Batch: 8067

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.998	0.948		mg/Kg		95	70 - 130
Ethylbenzene	ND		0.998	0.969		mg/Kg		97	70 - 130
m-Xylene & p-Xylene	ND		2.00	1.93		mg/Kg		97	70 - 130
o-Xylene	ND		0.998	0.960		mg/Kg		96	70 - 130
Toluene	ND		0.998	0.952		mg/Kg		95	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	91		48 - 145						

Lab Sample ID: 885-7510-2 MSD

Matrix: Solid

Analysis Batch: 8268

Client Sample ID: BH23-06@3'

Prep Type: Total/NA

Prep Batch: 8067

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	ND		1.00	0.955		mg/Kg		96	70 - 130	1	20
Ethylbenzene	ND		1.00	0.967		mg/Kg		97	70 - 130	0	20
m-Xylene & p-Xylene	ND		2.00	1.92		mg/Kg		96	70 - 130	0	20
o-Xylene	ND		1.00	0.971		mg/Kg		97	70 - 130	1	20
Toluene	ND		1.00	0.952		mg/Kg		95	70 - 130	0	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	92		48 - 145								

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-8109/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 8141						Prep Batch: 8109			
	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		07/09/24 16:22	07/10/24 11:33	1	
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		07/09/24 16:22	07/10/24 11:33	1	
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	97		62 - 134			07/09/24 16:22	07/10/24 11:33	1	

Lab Sample ID: LCS 885-8109/2-A						Client Sample ID: Lab Control Sample			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 8141						Prep Batch: 8109			
Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]			50.0	52.6		mg/Kg		105	60 - 135
Surrogate	LCS %Recovery	LCS Qualifier							
Di-n-octyl phthalate (Surr)	107		62 - 134						

Lab Sample ID: 885-7510-20 MS						Client Sample ID: BG23-5A@4'			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 8141						Prep Batch: 8109			
Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND		49.2	45.8		mg/Kg		93	44 - 136
Surrogate	MS %Recovery	MS Qualifier	Limits						
Di-n-octyl phthalate (Surr)	93		62 - 134						

Lab Sample ID: 885-7510-20 MSD

Matrix: Solid

Analysis Batch: 8141

Client Sample ID: BG23-5A@4'

Prep Type: Total/NA

Prep Batch: 8109

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		45.7	42.9		mg/Kg		94	44 - 136	7	32
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Di-n-octyl phthalate (Surr)	95		62 - 134								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-8144/1-A						Client Sample ID: Method Blank			
Matrix: Solid						Prep Type: Total/NA			
Analysis Batch: 8173						Prep Batch: 8144			
Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	ND		3.0	mg/Kg		07/10/24 09:01	07/10/24 19:36	1	

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-8144/2-A

Matrix: Solid

Analysis Batch: 8173

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 8144

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	31.1		mg/Kg		104	90 - 110

Lab Sample ID: MRL 885-8144/27-A

Matrix: Solid

Analysis Batch: 8173

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 8144

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	3.00	3.22		mg/L		107	50 - 150

Lab Sample ID: MB 885-8162/1-A

Matrix: Solid

Analysis Batch: 8173

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 8162

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		07/10/24 10:30	07/11/24 02:15	1

Lab Sample ID: LCS 885-8162/2-A

Matrix: Solid

Analysis Batch: 8173

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 8162

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 885-8306/4

Matrix: Solid

Analysis Batch: 8306

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			07/11/24 08:06	1

Lab Sample ID: MRL 885-8306/3

Matrix: Solid

Analysis Batch: 8306

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	0.510		mg/L		102	50 - 150

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QC Association Summary

Client: Vertex

Job ID: 885-7510-1

Project/Site: Spud 16 10H Battery

GC VOA

Prep Batch: 8067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	5030C	
885-7510-2	BH23-06@3'	Total/NA	Solid	5030C	
885-7510-3	BH23-06@4'	Total/NA	Solid	5030C	
885-7510-4	BH23-12@1'	Total/NA	Solid	5030C	
885-7510-5	BH23-12@3'	Total/NA	Solid	5030C	
885-7510-6	BH23-12@4'	Total/NA	Solid	5030C	
885-7510-7	BH23-16@1	Total/NA	Solid	5030C	
885-7510-8	BH23-16@3'	Total/NA	Solid	5030C	
885-7510-9	BH23-16@4'	Total/NA	Solid	5030C	
885-7510-10	BG23-05@1'	Total/NA	Solid	5030C	
885-7510-11	BG23-05@2'	Total/NA	Solid	5030C	
885-7510-12	BG23-05@4'	Total/NA	Solid	5030C	
885-7510-13	BG23-5B@1'	Total/NA	Solid	5030C	
885-7510-14	BG23-5B@2'	Total/NA	Solid	5030C	
885-7510-15	BG23-5B@3'	Total/NA	Solid	5030C	
885-7510-16	BG23-5B@4'	Total/NA	Solid	5030C	
885-7510-17	BG23-5A@1'	Total/NA	Solid	5030C	
885-7510-18	BG23-5A@2'	Total/NA	Solid	5030C	
885-7510-19	BG23-5A@3'	Total/NA	Solid	5030C	
885-7510-20	BG23-5A@4'	Total/NA	Solid	5030C	
MB 885-8067/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-8067/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-8067/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-7510-1 MS	BH23-06@1'	Total/NA	Solid	5030C	
885-7510-1 MSD	BH23-06@1'	Total/NA	Solid	5030C	
885-7510-2 MS	BH23-06@3'	Total/NA	Solid	5030C	
885-7510-2 MSD	BH23-06@3'	Total/NA	Solid	5030C	

Analysis Batch: 8267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	8015M/D	8067
885-7510-2	BH23-06@3'	Total/NA	Solid	8015M/D	8067
885-7510-3	BH23-06@4'	Total/NA	Solid	8015M/D	8067
885-7510-4	BH23-12@1'	Total/NA	Solid	8015M/D	8067
885-7510-5	BH23-12@3'	Total/NA	Solid	8015M/D	8067
885-7510-6	BH23-12@4'	Total/NA	Solid	8015M/D	8067
885-7510-7	BH23-16@1	Total/NA	Solid	8015M/D	8067
885-7510-8	BH23-16@3'	Total/NA	Solid	8015M/D	8067
885-7510-9	BH23-16@4'	Total/NA	Solid	8015M/D	8067
885-7510-10	BG23-05@1'	Total/NA	Solid	8015M/D	8067
885-7510-11	BG23-05@2'	Total/NA	Solid	8015M/D	8067
885-7510-12	BG23-05@4'	Total/NA	Solid	8015M/D	8067
885-7510-13	BG23-5B@1'	Total/NA	Solid	8015M/D	8067
885-7510-14	BG23-5B@2'	Total/NA	Solid	8015M/D	8067
885-7510-15	BG23-5B@3'	Total/NA	Solid	8015M/D	8067
885-7510-16	BG23-5B@4'	Total/NA	Solid	8015M/D	8067
885-7510-17	BG23-5A@1'	Total/NA	Solid	8015M/D	8067
885-7510-18	BG23-5A@2'	Total/NA	Solid	8015M/D	8067
885-7510-19	BG23-5A@3'	Total/NA	Solid	8015M/D	8067
885-7510-20	BG23-5A@4'	Total/NA	Solid	8015M/D	8067
MB 885-8067/1-A	Method Blank	Total/NA	Solid	8015M/D	8067

Eurofins Albuquerque

QC Association Summary

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

GC VOA (Continued)

Analysis Batch: 8267 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-8067/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8067
885-7510-1 MS	BH23-06@1'	Total/NA	Solid	8015M/D	8067
885-7510-1 MSD	BH23-06@1'	Total/NA	Solid	8015M/D	8067

Analysis Batch: 8268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	8021B	8067
885-7510-2	BH23-06@3'	Total/NA	Solid	8021B	8067
885-7510-3	BH23-06@4'	Total/NA	Solid	8021B	8067
885-7510-4	BH23-12@1'	Total/NA	Solid	8021B	8067
885-7510-5	BH23-12@3'	Total/NA	Solid	8021B	8067
885-7510-6	BH23-12@4'	Total/NA	Solid	8021B	8067
885-7510-7	BH23-16@1	Total/NA	Solid	8021B	8067
885-7510-8	BH23-16@3'	Total/NA	Solid	8021B	8067
885-7510-9	BH23-16@4'	Total/NA	Solid	8021B	8067
885-7510-10	BG23-05@1'	Total/NA	Solid	8021B	8067
885-7510-11	BG23-05@2'	Total/NA	Solid	8021B	8067
885-7510-12	BG23-05@4'	Total/NA	Solid	8021B	8067
885-7510-13	BG23-5B@1'	Total/NA	Solid	8021B	8067
885-7510-14	BG23-5B@2'	Total/NA	Solid	8021B	8067
885-7510-15	BG23-5B@3'	Total/NA	Solid	8021B	8067
885-7510-16	BG23-5B@4'	Total/NA	Solid	8021B	8067
885-7510-17	BG23-5A@1'	Total/NA	Solid	8021B	8067
885-7510-18	BG23-5A@2'	Total/NA	Solid	8021B	8067
885-7510-19	BG23-5A@3'	Total/NA	Solid	8021B	8067
885-7510-20	BG23-5A@4'	Total/NA	Solid	8021B	8067
MB 885-8067/1-A	Method Blank	Total/NA	Solid	8021B	8067
LCS 885-8067/3-A	Lab Control Sample	Total/NA	Solid	8021B	8067
885-7510-2 MS	BH23-06@3'	Total/NA	Solid	8021B	8067
885-7510-2 MSD	BH23-06@3'	Total/NA	Solid	8021B	8067

GC Semi VOA

Prep Batch: 8109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	SHAKE	
885-7510-2	BH23-06@3'	Total/NA	Solid	SHAKE	
885-7510-3	BH23-06@4'	Total/NA	Solid	SHAKE	
885-7510-4	BH23-12@1'	Total/NA	Solid	SHAKE	
885-7510-5	BH23-12@3'	Total/NA	Solid	SHAKE	
885-7510-6	BH23-12@4'	Total/NA	Solid	SHAKE	
885-7510-7	BH23-16@1	Total/NA	Solid	SHAKE	
885-7510-8	BH23-16@3'	Total/NA	Solid	SHAKE	
885-7510-9	BH23-16@4'	Total/NA	Solid	SHAKE	
885-7510-10	BG23-05@1'	Total/NA	Solid	SHAKE	
885-7510-11	BG23-05@2'	Total/NA	Solid	SHAKE	
885-7510-12	BG23-05@4'	Total/NA	Solid	SHAKE	
885-7510-13	BG23-5B@1'	Total/NA	Solid	SHAKE	
885-7510-14	BG23-5B@2'	Total/NA	Solid	SHAKE	
885-7510-15	BG23-5B@3'	Total/NA	Solid	SHAKE	
885-7510-16	BG23-5B@4'	Total/NA	Solid	SHAKE	

Eurofins Albuquerque

QC Association Summary

Client: Vertex

Job ID: 885-7510-1

Project/Site: Spud 16 10H Battery

GC Semi VOA (Continued)

Prep Batch: 8109 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-17	BG23-5A@1'	Total/NA	Solid	SHAKE	
885-7510-18	BG23-5A@2'	Total/NA	Solid	SHAKE	
885-7510-19	BG23-5A@3'	Total/NA	Solid	SHAKE	
885-7510-20	BG23-5A@4'	Total/NA	Solid	SHAKE	
MB 885-8109/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-8109/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-7510-20 MS	BG23-5A@4'	Total/NA	Solid	SHAKE	
885-7510-20 MSD	BG23-5A@4'	Total/NA	Solid	SHAKE	

Analysis Batch: 8141

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	8015M/D	8109
885-7510-2	BH23-06@3'	Total/NA	Solid	8015M/D	8109
885-7510-3	BH23-06@4'	Total/NA	Solid	8015M/D	8109
885-7510-4	BH23-12@1'	Total/NA	Solid	8015M/D	8109
885-7510-5	BH23-12@3'	Total/NA	Solid	8015M/D	8109
885-7510-6	BH23-12@4'	Total/NA	Solid	8015M/D	8109
885-7510-7	BH23-16@1	Total/NA	Solid	8015M/D	8109
885-7510-8	BH23-16@3'	Total/NA	Solid	8015M/D	8109
885-7510-9	BH23-16@4'	Total/NA	Solid	8015M/D	8109
885-7510-10	BG23-05@1'	Total/NA	Solid	8015M/D	8109
885-7510-11	BG23-05@2'	Total/NA	Solid	8015M/D	8109
885-7510-12	BG23-05@4'	Total/NA	Solid	8015M/D	8109
885-7510-13	BG23-5B@1'	Total/NA	Solid	8015M/D	8109
885-7510-14	BG23-5B@2'	Total/NA	Solid	8015M/D	8109
885-7510-15	BG23-5B@3'	Total/NA	Solid	8015M/D	8109
885-7510-16	BG23-5B@4'	Total/NA	Solid	8015M/D	8109
885-7510-17	BG23-5A@1'	Total/NA	Solid	8015M/D	8109
885-7510-18	BG23-5A@2'	Total/NA	Solid	8015M/D	8109
885-7510-19	BG23-5A@3'	Total/NA	Solid	8015M/D	8109
885-7510-20	BG23-5A@4'	Total/NA	Solid	8015M/D	8109
MB 885-8109/1-A	Method Blank	Total/NA	Solid	8015M/D	8109
LCS 885-8109/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8109
885-7510-20 MS	BG23-5A@4'	Total/NA	Solid	8015M/D	8109
885-7510-20 MSD	BG23-5A@4'	Total/NA	Solid	8015M/D	8109

HPLC/IC

Prep Batch: 8144

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	300_Prep	
885-7510-2	BH23-06@3'	Total/NA	Solid	300_Prep	
885-7510-3	BH23-06@4'	Total/NA	Solid	300_Prep	
885-7510-4	BH23-12@1'	Total/NA	Solid	300_Prep	
885-7510-5	BH23-12@3'	Total/NA	Solid	300_Prep	
885-7510-6	BH23-12@4'	Total/NA	Solid	300_Prep	
885-7510-7	BH23-16@1	Total/NA	Solid	300_Prep	
885-7510-8	BH23-16@3'	Total/NA	Solid	300_Prep	
885-7510-9	BH23-16@4'	Total/NA	Solid	300_Prep	
885-7510-10	BG23-05@1'	Total/NA	Solid	300_Prep	
885-7510-11	BG23-05@2'	Total/NA	Solid	300_Prep	

Eurofins Albuquerque

QC Association Summary

Client: Vertex

Job ID: 885-7510-1

Project/Site: Spud 16 10H Battery

HPLC/IC (Continued)

Prep Batch: 8144 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-12	BG23-05@4'	Total/NA	Solid	300_Prep	
885-7510-13	BG23-5B@1'	Total/NA	Solid	300_Prep	
885-7510-14	BG23-5B@2'	Total/NA	Solid	300_Prep	
885-7510-15	BG23-5B@3'	Total/NA	Solid	300_Prep	
885-7510-16	BG23-5B@4'	Total/NA	Solid	300_Prep	
885-7510-17	BG23-5A@1'	Total/NA	Solid	300_Prep	
MB 885-8144/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8144/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
MRL 885-8144/27-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Prep Batch: 8162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-18	BG23-5A@2'	Total/NA	Solid	300_Prep	
885-7510-19	BG23-5A@3'	Total/NA	Solid	300_Prep	
885-7510-20	BG23-5A@4'	Total/NA	Solid	300_Prep	
MB 885-8162/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8162/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 8173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-19	BG23-5A@3'	Total/NA	Solid	300.0	8162
885-7510-20	BG23-5A@4'	Total/NA	Solid	300.0	8162
MB 885-8144/1-A	Method Blank	Total/NA	Solid	300.0	8144
MB 885-8162/1-A	Method Blank	Total/NA	Solid	300.0	8162
LCS 885-8144/2-A	Lab Control Sample	Total/NA	Solid	300.0	8144
LCS 885-8162/2-A	Lab Control Sample	Total/NA	Solid	300.0	8162
MRL 885-8144/27-A	Lab Control Sample	Total/NA	Solid	300.0	8144

Analysis Batch: 8306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7510-1	BH23-06@1'	Total/NA	Solid	300.0	8144
885-7510-2	BH23-06@3'	Total/NA	Solid	300.0	8144
885-7510-3	BH23-06@4'	Total/NA	Solid	300.0	8144
885-7510-4	BH23-12@1'	Total/NA	Solid	300.0	8144
885-7510-5	BH23-12@3'	Total/NA	Solid	300.0	8144
885-7510-6	BH23-12@4'	Total/NA	Solid	300.0	8144
885-7510-7	BH23-16@1	Total/NA	Solid	300.0	8144
885-7510-8	BH23-16@3'	Total/NA	Solid	300.0	8144
885-7510-9	BH23-16@4'	Total/NA	Solid	300.0	8144
885-7510-10	BG23-05@1'	Total/NA	Solid	300.0	8144
885-7510-11	BG23-05@2'	Total/NA	Solid	300.0	8144
885-7510-12	BG23-05@4'	Total/NA	Solid	300.0	8144
885-7510-13	BG23-5B@1'	Total/NA	Solid	300.0	8144
885-7510-14	BG23-5B@2'	Total/NA	Solid	300.0	8144
885-7510-15	BG23-5B@3'	Total/NA	Solid	300.0	8144
885-7510-16	BG23-5B@4'	Total/NA	Solid	300.0	8144
885-7510-17	BG23-5A@1'	Total/NA	Solid	300.0	8144
885-7510-18	BG23-5A@2'	Total/NA	Solid	300.0	8162
MB 885-8306/4	Method Blank	Total/NA	Solid	300.0	
MRL 885-8306/3	Lab Control Sample	Total/NA	Solid	300.0	

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Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-06@1'
Date Collected: 07/02/24 13:20
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 12:05
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 12:05
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 11:54
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		500	8306	RC	EET ALB	07/11/24 20:05

Client Sample ID: BH23-06@3'
Date Collected: 07/02/24 13:27
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 13:11
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 13:11
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 12:05
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		500	8306	RC	EET ALB	07/11/24 20:17

Client Sample ID: BH23-06@4'
Date Collected: 07/02/24 13:32
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 14:16
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 14:16
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 12:15
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		200	8306	RC	EET ALB	07/11/24 20:30

Client Sample ID: BH23-12@1'
Date Collected: 07/02/24 13:40
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 14:38

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-12@1'
Date Collected: 07/02/24 13:40
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 14:38
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 12:26
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		100	8306	RC	EET ALB	07/11/24 20:42

Client Sample ID: BH23-12@3'
Date Collected: 07/02/24 13:45
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 15:00
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 15:00
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 12:37
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		200	8306	RC	EET ALB	07/11/24 20:54

Client Sample ID: BH23-12@4'
Date Collected: 07/02/24 13:50
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 15:21
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 15:21
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 12:47
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		200	8306	RC	EET ALB	07/11/24 21:07

Client Sample ID: BH23-16@1
Date Collected: 07/02/24 13:55
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 15:43
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 15:43

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BH23-16@1
Date Collected: 07/02/24 13:55
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 12:58
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		200	8306	RC	EET ALB	07/11/24 21:19

Client Sample ID: BH23-16@3'
Date Collected: 07/02/24 14:02
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 16:05
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 16:05
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 13:09
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		200	8306	RC	EET ALB	07/11/24 21:31

Client Sample ID: BH23-16@4'
Date Collected: 07/02/24 14:07
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 16:27
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 16:27
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 13:20
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		500	8306	RC	EET ALB	07/11/24 21:44

Client Sample ID: BG23-05@1'
Date Collected: 07/02/24 14:09
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 16:49
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 16:49
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 13:30

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-05@1'
Date Collected: 07/02/24 14:09
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		50	8306	RC	EET ALB	07/11/24 21:56

Client Sample ID: BG23-05@2'
Date Collected: 07/02/24 14:14
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 17:33
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 17:33
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 13:52
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		100	8306	RC	EET ALB	07/11/24 22:33

Client Sample ID: BG23-05@4'
Date Collected: 07/02/24 14:19
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 17:54
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 17:54
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 14:03
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		100	8306	RC	EET ALB	07/11/24 22:46

Client Sample ID: BG23-5B@1'
Date Collected: 07/02/24 14:29
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 18:16
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 18:16
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 14:14
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		50	8306	RC	EET ALB	07/11/24 22:58

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5B@2'
Date Collected: 07/02/24 14:31
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 18:38
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 18:38
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 14:24
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		50	8306	RC	EET ALB	07/11/24 23:10

Client Sample ID: BG23-5B@3'
Date Collected: 07/02/24 14:34
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 19:00
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 19:00
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 14:35
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		50	8306	RC	EET ALB	07/11/24 23:23

Client Sample ID: BG23-5B@4'
Date Collected: 07/02/24 14:37
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 19:22
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 19:22
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 14:46
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		100	8306	RC	EET ALB	07/11/24 23:35

Client Sample ID: BG23-5A@1'
Date Collected: 07/02/24 14:40
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-17
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 19:44

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5A@1'
Date Collected: 07/02/24 14:40
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-17
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 19:44
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 14:57
Total/NA	Prep	300_Prep			8144	EH	EET ALB	07/10/24 09:01
Total/NA	Analysis	300.0		50	8306	RC	EET ALB	07/11/24 23:47

Client Sample ID: BG23-5A@2'
Date Collected: 07/02/24 14:47
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-18
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 20:05
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 20:05
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 15:08
Total/NA	Prep	300_Prep			8162	EH	EET ALB	07/10/24 10:30
Total/NA	Analysis	300.0		50	8306	RC	EET ALB	07/12/24 00:00

Client Sample ID: BG23-5A@3'
Date Collected: 07/02/24 14:52
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-19
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 20:27
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 20:27
Total/NA	Prep	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 15:26
Total/NA	Prep	300_Prep			8162	EH	EET ALB	07/10/24 10:30
Total/NA	Analysis	300.0		20	8173	MA	EET ALB	07/11/24 02:28

Client Sample ID: BG23-5A@4'
Date Collected: 07/02/24 14:55
Date Received: 07/09/24 07:50

Lab Sample ID: 885-7510-20
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8015M/D		1	8267	RA	EET ALB	07/10/24 20:49
Total/NA	Prep	5030C			8067	AT	EET ALB	07/09/24 10:28
Total/NA	Analysis	8021B		1	8268	RA	EET ALB	07/10/24 20:49

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

Client Sample ID: BG23-5A@4'

Lab Sample ID: 885-7510-20

Date Collected: 07/02/24 14:55

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	SHAKE			8109	KR	EET ALB	07/09/24 16:22
Total/NA	Analysis	8015M/D		1	8141	KR	EET ALB	07/10/24 15:37
Total/NA	Prep	300_Prep			8162	EH	EET ALB	07/10/24 10:30
Total/NA	Analysis	300.0		20	8173	MA	EET ALB	07/11/24 03:45

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

Accreditation/Certification Summary

Client: Vertex
Project/Site: Spud 16 10H Battery

Job ID: 885-7510-1

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

Project Name:

SPUD 16 10H Battery

Project #:

23E - 04221Project Manager: Chad Hensleychensley@vertexresource.comSampler: Riley ProggerOn Ice: ☒ Yes ☐ No# of Coolers: 1Cooler Temp (including CF): 1.6 to 2.18 (°C)

Container Type and #

Preservative Type

HEAL No.

4oz jar Ice123456789101112

Date Time

Relinquished by

Received by

Via

Date Time

Remarks:

Date Time

Relinquished by

Received by

Via

Date Time

Remarks:

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

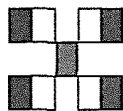
RCRA 8 Metals

CF, Br, NO₃, NO₂, PO₄, SO₄

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

**HALL ENVIRONMENTAL
ANALYSIS LABORA**

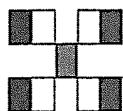
www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

885-7510 COC

2302



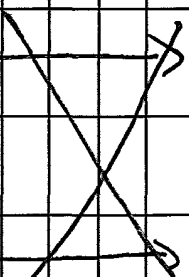
HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Chain-of-Custody Record				Turn-Around Time:			
Client: <u>vertex (Bill to Devon)</u>				<input checked="" type="checkbox"/> Standard <input checked="" type="checkbox"/> Rush <u>5 Days</u> Project Name: <u>SPUD 16 10H Battery</u>			
Mailing Address:				Project #: <u>23E - 04221</u>			
Phone #:				Project Manager: <u>CHAD HENSLEY</u> - <u>per client table</u> <u>7/14/24</u>			
email or Fax#:				CHENSLEY@vertexresource.com			
QA/QC Package:							
<input type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation) <input type="checkbox"/> Accreditation: <input type="checkbox"/> Az Compliance <input type="checkbox"/> NELAC <input type="checkbox"/> Other <input type="checkbox"/> EDD (Type)				Sampler: <u>Riley Trogger</u> On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No # of Coolers: <u>1</u> <u>yes?</u> Cooler Temp (including CF): <u>1.6 to 2.2</u> <u>> 1.8</u> (°C)			
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	
7.22.24	2:29	Soil	BG23-SB01	423JW	ILC	13	
	2:31		BG23-SB02			14	
	2:34		BG23-SB03			15	
	2:37		BG23-SB04			16	
	2:40		BG23-SA01			17	
	2:47		BG23-SA02			18	
	2:50		BG23-SA03			19	
	2:55		BG23-SA04			20	
<div style="text-align: center;">  </div>							
Date	Time	Relinquished by		Via	Date	Time	
7/16/24	1400	Manning			7/16/24	1030	
Date	Time	Relinquished by		Via	Date	Time	
7/16/24	1400	Manning			7/16/24	1030	

Login Sample Receipt Checklist

Client: Vertex

Job Number: 885-7510-1

Login Number: 7510

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	

Report to:
Chad Hensley



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name: Spud 16 State 10 Battery

Work Order: E411163

Job Number: 01058-0007

Received: 11/18/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
11/21/24

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.

Date Reported: 11/21/24

Chad Hensley
3101 Boyd Drive
Carlsbad, NM 88220



Project Name: Spud 16 State 10 Battery
Workorder: E411163
Date Received: 11/18/2024 8:00:00AM

Chad Hensley,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 11/18/2024 8:00:00AM, under the Project Name: Spud 16 State 10 Battery.

The analytical test results summarized in this report with the Project Name: Spud 16 State 10 Battery 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 regarding 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
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Cell: 775-287-1762
whinchman@envirotech-inc.com

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mgonzaless@envirotech-inc.com

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Sample Summary

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10 Battery	Reported:
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/24 11:38

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BS24-45 @ 1'	E411163-01A	Soil	11/12/24	11/18/24	Glass Jar, 2 oz.



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 State 10 Battery Project Number: 01058-0007 Project Manager: Chad Hensley	Reported: 11/21/2024 11:38:11AM
--	---	------------------------------------

BS24-45 @ 1'
E411163-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: IY		Batch: 2447002	
Benzene	ND	0.0250	1	11/18/24	11/18/24	
Ethylbenzene	ND	0.0250	1	11/18/24	11/18/24	
Toluene	ND	0.0250	1	11/18/24	11/18/24	
o-Xylene	ND	0.0250	1	11/18/24	11/18/24	
p,m-Xylene	ND	0.0500	1	11/18/24	11/18/24	
Total Xylenes	ND	0.0250	1	11/18/24	11/18/24	
Surrogate: Bromofluorobenzene		98.1 %	70-130	11/18/24	11/18/24	
Surrogate: 1,2-Dichloroethane-d4		93.8 %	70-130	11/18/24	11/18/24	
Surrogate: Toluene-d8		104 %	70-130	11/18/24	11/18/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: IY		Batch: 2447002	
Gasoline Range Organics (C6-C10)	ND	20.0	1	11/18/24	11/18/24	
Surrogate: Bromofluorobenzene		98.1 %	70-130	11/18/24	11/18/24	
Surrogate: 1,2-Dichloroethane-d4		93.8 %	70-130	11/18/24	11/18/24	
Surrogate: Toluene-d8		104 %	70-130	11/18/24	11/18/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2447012	
Diesel Range Organics (C10-C28)	ND	25.0	1	11/18/24	11/18/24	
Oil Range Organics (C28-C36)	72.5	50.0	1	11/18/24	11/18/24	
Surrogate: n-Nonane		117 %	50-200	11/18/24	11/18/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM		Batch: 2447006	
Chloride	7620	100	5	11/18/24	11/18/24	



QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 State 10 Battery	Reported:
3101 Boyd Drive	Project Number:	01058-0007	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/2024 11:38:11AM

Volatile Organic Compounds by EPA 8260B

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 (2447002-BLK1) Prepared: 11/18/24 Analyzed: 11/18/24

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	0.482		0.500		96.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.472		0.500		94.3	70-130			
Surrogate: Toluene-d8	0.521		0.500		104	70-130			

LCS (2447002-BS1) Prepared: 11/18/24 Analyzed: 11/18/24

Benzene	2.33	0.0250	2.50		93.1	70-130			
Ethylbenzene	2.57	0.0250	2.50		103	70-130			
Toluene	2.48	0.0250	2.50		99.0	70-130			
o-Xylene	2.63	0.0250	2.50		105	70-130			
p,m-Xylene	5.33	0.0500	5.00		107	70-130			
Total Xylenes	7.97	0.0250	7.50		106	70-130			
Surrogate: Bromofluorobenzene	0.497		0.500		99.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.479		0.500		95.7	70-130			
Surrogate: Toluene-d8	0.521		0.500		104	70-130			

LCS Dup (2447002-BSD1) Prepared: 11/18/24 Analyzed: 11/18/24

Benzene	2.40	0.0250	2.50		95.8	70-130	2.88	23	
Ethylbenzene	2.61	0.0250	2.50		105	70-130	1.66	27	
Toluene	2.53	0.0250	2.50		101	70-130	2.18	24	
o-Xylene	2.70	0.0250	2.50		108	70-130	2.44	27	
p,m-Xylene	5.40	0.0500	5.00		108	70-130	1.29	27	
Total Xylenes	8.10	0.0250	7.50		108	70-130	1.67	27	
Surrogate: Bromofluorobenzene	0.496		0.500		99.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.506		0.500		101	70-130			
Surrogate: Toluene-d8	0.512		0.500		102	70-130			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 State 10 Battery Project Number: 01058-0007 Project Manager: Chad Hensley	Reported: 11/21/2024 11:38:11AM
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Nonhalogenated Organics by EPA 8015D - GRO

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2447002-BLK1) Prepared: 11/18/24 Analyzed: 11/18/24

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	0.482		0.500		96.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.472		0.500		94.3	70-130			
Surrogate: Toluene-d8	0.521		0.500		104	70-130			

LCS (2447002-BS2) Prepared: 11/18/24 Analyzed: 11/18/24

Gasoline Range Organics (C6-C10)	54.3	20.0	50.0		109	70-130			
Surrogate: Bromofluorobenzene	0.500		0.500		99.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.489		0.500		97.8	70-130			
Surrogate: Toluene-d8	0.523		0.500		105	70-130			

LCS Dup (2447002-BSD2) Prepared: 11/18/24 Analyzed: 11/18/24

Gasoline Range Organics (C6-C10)	56.5	20.0	50.0		113	70-130	3.95	20	
Surrogate: Bromofluorobenzene	0.501		0.500		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.490		0.500		97.9	70-130			
Surrogate: Toluene-d8	0.525		0.500		105	70-130			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 State 10 Battery Project Number: 01058-0007 Project Manager: Chad Hensley	Reported: 11/21/2024 11:38:11AM
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Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2447012-BLK1) Prepared: 11/18/24 Analyzed: 11/18/24

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	55.7		50.0		111	50-200			

LCS (2447012-BS1) Prepared: 11/18/24 Analyzed: 11/18/24

Diesel Range Organics (C10-C28)	274	25.0	250		109	38-132			
Surrogate: n-Nonane	55.7		50.0		111	50-200			

Matrix Spike (2447012-MS1) Source: E411165-04 Prepared: 11/18/24 Analyzed: 11/18/24

Diesel Range Organics (C10-C28)	1430	50.0	250	1440	NR	38-132			M4
Surrogate: n-Nonane	52.5		50.0		105	50-200			

Matrix Spike Dup (2447012-MSD1) Source: E411165-04 Prepared: 11/18/24 Analyzed: 11/18/24

Diesel Range Organics (C10-C28)	1240	50.0	250	1440	NR	38-132	14.3	20	M4
Surrogate: n-Nonane	54.1		50.0		108	50-200			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 State 10 Battery Project Number: 01058-0007 Project Manager: Chad Hensley	Reported: 11/21/2024 11:38:11AM
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Anions by EPA 300.0/9056A

Analyst: JM

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
---------	-----------------	-----------------------------	-------------------------	---------------------------	----------	--------------------	----------	-------------------	-------

Blank (2447006-BLK1)					Prepared: 11/18/24 Analyzed: 11/18/24				
Chloride	ND	20.0							
LCS (2447006-BS1)					Prepared: 11/18/24 Analyzed: 11/18/24				
Chloride	253	20.0	250		101	90-110			
LCS Dup (2447006-BSD1)					Prepared: 11/18/24 Analyzed: 11/18/24				
Chloride	253	20.0	250		101	90-110	0.0466	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 10 Battery	
3101 Boyd Drive	Project Number:	01058-0007	Reported:
Carlsbad NM, 88220	Project Manager:	Chad Hensley	11/21/24 11:38

- M4 Matrix spike recovery value is suspect since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS spike recovery was acceptable.
- 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.



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Envirotech Analytical Laboratory

Printed: 11/18/2024 10:07:52AM

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:	11/18/24 08:00	Work Order ID:	E411163
Phone:	(575) 748-0176	Date Logged In:	11/15/24 14:25	Logged In By:	Noe Soto
Email:	chensley@vertexresources.com	Due Date:	11/22/24 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
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: CourierComments/ResolutionSample 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 Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

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 filtration 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

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chad Hensley
Vertex

3101 Boyd Dr

Carlsbad, New Mexico 88220

Generated 10/14/2024 5:07:52 PM Revision 1

JOB DESCRIPTION

Spud 16 State 11H

JOB NUMBER

885-13235-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

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



Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

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Revision 1

Client: Vertex
Project/Site: Spud 16 State 11H

Laboratory Job ID: 885-13235-1

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Definitions/Glossary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Qualifiers

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 State 11H

Job ID: 885-13235-1

Job ID: 885-13235-1

Eurofins Albuquerque

**Job Narrative
885-13235-1**

REVISION

The report being provided is a revision of the original report sent on 10/14/2024. The report (revision 1) is being revised due to The final data for BTEX/GRO has been updated for the first 5 samples in this report..

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 10/5/2024 10:57 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 3.0°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.

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-01 0'

Lab Sample ID: 885-13235-1

Date Collected: 10/03/24 14:45

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/10/24 22:58	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	104		35 - 166			10/07/24 12:25	10/10/24 22:58	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/10/24 22:58	1	
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/10/24 22:58	1	
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/10/24 22:58	1	
Xylenes, Total	ND		0.10	mg/Kg		10/07/24 12:25	10/10/24 22:58	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	104		48 - 145			10/07/24 12:25	10/10/24 22:58	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]	93		9.8	mg/Kg		10/08/24 09:47	10/09/24 21:08	1	
Motor Oil Range Organics [C28-C40]	49		49	mg/Kg		10/08/24 09:47	10/09/24 21:08	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	91		62 - 134			10/08/24 09:47	10/09/24 21:08	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	12000		600	mg/Kg		10/08/24 12:01	10/09/24 20:54	200	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-02 0'

Lab Sample ID: 885-13235-2

Date Collected: 10/03/24 14:45

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 00:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		35 - 166			10/07/24 12:25	10/11/24 00:03	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/11/24 00:03	1
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 00:03	1
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 00:03	1
Xylenes, Total	ND		0.099	mg/Kg		10/07/24 12:25	10/11/24 00:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		48 - 145			10/07/24 12:25	10/11/24 00:03	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]	70		9.7	mg/Kg		10/08/24 09:47	10/09/24 21:21	1
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		10/08/24 09:47	10/09/24 21:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	91		62 - 134			10/08/24 09:47	10/09/24 21:21	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	31000		1500	mg/Kg		10/08/24 12:01	10/09/24 21:06	500

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-03 0'

Lab Sample ID: 885-13235-3

Date Collected: 10/03/24 14:50

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 01:08	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	108		35 - 166			10/07/24 12:25	10/11/24 01:08	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/11/24 01:08	1	
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 01:08	1	
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 01:08	1	
Xylenes, Total	ND		0.099	mg/Kg		10/07/24 12:25	10/11/24 01:08	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	102		48 - 145			10/07/24 12:25	10/11/24 01:08	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]	16		9.6	mg/Kg		10/08/24 09:47	10/09/24 21:33	1	
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		10/08/24 09:47	10/09/24 21:33	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	99		62 - 134			10/08/24 09:47	10/09/24 21:33	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	15000		600	mg/Kg		10/08/24 12:01	10/09/24 21:19	200	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-04 0' Lab Sample ID: 885-13235-4
Date Collected: 10/03/24 14:50 Matrix: Solid
Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 01:30	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	103		35 - 166			10/07/24 12:25	10/11/24 01:30	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/11/24 01:30	1	
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 01:30	1	
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 01:30	1	
Xylenes, Total	ND		0.099	mg/Kg		10/07/24 12:25	10/11/24 01:30	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	103		48 - 145			10/07/24 12:25	10/11/24 01:30	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]	13		9.5	mg/Kg		10/08/24 09:47	10/09/24 21:46	1	
Motor Oil Range Organics [C28-C40]	ND		48	mg/Kg		10/08/24 09:47	10/09/24 21:46	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	92		62 - 134			10/08/24 09:47	10/09/24 21:46	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	8900		300	mg/Kg		10/08/24 12:01	10/09/24 21:31	100	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-05 0'

Lab Sample ID: 885-13235-5

Date Collected: 10/03/24 14:55

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 01:52	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	105		35 - 166			10/07/24 12:25	10/11/24 01:52	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.024	mg/Kg		10/07/24 12:25	10/11/24 01:52	1	
Ethylbenzene	ND		0.048	mg/Kg		10/07/24 12:25	10/11/24 01:52	1	
Toluene	ND		0.048	mg/Kg		10/07/24 12:25	10/11/24 01:52	1	
Xylenes, Total	ND		0.097	mg/Kg		10/07/24 12:25	10/11/24 01:52	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	103		48 - 145			10/07/24 12:25	10/11/24 01:52	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]	23		9.1	mg/Kg		10/08/24 09:47	10/09/24 21:59	1	
Motor Oil Range Organics [C28-C40]	ND		46	mg/Kg		10/08/24 09:47	10/09/24 21:59	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	94		62 - 134			10/08/24 09:47	10/09/24 21:59	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	20000		1500	mg/Kg		10/08/24 12:01	10/09/24 21:43	500	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-06 0'

Lab Sample ID: 885-13235-6

Date Collected: 10/03/24 14:55

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 02:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		35 - 166			10/07/24 12:25	10/11/24 02:13	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/07/24 12:25	10/11/24 02:13	1
Ethylbenzene	ND		0.047	mg/Kg		10/07/24 12:25	10/11/24 02:13	1
Toluene	ND		0.047	mg/Kg		10/07/24 12:25	10/11/24 02:13	1
Xylenes, Total	ND		0.094	mg/Kg		10/07/24 12:25	10/11/24 02:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		48 - 145			10/07/24 12:25	10/11/24 02:13	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]	570		9.3	mg/Kg		10/08/24 09:47	10/09/24 22:12	1
Motor Oil Range Organics [C28-C40]	120		47	mg/Kg		10/08/24 09:47	10/09/24 22:12	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	90		62 - 134			10/08/24 09:47	10/09/24 22:12	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20000		1500	mg/Kg		10/08/24 12:01	10/09/24 21:56	500

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-07 0'

Lab Sample ID: 885-13235-7

Date Collected: 10/03/24 15:45

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 02:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		35 - 166			10/07/24 12:25	10/11/24 02:35	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/11/24 02:35	1
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 02:35	1
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 02:35	1
Xylenes, Total	ND		0.10	mg/Kg		10/07/24 12:25	10/11/24 02:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		48 - 145			10/07/24 12:25	10/11/24 02:35	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]	480		9.6	mg/Kg		10/08/24 09:47	10/09/24 22:25	1
Motor Oil Range Organics [C28-C40]	850		48	mg/Kg		10/08/24 09:47	10/09/24 22:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	96		62 - 134			10/08/24 09:47	10/09/24 22:25	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7500		300	mg/Kg		10/08/24 12:01	10/09/24 22:08	100

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-08 0'

Lab Sample ID: 885-13235-8

Date Collected: 10/03/24 15:45

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 02:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		35 - 166			10/07/24 12:25	10/11/24 02:57	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/07/24 12:25	10/11/24 02:57	1
Ethylbenzene	ND		0.048	mg/Kg		10/07/24 12:25	10/11/24 02:57	1
Toluene	ND		0.048	mg/Kg		10/07/24 12:25	10/11/24 02:57	1
Xylenes, Total	ND		0.096	mg/Kg		10/07/24 12:25	10/11/24 02:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		48 - 145			10/07/24 12:25	10/11/24 02:57	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]	140		9.8	mg/Kg		10/08/24 09:47	10/11/24 11:34	1
Motor Oil Range Organics [C28-C40]	160		49	mg/Kg		10/08/24 09:47	10/11/24 11:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	88		62 - 134			10/08/24 09:47	10/11/24 11:34	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9900		600	mg/Kg		10/08/24 12:01	10/09/24 22:20	200

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-09 0'

Lab Sample ID: 885-13235-9

Date Collected: 10/03/24 15:50

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 03:19	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	113		35 - 166			10/07/24 12:25	10/11/24 03:19	1	
Method: SW846 8021B - Volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/11/24 03:19	1	
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 03:19	1	
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/11/24 03:19	1	
Xylenes, Total	ND		0.10	mg/Kg		10/07/24 12:25	10/11/24 03:19	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
4-Bromofluorobenzene (Surr)	103		48 - 145			10/07/24 12:25	10/11/24 03:19	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]	44		9.4	mg/Kg		10/08/24 09:47	10/09/24 23:03	1	
Motor Oil Range Organics [C28-C40]	60		47	mg/Kg		10/08/24 09:47	10/09/24 23:03	1	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac	
Di-n-octyl phthalate (Surr)	95		62 - 134			10/08/24 09:47	10/09/24 23:03	1	
Method: EPA 300.0 - Anions, Ion Chromatography									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	18000		1500	mg/Kg		10/08/24 12:01	10/09/24 22:57	500	

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-10 0'

Lab Sample ID: 885-13235-10

Date Collected: 10/03/24 15:50

Matrix: Solid

Date Received: 10/05/24 10:57

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		10/07/24 12:25	10/11/24 03:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		35 - 166			10/07/24 12:25	10/11/24 03:40	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		10/07/24 12:25	10/11/24 03:40	1
Ethylbenzene	ND		0.046	mg/Kg		10/07/24 12:25	10/11/24 03:40	1
Toluene	ND		0.046	mg/Kg		10/07/24 12:25	10/11/24 03:40	1
Xylenes, Total	ND		0.092	mg/Kg		10/07/24 12:25	10/11/24 03:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		48 - 145			10/07/24 12:25	10/11/24 03:40	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]	6300		98	mg/Kg		10/08/24 09:47	10/11/24 20:38	10
Motor Oil Range Organics [C28-C40]	1500		490	mg/Kg		10/08/24 09:47	10/11/24 20:38	10
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	0	D S1-	62 - 134			10/08/24 09:47	10/11/24 20:38	10

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10000		600	mg/Kg		10/08/24 12:01	10/09/24 23:10	200

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-13810/1-A

Matrix: Solid

Analysis Batch: 14102

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13810

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0	mg/Kg		10/07/24 12:25	10/10/24 22:36	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		35 - 166			10/07/24 12:25	10/10/24 22:36	1

Lab Sample ID: LCS 885-13810/2-A

Matrix: Solid

Analysis Batch: 14102

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	25.0	26.3		mg/Kg		105	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	208		35 - 166				

Lab Sample ID: 885-13235-1 MS

Matrix: Solid

Analysis Batch: 14102

Client Sample ID: BH24-01 0'

Prep Type: Total/NA

Prep Batch: 13810

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	ND		25.0	26.1		mg/Kg		104	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	222		35 - 166						

Lab Sample ID: 885-13235-1 MSD

Matrix: Solid

Analysis Batch: 14102

Client Sample ID: BH24-01 0'

Prep Type: Total/NA

Prep Batch: 13810

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		25.0	24.9		mg/Kg		100	70 - 130	5	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	213		35 - 166								

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-13810/1-A

Matrix: Solid

Analysis Batch: 14103

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13810

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/07/24 12:25	10/10/24 22:36	1
Ethylbenzene	ND		0.050	mg/Kg		10/07/24 12:25	10/10/24 22:36	1
Toluene	ND		0.050	mg/Kg		10/07/24 12:25	10/10/24 22:36	1

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-13810/1-A

Matrix: Solid

Analysis Batch: 14103

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13810

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10	mg/Kg		10/07/24 12:25	10/10/24 22:36	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		48 - 145			10/07/24 12:25	10/10/24 22:36	1

Lab Sample ID: LCS 885-13810/3-A

Matrix: Solid

Analysis Batch: 14103

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	1.02		mg/Kg		102	70 - 130
Ethylbenzene	1.00	1.03		mg/Kg		103	70 - 130
m-Xylene & p-Xylene	2.00	2.05		mg/Kg		103	70 - 130
o-Xylene	1.00	1.02		mg/Kg		102	70 - 130
Toluene	1.00	1.03		mg/Kg		103	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	103		48 - 145				

Lab Sample ID: 885-13235-2 MS

Matrix: Solid

Analysis Batch: 14103

Client Sample ID: BH24-02 0'

Prep Type: Total/NA

Prep Batch: 13810

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		1.00	1.05		mg/Kg		105	70 - 130
Ethylbenzene	ND		1.00	1.08		mg/Kg		108	70 - 130
m-Xylene & p-Xylene	ND		2.00	2.12		mg/Kg		106	70 - 130
o-Xylene	ND		1.00	1.05		mg/Kg		105	70 - 130
Toluene	ND		1.00	1.05		mg/Kg		105	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	105		48 - 145						

Lab Sample ID: 885-13235-2 MSD

Matrix: Solid

Analysis Batch: 14103

Client Sample ID: BH24-02 0'

Prep Type: Total/NA

Prep Batch: 13810

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	ND		1.00	0.985		mg/Kg		98	70 - 130	6	20
Ethylbenzene	ND		1.00	0.999		mg/Kg		100	70 - 130	7	20
m-Xylene & p-Xylene	ND		2.00	1.98		mg/Kg		99	70 - 130	7	20
o-Xylene	ND		1.00	0.999		mg/Kg		100	70 - 130	5	20
Toluene	ND		1.00	1.00		mg/Kg		100	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	105		48 - 145								

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-13869/1-A

Matrix: Solid

Analysis Batch: 13950

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13869

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		10/08/24 09:47	10/09/24 20:42	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		10/08/24 09:47	10/09/24 20:42	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	90		62 - 134			10/08/24 09:47	10/09/24 20:42	1

Lab Sample ID: LCS 885-13869/2-A

Matrix: Solid

Analysis Batch: 13950

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13869

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	50.0	42.8		mg/Kg		86	60 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Di-n-octyl phthalate (Surr)	91		62 - 134				

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-13887/1-A

Matrix: Solid

Analysis Batch: 13951

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13887

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		10/08/24 12:01	10/08/24 18:12	1
Surrogate	LCS %Recovery	LCS Qualifier	Limits					
Chloride	95		90 - 110					

Lab Sample ID: LCS 885-13887/2-A

Matrix: Solid

Analysis Batch: 13951

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13887

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	28.6		mg/Kg		95	90 - 110

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QC Association Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

GC VOA

Prep Batch: 13810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	5030C	
885-13235-2	BH24-02 0'	Total/NA	Solid	5030C	
885-13235-3	BH24-03 0'	Total/NA	Solid	5030C	
885-13235-4	BH24-04 0'	Total/NA	Solid	5030C	
885-13235-5	BH24-05 0'	Total/NA	Solid	5030C	
885-13235-6	BH24-06 0'	Total/NA	Solid	5030C	
885-13235-7	BH24-07 0'	Total/NA	Solid	5030C	
885-13235-8	BH24-08 0'	Total/NA	Solid	5030C	
885-13235-9	BH24-09 0'	Total/NA	Solid	5030C	
885-13235-10	BH24-10 0'	Total/NA	Solid	5030C	
MB 885-13810/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-13810/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-13810/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-13235-1 MS	BH24-01 0'	Total/NA	Solid	5030C	
885-13235-1 MSD	BH24-01 0'	Total/NA	Solid	5030C	
885-13235-2 MS	BH24-02 0'	Total/NA	Solid	5030C	
885-13235-2 MSD	BH24-02 0'	Total/NA	Solid	5030C	

Analysis Batch: 14102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	8015M/D	13810
885-13235-2	BH24-02 0'	Total/NA	Solid	8015M/D	13810
885-13235-3	BH24-03 0'	Total/NA	Solid	8015M/D	13810
885-13235-4	BH24-04 0'	Total/NA	Solid	8015M/D	13810
885-13235-5	BH24-05 0'	Total/NA	Solid	8015M/D	13810
885-13235-6	BH24-06 0'	Total/NA	Solid	8015M/D	13810
885-13235-7	BH24-07 0'	Total/NA	Solid	8015M/D	13810
885-13235-8	BH24-08 0'	Total/NA	Solid	8015M/D	13810
885-13235-9	BH24-09 0'	Total/NA	Solid	8015M/D	13810
885-13235-10	BH24-10 0'	Total/NA	Solid	8015M/D	13810
MB 885-13810/1-A	Method Blank	Total/NA	Solid	8015M/D	13810
LCS 885-13810/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	13810
885-13235-1 MS	BH24-01 0'	Total/NA	Solid	8015M/D	13810
885-13235-1 MSD	BH24-01 0'	Total/NA	Solid	8015M/D	13810

Analysis Batch: 14103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	8021B	13810
885-13235-2	BH24-02 0'	Total/NA	Solid	8021B	13810
885-13235-3	BH24-03 0'	Total/NA	Solid	8021B	13810
885-13235-4	BH24-04 0'	Total/NA	Solid	8021B	13810
885-13235-5	BH24-05 0'	Total/NA	Solid	8021B	13810
885-13235-6	BH24-06 0'	Total/NA	Solid	8021B	13810
885-13235-7	BH24-07 0'	Total/NA	Solid	8021B	13810
885-13235-8	BH24-08 0'	Total/NA	Solid	8021B	13810
885-13235-9	BH24-09 0'	Total/NA	Solid	8021B	13810
885-13235-10	BH24-10 0'	Total/NA	Solid	8021B	13810
MB 885-13810/1-A	Method Blank	Total/NA	Solid	8021B	13810
LCS 885-13810/3-A	Lab Control Sample	Total/NA	Solid	8021B	13810
885-13235-2 MS	BH24-02 0'	Total/NA	Solid	8021B	13810
885-13235-2 MSD	BH24-02 0'	Total/NA	Solid	8021B	13810

Eurofins Albuquerque

QC Association Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

GC Semi VOA

Prep Batch: 13869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	SHAKE	
885-13235-2	BH24-02 0'	Total/NA	Solid	SHAKE	
885-13235-3	BH24-03 0'	Total/NA	Solid	SHAKE	
885-13235-4	BH24-04 0'	Total/NA	Solid	SHAKE	
885-13235-5	BH24-05 0'	Total/NA	Solid	SHAKE	
885-13235-6	BH24-06 0'	Total/NA	Solid	SHAKE	
885-13235-7	BH24-07 0'	Total/NA	Solid	SHAKE	
885-13235-8	BH24-08 0'	Total/NA	Solid	SHAKE	
885-13235-9	BH24-09 0'	Total/NA	Solid	SHAKE	
885-13235-10	BH24-10 0'	Total/NA	Solid	SHAKE	
MB 885-13869/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-13869/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 13950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	8015M/D	13869
885-13235-2	BH24-02 0'	Total/NA	Solid	8015M/D	13869
885-13235-3	BH24-03 0'	Total/NA	Solid	8015M/D	13869
885-13235-4	BH24-04 0'	Total/NA	Solid	8015M/D	13869
885-13235-5	BH24-05 0'	Total/NA	Solid	8015M/D	13869
885-13235-6	BH24-06 0'	Total/NA	Solid	8015M/D	13869
885-13235-7	BH24-07 0'	Total/NA	Solid	8015M/D	13869
885-13235-9	BH24-09 0'	Total/NA	Solid	8015M/D	13869
MB 885-13869/1-A	Method Blank	Total/NA	Solid	8015M/D	13869
LCS 885-13869/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	13869

Analysis Batch: 14108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-8	BH24-08 0'	Total/NA	Solid	8015M/D	13869
885-13235-10	BH24-10 0'	Total/NA	Solid	8015M/D	13869

HPLC/IC

Prep Batch: 13887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	300_Prep	
885-13235-2	BH24-02 0'	Total/NA	Solid	300_Prep	
885-13235-3	BH24-03 0'	Total/NA	Solid	300_Prep	
885-13235-4	BH24-04 0'	Total/NA	Solid	300_Prep	
885-13235-5	BH24-05 0'	Total/NA	Solid	300_Prep	
885-13235-6	BH24-06 0'	Total/NA	Solid	300_Prep	
885-13235-7	BH24-07 0'	Total/NA	Solid	300_Prep	
885-13235-8	BH24-08 0'	Total/NA	Solid	300_Prep	
885-13235-9	BH24-09 0'	Total/NA	Solid	300_Prep	
885-13235-10	BH24-10 0'	Total/NA	Solid	300_Prep	
MB 885-13887/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-13887/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 13951

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-13887/1-A	Method Blank	Total/NA	Solid	300.0	13887

Eurofins Albuquerque

QC Association Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

HPLC/IC (Continued)

Analysis Batch: 13951 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-13887/2-A	Lab Control Sample	Total/NA	Solid	300.0	13887

Analysis Batch: 13985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13235-1	BH24-01 0'	Total/NA	Solid	300.0	13887
885-13235-2	BH24-02 0'	Total/NA	Solid	300.0	13887
885-13235-3	BH24-03 0'	Total/NA	Solid	300.0	13887
885-13235-4	BH24-04 0'	Total/NA	Solid	300.0	13887
885-13235-5	BH24-05 0'	Total/NA	Solid	300.0	13887
885-13235-6	BH24-06 0'	Total/NA	Solid	300.0	13887
885-13235-7	BH24-07 0'	Total/NA	Solid	300.0	13887
885-13235-8	BH24-08 0'	Total/NA	Solid	300.0	13887
885-13235-9	BH24-09 0'	Total/NA	Solid	300.0	13887
885-13235-10	BH24-10 0'	Total/NA	Solid	300.0	13887

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-01 0'

Lab Sample ID: 885-13235-1

Date Collected: 10/03/24 14:45

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/10/24 22:58
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/10/24 22:58
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 21:08
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		200	13985	EH	EET ALB	10/09/24 20:54

Client Sample ID: BH24-02 0'

Lab Sample ID: 885-13235-2

Date Collected: 10/03/24 14:45

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 00:03
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 00:03
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 21:21
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		500	13985	EH	EET ALB	10/09/24 21:06

Client Sample ID: BH24-03 0'

Lab Sample ID: 885-13235-3

Date Collected: 10/03/24 14:50

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 01:08
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 01:08
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 21:33
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		200	13985	EH	EET ALB	10/09/24 21:19

Client Sample ID: BH24-04 0'

Lab Sample ID: 885-13235-4

Date Collected: 10/03/24 14:50

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 01:30

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-04 0'

Lab Sample ID: 885-13235-4

Date Collected: 10/03/24 14:50

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 01:30
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 21:46
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		100	13985	EH	EET ALB	10/09/24 21:31

Client Sample ID: BH24-05 0'

Lab Sample ID: 885-13235-5

Date Collected: 10/03/24 14:55

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 01:52
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 01:52
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 21:59
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		500	13985	EH	EET ALB	10/09/24 21:43

Client Sample ID: BH24-06 0'

Lab Sample ID: 885-13235-6

Date Collected: 10/03/24 14:55

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 02:13
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 02:13
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 22:12
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		500	13985	EH	EET ALB	10/09/24 21:56

Client Sample ID: BH24-07 0'

Lab Sample ID: 885-13235-7

Date Collected: 10/03/24 15:45

Matrix: Solid

Date Received: 10/05/24 10:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 02:35
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 02:35

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-07 0'
Date Collected: 10/03/24 15:45
Date Received: 10/05/24 10:57

Lab Sample ID: 885-13235-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 22:25
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		100	13985	EH	EET ALB	10/09/24 22:08

Client Sample ID: BH24-08 0'
Date Collected: 10/03/24 15:45
Date Received: 10/05/24 10:57

Lab Sample ID: 885-13235-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 02:57
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 02:57
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	14108	EM	EET ALB	10/11/24 11:34
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		200	13985	EH	EET ALB	10/09/24 22:20

Client Sample ID: BH24-09 0'
Date Collected: 10/03/24 15:50
Date Received: 10/05/24 10:57

Lab Sample ID: 885-13235-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 03:19
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 03:19
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		1	13950	EM	EET ALB	10/09/24 23:03
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		500	13985	EH	EET ALB	10/09/24 22:57

Client Sample ID: BH24-10 0'
Date Collected: 10/03/24 15:50
Date Received: 10/05/24 10:57

Lab Sample ID: 885-13235-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8015M/D		1	14102	AT	EET ALB	10/11/24 03:40
Total/NA	Prep	5030C			13810	AT	EET ALB	10/07/24 12:25
Total/NA	Analysis	8021B		1	14103	AT	EET ALB	10/11/24 03:40
Total/NA	Prep	SHAKE			13869	EM	EET ALB	10/08/24 09:47
Total/NA	Analysis	8015M/D		10	14108	EM	EET ALB	10/11/24 20:38

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

Client Sample ID: BH24-10 0'
Date Collected: 10/03/24 15:50
Date Received: 10/05/24 10:57

Lab Sample ID: 885-13235-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			13887	JT	EET ALB	10/08/24 12:01
Total/NA	Analysis	300.0		200	13985	EH	EET ALB	10/09/24 23:10

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

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Accreditation/Certification Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13235-1

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

Login Sample Receipt Checklist

Client: Vertex

Job Number: 885-13235-1

Login Number: 13235

List Number: 1

Creator: Casarrubias, Tracy

List Source: Eurofins Albuquerque

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Environment Testing

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ANALYTICAL REPORT

PREPARED FOR

Attn: Chad Hensley
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

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JOB DESCRIPTION

Spud 16 State 11H

JOB NUMBER

885-13297-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

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



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Authorized for release by
Andy Freeman, Business Unit Manager
andy.freeman@et.eurofinsus.com
(505)345-3975

Client: Vertex
Project/Site: Spud 16 State 11H

Laboratory Job ID: 885-13297-1

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Definitions/Glossary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

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 11H

Job ID: 885-13297-1

Job ID: 885-13297-1

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Job Narrative 885-13297-1

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 10/8/2024 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 4.2°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

Method 8015D_DRO: The continuing calibration verification (CCV) associated with batch 885-13871 recovered outside acceptance criteria, low biased, for Diesel Range Organics [C10-C28]. Samples with low surrogate will be re-ran. The following sample is associated (CCV 885-13871/34).

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.

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-01 @ 1'

Lab Sample ID: 885-13297-1

Date Collected: 10/04/24 11:34

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 11:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		35 - 166			10/08/24 10:48	10/10/24 11:03	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/08/24 10:48	10/10/24 11:03	1
Ethylbenzene	ND		0.049	mg/Kg		10/08/24 10:48	10/10/24 11:03	1
Toluene	ND		0.049	mg/Kg		10/08/24 10:48	10/10/24 11:03	1
Xylenes, Total	ND		0.098	mg/Kg		10/08/24 10:48	10/10/24 11:03	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		48 - 145			10/08/24 10:48	10/10/24 11:03	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]	140		9.7	mg/Kg		10/08/24 11:46	10/08/24 20:53	1
Motor Oil Range Organics [C28-C40]	350		49	mg/Kg		10/08/24 11:46	10/08/24 20:53	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	113		62 - 134			10/08/24 11:46	10/08/24 20:53	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3700		150	mg/Kg		10/08/24 12:40	10/09/24 19:39	50

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-01 @ 2'

Lab Sample ID: 885-13297-2

Date Collected: 10/04/24 11:40

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 11:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		35 - 166			10/08/24 10:48	10/10/24 11:26	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/08/24 10:48	10/10/24 11:26	1
Ethylbenzene	ND		0.049	mg/Kg		10/08/24 10:48	10/10/24 11:26	1
Toluene	ND		0.049	mg/Kg		10/08/24 10:48	10/10/24 11:26	1
Xylenes, Total	ND		0.097	mg/Kg		10/08/24 10:48	10/10/24 11:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		48 - 145			10/08/24 10:48	10/10/24 11:26	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		8.7	mg/Kg		10/08/24 11:46	10/08/24 21:04	1
Motor Oil Range Organics [C28-C40]	ND		44	mg/Kg		10/08/24 11:46	10/08/24 21:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	82		62 - 134			10/08/24 11:46	10/08/24 21:04	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5000		150	mg/Kg		10/08/24 12:40	10/09/24 19:51	50

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-02 @ 1'

Lab Sample ID: 885-13297-3

Date Collected: 10/04/24 11:52

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 11:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		35 - 166			10/08/24 10:48	10/10/24 11:50	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/08/24 10:48	10/10/24 11:50	1
Ethylbenzene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 11:50	1
Toluene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 11:50	1
Xylenes, Total	ND		0.095	mg/Kg		10/08/24 10:48	10/10/24 11:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		48 - 145			10/08/24 10:48	10/10/24 11:50	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		8.9	mg/Kg		10/08/24 11:46	10/08/24 21:15	1
Motor Oil Range Organics [C28-C40]	ND		44	mg/Kg		10/08/24 11:46	10/08/24 21:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	84		62 - 134			10/08/24 11:46	10/08/24 21:15	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2200		60	mg/Kg		10/08/24 12:40	10/08/24 20:09	20

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-02' @ 2'

Lab Sample ID: 885-13297-4

Date Collected: 10/04/24 11:57

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 12:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		35 - 166			10/08/24 10:48	10/10/24 12:13	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/08/24 10:48	10/10/24 12:13	1
Ethylbenzene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 12:13	1
Toluene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 12:13	1
Xylenes, Total	ND		0.094	mg/Kg		10/08/24 10:48	10/10/24 12:13	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		48 - 145			10/08/24 10:48	10/10/24 12:13	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		9.1	mg/Kg		10/08/24 11:46	10/08/24 21:26	1
Motor Oil Range Organics [C28-C40]	ND		45	mg/Kg		10/08/24 11:46	10/08/24 21:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	83		62 - 134			10/08/24 11:46	10/08/24 21:26	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2700		150	mg/Kg		10/08/24 12:40	10/09/24 20:04	50

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-03 @ 1'

Lab Sample ID: 885-13297-5

Date Collected: 10/04/24 12:05

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 12:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		35 - 166			10/08/24 10:48	10/10/24 12:37	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/08/24 10:48	10/10/24 12:37	1
Ethylbenzene	ND		0.048	mg/Kg		10/08/24 10:48	10/10/24 12:37	1
Toluene	ND		0.048	mg/Kg		10/08/24 10:48	10/10/24 12:37	1
Xylenes, Total	ND		0.097	mg/Kg		10/08/24 10:48	10/10/24 12:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		48 - 145			10/08/24 10:48	10/10/24 12:37	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		9.3	mg/Kg		10/08/24 11:46	10/08/24 21:37	1
Motor Oil Range Organics [C28-C40]	ND		46	mg/Kg		10/08/24 11:46	10/08/24 21:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	86		62 - 134			10/08/24 11:46	10/08/24 21:37	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5300		300	mg/Kg		10/08/24 12:40	10/09/24 20:53	100

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-03 @ 2'

Lab Sample ID: 885-13297-6

Date Collected: 10/04/24 12:12

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 13:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		35 - 166			10/08/24 10:48	10/10/24 13:00	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		10/08/24 10:48	10/10/24 13:00	1
Ethylbenzene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 13:00	1
Toluene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 13:00	1
Xylenes, Total	ND		0.094	mg/Kg		10/08/24 10:48	10/10/24 13:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		48 - 145			10/08/24 10:48	10/10/24 13:00	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		9.3	mg/Kg		10/09/24 10:49	10/09/24 15:08	1
Motor Oil Range Organics [C28-C40]	ND		47	mg/Kg		10/09/24 10:49	10/09/24 15:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	83		62 - 134			10/09/24 10:49	10/09/24 15:08	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4400		150	mg/Kg		10/09/24 12:02	10/11/24 01:49	50

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-04 @ 1'

Lab Sample ID: 885-13297-7

Date Collected: 10/04/24 12:25

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 13:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		35 - 166			10/08/24 10:48	10/10/24 13:24	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/08/24 10:48	10/10/24 13:24	1
Ethylbenzene	ND		0.050	mg/Kg		10/08/24 10:48	10/10/24 13:24	1
Toluene	ND		0.050	mg/Kg		10/08/24 10:48	10/10/24 13:24	1
Xylenes, Total	ND		0.10	mg/Kg		10/08/24 10:48	10/10/24 13:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		48 - 145			10/08/24 10:48	10/10/24 13:24	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		10/09/24 10:49	10/09/24 15:18	1
Motor Oil Range Organics [C28-C40]	ND		47	mg/Kg		10/09/24 10:49	10/09/24 15:18	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	83		62 - 134			10/09/24 10:49	10/09/24 15:18	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7500		300	mg/Kg		10/09/24 12:02	10/11/24 02:02	100

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Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-04 @ 2'

Lab Sample ID: 885-13297-8

Date Collected: 10/04/24 12:32

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 13:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		35 - 166			10/08/24 10:48	10/10/24 13:47	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023	mg/Kg		10/08/24 10:48	10/10/24 13:47	1
Ethylbenzene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 13:47	1
Toluene	ND		0.047	mg/Kg		10/08/24 10:48	10/10/24 13:47	1
Xylenes, Total	ND		0.094	mg/Kg		10/08/24 10:48	10/10/24 13:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		48 - 145			10/08/24 10:48	10/10/24 13:47	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		9.0	mg/Kg		10/09/24 10:49	10/09/24 15:29	1
Motor Oil Range Organics [C28-C40]	ND		45	mg/Kg		10/09/24 10:49	10/09/24 15:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	83		62 - 134			10/09/24 10:49	10/09/24 15:29	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4800		300	mg/Kg		10/09/24 12:02	10/11/24 02:14	100

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-05 @ 1'

Lab Sample ID: 885-13297-9

Date Collected: 10/04/24 12:54

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 14:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		35 - 166			10/08/24 10:48	10/10/24 14:10	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/08/24 10:48	10/10/24 14:10	1
Ethylbenzene	ND		0.049	mg/Kg		10/08/24 10:48	10/10/24 14:10	1
Toluene	ND		0.049	mg/Kg		10/08/24 10:48	10/10/24 14:10	1
Xylenes, Total	ND		0.099	mg/Kg		10/08/24 10:48	10/10/24 14:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		48 - 145			10/08/24 10:48	10/10/24 14:10	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		8.6	mg/Kg		10/09/24 10:49	10/09/24 15:40	1
Motor Oil Range Organics [C28-C40]	ND		43	mg/Kg		10/09/24 10:49	10/09/24 15:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	81		62 - 134			10/09/24 10:49	10/09/24 15:40	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1600		60	mg/Kg		10/09/24 12:02	10/09/24 15:57	20

Eurofins Albuquerque

Client Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-05 @ 2'

Lab Sample ID: 885-13297-10

Date Collected: 10/04/24 13:03

Matrix: Solid

Date Received: 10/08/24 07:55

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		10/08/24 10:48	10/10/24 14:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		35 - 166			10/08/24 10:48	10/10/24 14:34	1

Method: SW846 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024	mg/Kg		10/08/24 10:48	10/10/24 14:34	1
Ethylbenzene	ND		0.048	mg/Kg		10/08/24 10:48	10/10/24 14:34	1
Toluene	ND		0.048	mg/Kg		10/08/24 10:48	10/10/24 14:34	1
Xylenes, Total	ND		0.096	mg/Kg		10/08/24 10:48	10/10/24 14:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		48 - 145			10/08/24 10:48	10/10/24 14:34	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]	ND		9.2	mg/Kg		10/09/24 10:49	10/09/24 15:50	1
Motor Oil Range Organics [C28-C40]	ND		46	mg/Kg		10/09/24 10:49	10/09/24 15:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	86		62 - 134			10/09/24 10:49	10/09/24 15:50	1

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1800		60	mg/Kg		10/09/24 12:02	10/09/24 16:09	20

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Method: 8015M/D - Gasoline Range Organics (GRO) (GC)

Lab Sample ID: MB 885-13884/1-A

Matrix: Solid

Analysis Batch: 14083

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13884

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0	mg/Kg		10/08/24 10:48	10/10/24 10:39	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		35 - 166			10/08/24 10:48	10/10/24 10:39	1

Lab Sample ID: LCS 885-13884/2-A

Matrix: Solid

Analysis Batch: 14083

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	25.0	23.8		mg/Kg		95	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	205		35 - 166				

Lab Sample ID: 885-13297-1 MS

Matrix: Solid

Analysis Batch: 14083

Client Sample ID: TT24-01 @ 1'

Prep Type: Total/NA

Prep Batch: 13884

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	ND		24.4	23.1		mg/Kg		95	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	205		35 - 166						

Lab Sample ID: 885-13297-1 MSD

Matrix: Solid

Analysis Batch: 14083

Client Sample ID: TT24-01 @ 1'

Prep Type: Total/NA

Prep Batch: 13884

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		24.4	22.1		mg/Kg		91	70 - 130	4	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	203		35 - 166								

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-13884/1-A

Matrix: Solid

Analysis Batch: 14084

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13884

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		10/08/24 10:48	10/10/24 10:39	1
Ethylbenzene	ND		0.050	mg/Kg		10/08/24 10:48	10/10/24 10:39	1
Toluene	ND		0.050	mg/Kg		10/08/24 10:48	10/10/24 10:39	1

Eurofins Albuquerque

QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 885-13884/1-A

Matrix: Solid

Analysis Batch: 14084

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13884

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Xylenes, Total	ND		0.10	mg/Kg		10/08/24 10:48	10/10/24 10:39	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		48 - 145			10/08/24 10:48	10/10/24 10:39	1

Lab Sample ID: LCS 885-13884/3-A

Matrix: Solid

Analysis Batch: 14084

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13884

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.983		mg/Kg		98	70 - 130
Ethylbenzene	1.00	0.988		mg/Kg		99	70 - 130
m-Xylene & p-Xylene	2.00	1.96		mg/Kg		98	70 - 130
o-Xylene	1.00	0.962		mg/Kg		96	70 - 130
Toluene	1.00	0.961		mg/Kg		96	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	107		48 - 145				

Lab Sample ID: 885-13297-2 MS

Matrix: Solid

Analysis Batch: 14084

Client Sample ID: TT24-01 @ 2'

Prep Type: Total/NA

Prep Batch: 13884

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	ND		0.968	0.888		mg/Kg		92	70 - 130
Ethylbenzene	ND		0.968	0.895		mg/Kg		93	70 - 130
m-Xylene & p-Xylene	ND		1.94	1.79		mg/Kg		92	70 - 130
o-Xylene	ND		0.968	0.899		mg/Kg		93	70 - 130
Toluene	ND		0.968	0.877		mg/Kg		91	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	107		48 - 145						

Lab Sample ID: 885-13297-2 MSD

Matrix: Solid

Analysis Batch: 14084

Client Sample ID: TT24-01 @ 2'

Prep Type: Total/NA

Prep Batch: 13884

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	ND		0.964	0.904		mg/Kg		94	70 - 130	2	20
Ethylbenzene	ND		0.964	0.913		mg/Kg		95	70 - 130	2	20
m-Xylene & p-Xylene	ND		1.93	1.83		mg/Kg		95	70 - 130	3	20
o-Xylene	ND		0.964	0.901		mg/Kg		93	70 - 130	0	20
Toluene	ND		0.964	0.898		mg/Kg		93	70 - 130	2	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
4-Bromofluorobenzene (Surr)	105		48 - 145								

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 885-13886/1-A

Matrix: Solid

Analysis Batch: 13871

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13886

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		10/08/24 11:46	10/08/24 17:23	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		10/08/24 11:46	10/08/24 17:23	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	84		62 - 134			10/08/24 11:46	10/08/24 17:23	1

Lab Sample ID: LCS 885-13886/2-A

Matrix: Solid

Analysis Batch: 13871

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 13886

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	50.0	42.4		mg/Kg		85	60 - 135
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
Di-n-octyl phthalate (Surr)	85		62 - 134				

Lab Sample ID: 885-13297-5 MS

Matrix: Solid

Analysis Batch: 13871

Client Sample ID: TT24-03 @ 1'

Prep Type: Total/NA

Prep Batch: 13886

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND		42.7	35.7		mg/Kg		84	44 - 136
Surrogate	MS %Recovery	MS Qualifier	Limits						
Di-n-octyl phthalate (Surr)	85		62 - 134						

Lab Sample ID: 885-13297-5 MSD

Matrix: Solid

Analysis Batch: 13871

Client Sample ID: TT24-03 @ 1'

Prep Type: Total/NA

Prep Batch: 13886

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	40.4		mg/Kg		85	44 - 136	12	32
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
Di-n-octyl phthalate (Surr)	86		62 - 134								

Lab Sample ID: MB 885-13964/1-A

Matrix: Solid

Analysis Batch: 13961

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 13964

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10	mg/Kg		10/09/24 10:49	10/09/24 14:14	1
Motor Oil Range Organics [C28-C40]	ND		50	mg/Kg		10/09/24 10:49	10/09/24 14:14	1

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QC Sample Results

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Method: 8015M/D - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: MB 885-13964/1-A
Matrix: Solid
Analysis Batch: 13961

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13964

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	80		62 - 134	10/09/24 10:49	10/09/24 14:14	1

Lab Sample ID: LCS 885-13964/2-A
Matrix: Solid
Analysis Batch: 13961

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13964

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	50.0	43.5		mg/Kg		87	60 - 135

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Di-n-octyl phthalate (Surr)	83		62 - 134

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 885-13889/1-A
Matrix: Solid
Analysis Batch: 13948

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13889

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		10/08/24 12:40	10/08/24 14:36	1

Lab Sample ID: LCS 885-13889/2-A
Matrix: Solid
Analysis Batch: 13948

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	29.3		mg/Kg		98	90 - 110

Lab Sample ID: MB 885-13973/1-A
Matrix: Solid
Analysis Batch: 13984

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13973

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0	mg/Kg		10/09/24 12:02	10/09/24 13:41	1

Lab Sample ID: LCS 885-13973/2-A
Matrix: Solid
Analysis Batch: 13984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13973

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	30.0	28.9		mg/Kg		96	90 - 110

Lab Sample ID: MRL 885-13984/61
Matrix: Solid
Analysis Batch: 13984

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	0.530		mg/L		106	50 - 150

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QC Association Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

GC VOA

Prep Batch: 13884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	5030C	
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	5030C	
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	5030C	
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	5030C	
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	5030C	
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	5030C	
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	5030C	
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	5030C	
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	5030C	
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	5030C	
MB 885-13884/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-13884/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-13884/3-A	Lab Control Sample	Total/NA	Solid	5030C	
885-13297-1 MS	TT24-01 @ 1'	Total/NA	Solid	5030C	
885-13297-1 MSD	TT24-01 @ 1'	Total/NA	Solid	5030C	
885-13297-2 MS	TT24-01 @ 2'	Total/NA	Solid	5030C	
885-13297-2 MSD	TT24-01 @ 2'	Total/NA	Solid	5030C	

Analysis Batch: 14083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	8015M/D	13884
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	8015M/D	13884
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	8015M/D	13884
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	8015M/D	13884
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	8015M/D	13884
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	8015M/D	13884
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	8015M/D	13884
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	8015M/D	13884
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	8015M/D	13884
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	8015M/D	13884
MB 885-13884/1-A	Method Blank	Total/NA	Solid	8015M/D	13884
LCS 885-13884/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	13884
885-13297-1 MS	TT24-01 @ 1'	Total/NA	Solid	8015M/D	13884
885-13297-1 MSD	TT24-01 @ 1'	Total/NA	Solid	8015M/D	13884

Analysis Batch: 14084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	8021B	13884
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	8021B	13884
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	8021B	13884
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	8021B	13884
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	8021B	13884
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	8021B	13884
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	8021B	13884
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	8021B	13884
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	8021B	13884
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	8021B	13884
MB 885-13884/1-A	Method Blank	Total/NA	Solid	8021B	13884
LCS 885-13884/3-A	Lab Control Sample	Total/NA	Solid	8021B	13884
885-13297-2 MS	TT24-01 @ 2'	Total/NA	Solid	8021B	13884
885-13297-2 MSD	TT24-01 @ 2'	Total/NA	Solid	8021B	13884

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QC Association Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

GC Semi VOA

Analysis Batch: 13871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	8015M/D	13886
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	8015M/D	13886
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	8015M/D	13886
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	8015M/D	13886
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	8015M/D	13886
MB 885-13886/1-A	Method Blank	Total/NA	Solid	8015M/D	13886
LCS 885-13886/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	13886
885-13297-5 MS	TT24-03 @ 1'	Total/NA	Solid	8015M/D	13886
885-13297-5 MSD	TT24-03 @ 1'	Total/NA	Solid	8015M/D	13886

Prep Batch: 13886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	SHAKE	
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	SHAKE	
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	SHAKE	
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	SHAKE	
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	SHAKE	
MB 885-13886/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-13886/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-13297-5 MS	TT24-03 @ 1'	Total/NA	Solid	SHAKE	
885-13297-5 MSD	TT24-03 @ 1'	Total/NA	Solid	SHAKE	

Analysis Batch: 13961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	8015M/D	13964
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	8015M/D	13964
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	8015M/D	13964
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	8015M/D	13964
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	8015M/D	13964
MB 885-13964/1-A	Method Blank	Total/NA	Solid	8015M/D	13964
LCS 885-13964/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	13964

Prep Batch: 13964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	SHAKE	
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	SHAKE	
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	SHAKE	
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	SHAKE	
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	SHAKE	
MB 885-13964/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-13964/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

HPLC/IC

Prep Batch: 13889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	300_Prep	
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	300_Prep	
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	300_Prep	
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	300_Prep	
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	300_Prep	

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QC Association Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

HPLC/IC (Continued)

Prep Batch: 13889 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-13889/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-13889/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 13948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-3	TT24-02 @ 1'	Total/NA	Solid	300.0	13889
MB 885-13889/1-A	Method Blank	Total/NA	Solid	300.0	13889
LCS 885-13889/2-A	Lab Control Sample	Total/NA	Solid	300.0	13889

Prep Batch: 13973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	300_Prep	
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	300_Prep	
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	300_Prep	
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	300_Prep	
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	300_Prep	
MB 885-13973/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-13973/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 13984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-1	TT24-01 @ 1'	Total/NA	Solid	300.0	13889
885-13297-2	TT24-01 @ 2'	Total/NA	Solid	300.0	13889
885-13297-4	TT24-02' @ 2'	Total/NA	Solid	300.0	13889
885-13297-5	TT24-03 @ 1'	Total/NA	Solid	300.0	13889
885-13297-9	TT24-05 @ 1'	Total/NA	Solid	300.0	13973
885-13297-10	TT24-05 @ 2'	Total/NA	Solid	300.0	13973
MB 885-13973/1-A	Method Blank	Total/NA	Solid	300.0	13973
LCS 885-13973/2-A	Lab Control Sample	Total/NA	Solid	300.0	13973
MRL 885-13984/61	Lab Control Sample	Total/NA	Solid	300.0	

Analysis Batch: 14104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13297-6	TT24-03 @ 2'	Total/NA	Solid	300.0	13973
885-13297-7	TT24-04 @ 1'	Total/NA	Solid	300.0	13973
885-13297-8	TT24-04 @ 2'	Total/NA	Solid	300.0	13973

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-01 @ 1'

Lab Sample ID: 885-13297-1

Date Collected: 10/04/24 11:34

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 11:03
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 11:03
Total/NA	Prep	SHAKE			13886	KR	EET ALB	10/08/24 11:46
Total/NA	Analysis	8015M/D		1	13871	KR	EET ALB	10/08/24 20:53
Total/NA	Prep	300_Prep			13889	JT	EET ALB	10/08/24 12:40
Total/NA	Analysis	300.0		50	13984	EH	EET ALB	10/09/24 19:39

Client Sample ID: TT24-01 @ 2'

Lab Sample ID: 885-13297-2

Date Collected: 10/04/24 11:40

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 11:26
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 11:26
Total/NA	Prep	SHAKE			13886	KR	EET ALB	10/08/24 11:46
Total/NA	Analysis	8015M/D		1	13871	KR	EET ALB	10/08/24 21:04
Total/NA	Prep	300_Prep			13889	JT	EET ALB	10/08/24 12:40
Total/NA	Analysis	300.0		50	13984	EH	EET ALB	10/09/24 19:51

Client Sample ID: TT24-02 @ 1'

Lab Sample ID: 885-13297-3

Date Collected: 10/04/24 11:52

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 11:50
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 11:50
Total/NA	Prep	SHAKE			13886	KR	EET ALB	10/08/24 11:46
Total/NA	Analysis	8015M/D		1	13871	KR	EET ALB	10/08/24 21:15
Total/NA	Prep	300_Prep			13889	JT	EET ALB	10/08/24 12:40
Total/NA	Analysis	300.0		20	13948	EH	EET ALB	10/08/24 20:09

Client Sample ID: TT24-02' @ 2'

Lab Sample ID: 885-13297-4

Date Collected: 10/04/24 11:57

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 12:13

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-02' @ 2'

Lab Sample ID: 885-13297-4

Date Collected: 10/04/24 11:57

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 12:13
Total/NA	Prep	SHAKE			13886	KR	EET ALB	10/08/24 11:46
Total/NA	Analysis	8015M/D		1	13871	KR	EET ALB	10/08/24 21:26
Total/NA	Prep	300_Prep			13889	JT	EET ALB	10/08/24 12:40
Total/NA	Analysis	300.0		50	13984	EH	EET ALB	10/09/24 20:04

Client Sample ID: TT24-03 @ 1'

Lab Sample ID: 885-13297-5

Date Collected: 10/04/24 12:05

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 12:37
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 12:37
Total/NA	Prep	SHAKE			13886	KR	EET ALB	10/08/24 11:46
Total/NA	Analysis	8015M/D		1	13871	KR	EET ALB	10/08/24 21:37
Total/NA	Prep	300_Prep			13889	JT	EET ALB	10/08/24 12:40
Total/NA	Analysis	300.0		100	13984	EH	EET ALB	10/09/24 20:53

Client Sample ID: TT24-03 @ 2'

Lab Sample ID: 885-13297-6

Date Collected: 10/04/24 12:12

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 13:00
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 13:00
Total/NA	Prep	SHAKE			13964	KR	EET ALB	10/09/24 10:49
Total/NA	Analysis	8015M/D		1	13961	KR	EET ALB	10/09/24 15:08
Total/NA	Prep	300_Prep			13973	EH	EET ALB	10/09/24 12:02
Total/NA	Analysis	300.0		50	14104	MA	EET ALB	10/11/24 01:49

Client Sample ID: TT24-04 @ 1'

Lab Sample ID: 885-13297-7

Date Collected: 10/04/24 12:25

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 13:24
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 13:24

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-04 @ 1'

Lab Sample ID: 885-13297-7

Date Collected: 10/04/24 12:25

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			13964	KR	EET ALB	10/09/24 10:49
Total/NA	Analysis	8015M/D		1	13961	KR	EET ALB	10/09/24 15:18
Total/NA	Prep	300_Prep			13973	EH	EET ALB	10/09/24 12:02
Total/NA	Analysis	300.0		100	14104	MA	EET ALB	10/11/24 02:02

Client Sample ID: TT24-04 @ 2'

Lab Sample ID: 885-13297-8

Date Collected: 10/04/24 12:32

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 13:47
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 13:47
Total/NA	Prep	SHAKE			13964	KR	EET ALB	10/09/24 10:49
Total/NA	Analysis	8015M/D		1	13961	KR	EET ALB	10/09/24 15:29
Total/NA	Prep	300_Prep			13973	EH	EET ALB	10/09/24 12:02
Total/NA	Analysis	300.0		100	14104	MA	EET ALB	10/11/24 02:14

Client Sample ID: TT24-05 @ 1'

Lab Sample ID: 885-13297-9

Date Collected: 10/04/24 12:54

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 14:10
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 14:10
Total/NA	Prep	SHAKE			13964	KR	EET ALB	10/09/24 10:49
Total/NA	Analysis	8015M/D		1	13961	KR	EET ALB	10/09/24 15:40
Total/NA	Prep	300_Prep			13973	EH	EET ALB	10/09/24 12:02
Total/NA	Analysis	300.0		20	13984	EH	EET ALB	10/09/24 15:57

Client Sample ID: TT24-05 @ 2'

Lab Sample ID: 885-13297-10

Date Collected: 10/04/24 13:03

Matrix: Solid

Date Received: 10/08/24 07:55

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8015M/D		1	14083	JP	EET ALB	10/10/24 14:34
Total/NA	Prep	5030C			13884	JP	EET ALB	10/08/24 10:48
Total/NA	Analysis	8021B		1	14084	JP	EET ALB	10/10/24 14:34
Total/NA	Prep	SHAKE			13964	KR	EET ALB	10/09/24 10:49
Total/NA	Analysis	8015M/D		1	13961	KR	EET ALB	10/09/24 15:50

Eurofins Albuquerque

Lab Chronicle

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

Client Sample ID: TT24-05 @ 2'
Date Collected: 10/04/24 13:03
Date Received: 10/08/24 07:55

Lab Sample ID: 885-13297-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			13973	EH	EET ALB	10/09/24 12:02
Total/NA	Analysis	300.0		20	13984	EH	EET ALB	10/09/24 16:09

Laboratory References:
EET ALB = Eurofins Albuquerque, 4901 Hawkins NE, Albuquerque, NM 87109, TEL (505)345-3975

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Accreditation/Certification Summary

Client: Vertex
Project/Site: Spud 16 State 11H

Job ID: 885-13297-1

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

107



HALL ENVIRONMENTAL ANALYSIS LABOR



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87110

885-13297 COC

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

Analysis Request

[illegible]

Remarks: WO# 21420844

Date woodall

SAMPLE	DATE	10/4	PER	CIENT	SUM	10/4/90
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ility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: vertex resource

Bill to Devon

Mailing Address:

Phone #: 575-361-9639

email or Fax#:

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance

☐ NELAC

☐ Other

☐ EDD (Type)

Date	Time	Matrix	Sample Name
10/4/24	10:11	10S1	T724-01 B 1'
10/4/24	04:11	1	01 B 2
10/4/24	25:11	1	02 B 1'
10/4/24	45:11	1	02 B 2'
10/4/24	50:21	1	03 B 1'
10/4/24	21:21	1	03 B 2'
10/4/24	52:21	1	04 B 1'
10/4/24	23:21	1	04 B 2'
10/4/24	15:21	1	05 B 1'
10/4/24	30:1	1	05 B 2'

Date: 10-7-24	Time:	Relinquished by: D. W. Brown
------------------	-------	---------------------------------

	900	K. M. M.
Date:	Time:	Relinquished by:

he/LP	1900	<i>[Signature]</i>
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Login Sample Receipt Checklist

Client: Vertex

Job Number: 885-13297-1

Login Number: 13297

List Number: 1

Creator: McQuiston, Steven

List Source: Eurofins Albuquerque

Question	Answer	Comment
Radioactivity wasn't checked or is \leq 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 $<6\text{mm}$ (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



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name: Spud 16 11H

Work Order: E410230

Job Number: 19031-0001

Received: 10/21/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/22/24

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.

Date Reported: 10/22/24



Chad Hensley
3101 Boyd Drive
Carlsbad, NM 88220

Project Name: Spud 16 11H
Workorder: E410230
Date Received: 10/21/2024 7:30:00AM

Chad Hensley,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/21/2024 7:30:00AM, under the Project Name: Spud 16 11H.

The analytical test results summarized in this report with the Project Name: Spud 16 11H 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 regarding 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
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Envirotech Web Address: www.envirotech-inc.com

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Sample Summary

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/24 14:16
--	--	-----------------------------

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BES24-01 @ 3'	E410230-01A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-02 @ 3'	E410230-02A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-03 @ 3'	E410230-03A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-04 @ 3'	E410230-04A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-05 @ 3'	E410230-05A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-06 @ 3'	E410230-06A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-07 @ 3'	E410230-07A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-08 @ 3'	E410230-08A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-09 @ 3'	E410230-09A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-10 @ 3'	E410230-10A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-11 @ 3'	E410230-11A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-12 @ 3'	E410230-12A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-13 @ 3'	E410230-13A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-14 @ 3'	E410230-14A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-15 @ 3'	E410230-15A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-16 @ 3'	E410230-16A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-17 @ 3'	E410230-17A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-18 @ 3'	E410230-18A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-19 @ 3'	E410230-19A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-20 @ 3'	E410230-20A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.



Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 2:16:53PM

BES24-01 @ 3'

E410230-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		101 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		88.7 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
<i>Surrogate: n-Nonane</i>		75.3 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	7220	200	10	10/21/24	10/21/24	



Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 2:16:53PM

BES24-02 @ 3'**E410230-02**

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		101 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		89.8 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
<i>Surrogate: n-Nonane</i>		85.0 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	4530	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-03 @ 3'
E410230-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	101 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.9 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane	85.5 %	50-200		10/21/24	10/21/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	4180	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-04 @ 3'
E410230-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID		100 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		89.5 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		85.1 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	3780	100	5	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-05 @ 3'
E410230-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID		101 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		89.7 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		78.9 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	7620	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-06 @ 3'
E410230-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	101 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.5 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	84.0 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	7380	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-07 @ 3'
E410230-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	101 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.4 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	94.0 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	9390	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-08 @ 3'
E410230-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	100 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.4 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	85.7 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	4250	100	5	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-09 @ 3'
E410230-09

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID		101 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		89.7 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		87.7 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	6580	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-10 @ 3'
E410230-10

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	101 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.9 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	82.7 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	9730	400	20	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-11 @ 3'
E410230-11

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	101 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.0 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	96.2 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	7240	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-12 @ 3'
E410230-12

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	102 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.3 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	94.5 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	6410	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-13 @ 3'
E410230-13

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	100 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.9 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	88.5 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	5570	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-14 @ 3'
E410230-14

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID		100 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		88.7 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	26.9	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		88.1 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	7480	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-15 @ 3'
E410230-15

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID		101 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		89.8 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		82.7 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	5450	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-16 @ 3'
E410230-16

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	100 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	90.2 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	83.4 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	6350	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-17 @ 3'
E410230-17

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	99.7 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.3 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	93.0 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	6250	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-18 @ 3'
E410230-18

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	100 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.1 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	86.7 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	3680	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-19 @ 3'
E410230-19

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	100 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	89.1 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	92.1 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	5930	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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BES24-20 @ 3'
E410230-20

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: 4-Bromochlorobenzene-PID	101 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: CG		Batch: 2443014	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID	88.6 %	70-130		10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV		Batch: 2443004	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane	93.2 %	50-200		10/21/24	10/22/24	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT		Batch: 2443024	
Chloride	5730	200	10	10/21/24	10/22/24	



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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Volatile Organics by EPA 8021B

Analyst: CG

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443014-BLK1) Prepared: 10/21/24 Analyzed: 10/21/24

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: 4-Bromochlorobenzene-PID	8.00		8.00		100	70-130			

LCS (2443014-BS1) Prepared: 10/21/24 Analyzed: 10/21/24

Benzene	4.80	0.0250	5.00		95.9	70-130			
Ethylbenzene	4.65	0.0250	5.00		92.9	70-130			
Toluene	4.74	0.0250	5.00		94.8	70-130			
o-Xylene	4.67	0.0250	5.00		93.3	70-130			
p,m-Xylene	9.45	0.0500	10.0		94.5	70-130			
Total Xylenes	14.1	0.0250	15.0		94.1	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.06		8.00		101	70-130			

Matrix Spike (2443014-MS1) Source: E410230-10 Prepared: 10/21/24 Analyzed: 10/22/24

Benzene	5.95	0.0250	5.00	ND	119	54-133			
Ethylbenzene	5.75	0.0250	5.00	ND	115	61-133			
Toluene	5.89	0.0250	5.00	ND	118	61-130			
o-Xylene	5.81	0.0250	5.00	ND	116	63-131			
p,m-Xylene	11.7	0.0500	10.0	ND	117	63-131			
Total Xylenes	17.5	0.0250	15.0	ND	116	63-131			
Surrogate: 4-Bromochlorobenzene-PID	8.10		8.00		101	70-130			

Matrix Spike Dup (2443014-MSD1) Source: E410230-10 Prepared: 10/21/24 Analyzed: 10/22/24

Benzene	5.76	0.0250	5.00	ND	115	54-133	3.34	20	
Ethylbenzene	5.59	0.0250	5.00	ND	112	61-133	2.79	20	
Toluene	5.70	0.0250	5.00	ND	114	61-130	3.13	20	
o-Xylene	5.63	0.0250	5.00	ND	113	63-131	3.01	20	
p,m-Xylene	11.3	0.0500	10.0	ND	113	63-131	2.77	20	
Total Xylenes	17.0	0.0250	15.0	ND	113	63-131	2.85	20	
Surrogate: 4-Bromochlorobenzene-PID	8.09		8.00		101	70-130			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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Nonhalogenated Organics by EPA 8015D - GRO

Analyst: CG

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443014-BLK1) Prepared: 10/21/24 Analyzed: 10/21/24

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.14		8.00		89.3	70-130			

LCS (2443014-BS2) Prepared: 10/21/24 Analyzed: 10/21/24

Gasoline Range Organics (C6-C10)	46.7	20.0	50.0		93.4	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.28		8.00		91.0	70-130			

Matrix Spike (2443014-MS2) Source: E410230-10 Prepared: 10/21/24 Analyzed: 10/22/24

Gasoline Range Organics (C6-C10)	45.3	20.0	50.0	ND	90.6	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.21		8.00		90.2	70-130			

Matrix Spike Dup (2443014-MSD2) Source: E410230-10 Prepared: 10/21/24 Analyzed: 10/22/24

Gasoline Range Organics (C6-C10)	41.8	20.0	50.0	ND	83.6	70-130	8.00	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.30		8.00		91.2	70-130			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443004-BLK1)					Prepared: 10/21/24 Analyzed: 10/21/24				
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	48.1		50.0		96.2	50-200			

LCS (2443004-BS1)					Prepared: 10/21/24 Analyzed: 10/21/24				
Diesel Range Organics (C10-C28)	263	25.0	250		105	38-132			
Surrogate: n-Nonane	49.4		50.0		98.9	50-200			

Matrix Spike (2443004-MS1)					Source: E410230-01		Prepared: 10/21/24 Analyzed: 10/21/24		
Diesel Range Organics (C10-C28)	238	25.0	250	ND	95.2	38-132			
Surrogate: n-Nonane	46.2		50.0		92.5	50-200			

Matrix Spike Dup (2443004-MSD1)					Source: E410230-01		Prepared: 10/21/24 Analyzed: 10/21/24		
Diesel Range Organics (C10-C28)	245	25.0	250	ND	98.2	38-132	3.04	20	
Surrogate: n-Nonane	43.5		50.0		87.0	50-200			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 2:16:53PM
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Anions by EPA 300.0/9056A

Analyst: DT

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443024-BLK1)					Prepared: 10/21/24 Analyzed: 10/21/24				
Chloride	ND	20.0							
LCS (2443024-BS1)					Prepared: 10/21/24 Analyzed: 10/22/24				
Chloride	254	20.0	250		102	90-110			
Matrix Spike (2443024-MS1)					Source: E410230-10		Prepared: 10/21/24 Analyzed: 10/21/24		
Chloride	9490	400	250	9730	NR	80-120			M4
Matrix Spike Dup (2443024-MSD1)					Source: E410230-10		Prepared: 10/21/24 Analyzed: 10/21/24		
Chloride	9340	400	250	9730	NR	80-120	1.55	20	M4

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 11H	
3101 Boyd Drive	Project Number:	19031-0001	Reported:
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/22/24 14:16

- M4 Matrix spike recovery value is suspect since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS spike recovery was acceptable.
- 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

Page 1 of 4

Client Information				Invoice Information		Lab Use Only		TAT				State								
Client: Vertex (Bill to Devon)				Company:		Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX					
Project Name: Spud 16 11H				Address:		E 410230	19051-0007		X			X								
Project Manager:				City, State, Zip:		01098-0007														
Address:				Phone:																
City, State, Zip:				Email:																
Phone:				Miscellaneous:																
Email: C.Hensley @ vertexresource.com				48 Hour																
R.Ploger @ vertexresource.com																				
Sample Information										Analysis and Method				EPA Program						
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field	Filter	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCED 1005 - TX	RCRA 8 Metals	Cation/Anion Pkg	SDWA	CWA	RCRA	
7:25	10.17.24	SOIL	1	BES24-01 @ 3'			1	X	X	X		X								
7:30	10.17.24	SOIL	1	BES24-02 @ 3'			2													
7:42	10.17.24	SOIL	1	BES24-03 @ 3'			3													
7:50	10.17.24	SOIL	1	BES24-04 @ 3'			4													
8:01	10.17.24	SOIL	1	BES24-05 @ 3'			5													
8:10	10.17.24	SOIL	1	BES24-06 @ 3'			6													
8:20	10.17.24	SOIL	1	BES24-07 @ 3'			7													
8:30	10.17.24	SOIL	1	BES24-08 @ 3'			8													
8:45	10.17.24	SOIL	1	BES24-09 @ 3'			9													
9:00	10.17.24	SOIL	1	BES24-10 @ 3'			10													
Additional Instructions: WO# 21420844																				
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		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 6 °C on subsequent days. Received on ice: <input checked="" type="radio"/> Y / <input type="radio"/> N T1 _____ T2 _____ T3 _____ AVG Temp °C 4				
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time						
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time						
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time						
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.																				



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Chain of Custody

Client Information				Invoice Information		Lab Use Only		TAT				State							
Client: Vertex (Bill to Devon)				Company: Devon		Lab WO#		Job Number				1D 2D 3D Std							
Project Name: Spud 16 11H				Address: 205 E Bender		E 410230		19031-0001				X							
Project Manager: Chad Hensley				City, State, Zip: Hobbs, NM, 88420				01058.0007											
Address:				Phone:															
City, State, Zip:				jim.raley@devn.com															
Phone:				Miscellaneous:															
Email: chensley@vertexresource.com				48 Hour															
Sample Information										Analysis and Method				EPA Program					
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCFQ 1005 - TX	RCRA 8 Metals	Cation/Anion Pkg	SDWA	CWA	RCRA	
9:10	10.17.24	soil	1	Bes24-11 @ 3'		11	X	x	x		x								
9:25	10.17.24	soil	1	Bes24-12 @ 3'		12													
9:45	10.17.24	soil	1	Bes24-13 @ 3'		13													
10:00	10.17.24	soil	1	Bes24-14 @ 3'		14													
10:15	10.17.24	soil	1	Bes24-15 @ 3'		15													
10:25	10.17.24	soil	1	Bes24-16 @ 3'		16													
10:35	10.17.24	soil	1	Bes24-17 @ 3'		17													
10:45	10.17.24	soil		Bes24-18 @ 3'		18													
11:00	10.17.24	soil	1	Bes24-19 @ 3'		19													
11:10	10.17.24	soil	1	Bes24-20 @ 3'		20	↓	↓	↓										
Additional Instructions: WO# 21420844																			
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		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 6 °C on subsequent days. Lab Use Only Received on ice: <input checked="" type="radio"/> Y / N T1 _____ T2 _____ T3 _____ AVG Temp °C 4			
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time					
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time					
Relinquished by: (Signature)				Date		Time		Received by: (Signature)				Date		Time					
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.																			



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Envirotech Analytical Laboratory

Printed: 10/21/2024 9:52:50AM

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:	10/21/24 07:30	Work Order ID:	E410230
Phone:	(575) 748-0176	Date Logged In:	10/21/24 07:44	Logged In By:	Raina Schwanz
Email:	chensley@vertexresources.com	Due Date:	10/22/24 17:00 (1 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
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? No
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: CourierComments/Resolution

Project: Spud 16 11H split between workorders E410230 & E410231. Sampler not marked on COC by client

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? Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

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 filtration 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

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.

Report to:
Chad Hensley



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name: Spud 16 11H

Work Order: E410231

Job Number: 19031-0001

Received: 10/21/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/22/24

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.

Date Reported: 10/22/24

Chad Hensley
3101 Boyd Drive
Carlsbad, NM 88220



Project Name: Spud 16 11H
Workorder: E410231
Date Received: 10/21/2024 7:30:00AM

Chad Hensley,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/21/2024 7:30:00AM, under the Project Name: Spud 16 11H.

The analytical test results summarized in this report with the Project Name: Spud 16 11H 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 regarding 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
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Envirotech Web Address: www.envirotech-inc.com

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Chain of Custody etc.

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Sample Summary

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/24 15:09
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Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BES24-21 @ 3'	E410231-01A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-22 @ 3'	E410231-02A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-23 @ 3'	E410231-03A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-24 @ 3'	E410231-04A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-25 @ 3'	E410231-05A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-26 @ 3'	E410231-06A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-27 @ 3'	E410231-07A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
BES24-28 @ 3'	E410231-08A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
WES24-01 @ 0-3'	E410231-09A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
WES24-02 @ 0-3'	E410231-10A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
WES24-03 @ 0-3'	E410231-11A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
WES24-04 @ 0-3'	E410231-12A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
WES24-05 @ 0-3'	E410231-13A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.
WES24-06 @ 0-3'	E410231-14A	Soil	10/17/24	10/21/24	Glass Jar, 2 oz.



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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BES24-21 @ 3'
E410231-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg	Analyst: BA		Batch: 2443015	
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		118 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		97.2 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: BA		Batch: 2443015	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		118 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		97.2 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: NV		Batch: 2443008	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		99.9 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2443022	
Chloride	6310	200	10	10/21/24	10/21/24	

Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 3:09:33PM

BES24-22 @ 3'

E410231-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		93.9 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		93.9 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		103 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	6020	200	10	10/21/24	10/21/24	



Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 3:09:33PM

BES24-23 @ 3'

E410231-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		117 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		93.1 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		117 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		93.1 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		105 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	6170	200	10	10/21/24	10/21/24	



Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 3:09:33PM

BES24-24 @ 3'

E410231-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		117 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		95.4 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		111 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		117 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		95.4 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		111 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		102 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	7020	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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BES24-25 @ 3'
E410231-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		94.9 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		94.9 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		99.8 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	9350	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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BES24-26 @ 3'
E410231-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg	Analyst: BA		Batch: 2443015	
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		93.9 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: BA		Batch: 2443015	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		93.9 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: NV		Batch: 2443008	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		106 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2443022	
Chloride	7190	200	10	10/21/24	10/21/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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BES24-27 @ 3'
E410231-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		118 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		96.1 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		118 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		96.1 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		102 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	4770	200	10	10/21/24	10/22/24	



Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 3:09:33PM

BES24-28 @ 3'

E410231-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/21/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/21/24	
Toluene	ND	0.0250	1	10/21/24	10/21/24	
o-Xylene	ND	0.0250	1	10/21/24	10/21/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/21/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		94.1 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/21/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/21/24	
Surrogate: 1,2-Dichloroethane-d4		94.1 %	70-130	10/21/24	10/21/24	
Surrogate: Toluene-d8		110 %	70-130	10/21/24	10/21/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		102 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	3360	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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WES24-01 @ 0-3'
E410231-09

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		93.2 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		111 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		93.2 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		111 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	25.8	25.0	1	10/21/24	10/21/24	T17
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		101 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	5310	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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WES24-02 @ 0-3'
E410231-10

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		92.7 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		92.7 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		102 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	4050	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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WES24-03 @ 0-3'
E410231-11

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		117 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		91.7 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		117 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		91.7 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/21/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/21/24	
Surrogate: n-Nonane		98.3 %	50-200	10/21/24	10/21/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	4890	200	10	10/21/24	10/22/24	



Sample Data

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

Project Name: Spud 16 11H
Project Number: 19031-0001
Project Manager: Chad Hensley

Reported:
10/22/2024 3:09:33PM

WES24-04 @ 0-3'

E410231-12

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		119 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		93.5 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		119 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		93.5 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	25.7	25.0	1	10/21/24	10/22/24	T17
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		109 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	6240	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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WES24-05 @ 0-3'
E410231-13

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		96.2 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		111 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: BA		Batch: 2443015
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		116 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		96.2 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		111 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: NV		Batch: 2443008
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		105 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: IY		Batch: 2443022
Chloride	3450	200	10	10/21/24	10/22/24	



Sample Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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WES24-06 @ 0-3'
E410231-14

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg	Analyst: BA		Batch: 2443015	
Benzene	ND	0.0250	1	10/21/24	10/22/24	
Ethylbenzene	ND	0.0250	1	10/21/24	10/22/24	
Toluene	ND	0.0250	1	10/21/24	10/22/24	
o-Xylene	ND	0.0250	1	10/21/24	10/22/24	
p,m-Xylene	ND	0.0500	1	10/21/24	10/22/24	
Total Xylenes	ND	0.0250	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		95.2 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: BA		Batch: 2443015	
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/21/24	10/22/24	
Surrogate: Bromofluorobenzene		115 %	70-130	10/21/24	10/22/24	
Surrogate: 1,2-Dichloroethane-d4		95.2 %	70-130	10/21/24	10/22/24	
Surrogate: Toluene-d8		112 %	70-130	10/21/24	10/22/24	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: NV		Batch: 2443008	
Diesel Range Organics (C10-C28)	ND	25.0	1	10/21/24	10/22/24	
Oil Range Organics (C28-C36)	ND	50.0	1	10/21/24	10/22/24	
Surrogate: n-Nonane		102 %	50-200	10/21/24	10/22/24	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: IY		Batch: 2443022	
Chloride	5340	200	10	10/21/24	10/22/24	



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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Volatile Organic Compounds by EPA 8260B

Analyst: BA

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443015-BLK1) Prepared: 10/21/24 Analyzed: 10/21/24

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	0.595		0.500		119	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.480		0.500		96.0	70-130			
Surrogate: Toluene-d8	0.552		0.500		110	70-130			

LCS (2443015-BS1) Prepared: 10/21/24 Analyzed: 10/21/24

Benzene	2.53	0.0250	2.50		101	70-130			
Ethylbenzene	2.61	0.0250	2.50		105	70-130			
Toluene	2.60	0.0250	2.50		104	70-130			
o-Xylene	2.72	0.0250	2.50		109	70-130			
p,m-Xylene	5.44	0.0500	5.00		109	70-130			
Total Xylenes	8.16	0.0250	7.50		109	70-130			
Surrogate: Bromofluorobenzene	0.580		0.500		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.470		0.500		93.9	70-130			
Surrogate: Toluene-d8	0.549		0.500		110	70-130			

Matrix Spike (2443015-MS1) Source: E410231-07 Prepared: 10/21/24 Analyzed: 10/21/24

Benzene	2.54	0.0250	2.50	ND	102	48-131			
Ethylbenzene	2.68	0.0250	2.50	ND	107	45-135			
Toluene	2.66	0.0250	2.50	ND	106	48-130			
o-Xylene	2.77	0.0250	2.50	ND	111	43-135			
p,m-Xylene	5.56	0.0500	5.00	ND	111	43-135			
Total Xylenes	8.32	0.0250	7.50	ND	111	43-135			
Surrogate: Bromofluorobenzene	0.591		0.500		118	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.473		0.500		94.5	70-130			
Surrogate: Toluene-d8	0.556		0.500		111	70-130			

Matrix Spike Dup (2443015-MSD1) Source: E410231-07 Prepared: 10/21/24 Analyzed: 10/21/24

Benzene	2.57	0.0250	2.50	ND	103	48-131	0.900	23	
Ethylbenzene	2.68	0.0250	2.50	ND	107	45-135	0.149	27	
Toluene	2.69	0.0250	2.50	ND	107	48-130	0.842	24	
o-Xylene	2.83	0.0250	2.50	ND	113	43-135	2.36	27	
p,m-Xylene	5.68	0.0500	5.00	ND	114	43-135	2.14	27	
Total Xylenes	8.51	0.0250	7.50	ND	113	43-135	2.21	27	
Surrogate: Bromofluorobenzene	0.599		0.500		120	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.492		0.500		98.3	70-130			
Surrogate: Toluene-d8	0.549		0.500		110	70-130			



QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 11H	Reported:
3101 Boyd Drive	Project Number:	19031-0001	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/22/2024 3:09:33PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: BA

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443015-BLK1) Prepared: 10/21/24 Analyzed: 10/21/24

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	0.595		0.500		119	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.480		0.500		96.0	70-130			
Surrogate: Toluene-d8	0.552		0.500		110	70-130			

LCS (2443015-BS2) Prepared: 10/21/24 Analyzed: 10/21/24

Gasoline Range Organics (C6-C10)	51.3	20.0	50.0		103	70-130			
Surrogate: Bromofluorobenzene	0.612		0.500		122	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.462		0.500		92.3	70-130			
Surrogate: Toluene-d8	0.557		0.500		111	70-130			

Matrix Spike (2443015-MS2) Source: E410231-07 Prepared: 10/21/24 Analyzed: 10/21/24

Gasoline Range Organics (C6-C10)	49.4	20.0	50.0	ND	98.8	70-130			
Surrogate: Bromofluorobenzene	0.599		0.500		120	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.468		0.500		93.5	70-130			
Surrogate: Toluene-d8	0.571		0.500		114	70-130			

Matrix Spike Dup (2443015-MSD2) Source: E410231-07 Prepared: 10/21/24 Analyzed: 10/21/24

Gasoline Range Organics (C6-C10)	48.2	20.0	50.0	ND	96.4	70-130	2.41	20	
Surrogate: Bromofluorobenzene	0.586		0.500		117	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.466		0.500		93.2	70-130			
Surrogate: Toluene-d8	0.569		0.500		114	70-130			



QC Summary Data

Vertex Resource Services Inc. 3101 Boyd Drive Carlsbad NM, 88220	Project Name: Spud 16 11H Project Number: 19031-0001 Project Manager: Chad Hensley	Reported: 10/22/2024 3:09:33PM
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Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2443008-BLK1) Prepared: 10/21/24 Analyzed: 10/21/24

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	48.6		50.0		97.2	50-200			

LCS (2443008-BS1) Prepared: 10/21/24 Analyzed: 10/21/24

Diesel Range Organics (C10-C28)	251	25.0	250		100	38-132			
Surrogate: n-Nonane	50.0		50.0		100	50-200			

Matrix Spike (2443008-MS1) Source: E410231-10 Prepared: 10/21/24 Analyzed: 10/21/24

Diesel Range Organics (C10-C28)	267	25.0	250	ND	107	38-132			
Surrogate: n-Nonane	51.8		50.0		104	50-200			

Matrix Spike Dup (2443008-MSD1) Source: E410231-10 Prepared: 10/21/24 Analyzed: 10/21/24

Diesel Range Organics (C10-C28)	253	25.0	250	ND	101	38-132	5.47	20	
Surrogate: n-Nonane	51.3		50.0		103	50-200			



QC Summary Data

Vertex Resource Services Inc.	Project Name:	Spud 16 11H	Reported:
3101 Boyd Drive	Project Number:	19031-0001	
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/22/2024 3:09:33PM

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 (2443022-BLK1)					Prepared: 10/21/24 Analyzed: 10/21/24				
Chloride	ND	20.0							
LCS (2443022-BS1)					Prepared: 10/21/24 Analyzed: 10/21/24				
Chloride	256	20.0	250		103	90-110			
Matrix Spike (2443022-MS1)					Source: E410231-02		Prepared: 10/21/24 Analyzed: 10/21/24		
Chloride	6410	200	250	6020	158	80-120			M4
Matrix Spike Dup (2443022-MSD1)					Source: E410231-02		Prepared: 10/21/24 Analyzed: 10/21/24		
Chloride	6480	200	250	6020	185	80-120	1.08	20	M4

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 11H	
3101 Boyd Drive	Project Number:	19031-0001	Reported:
Carlsbad NM, 88220	Project Manager:	Chad Hensley	10/22/24 15:09

- M4 Matrix spike recovery value is suspect since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS spike recovery was acceptable.
- T17 The sample chromatographic pattern does not resemble the typical fuel standard used for quantitation.
- 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

Page 3 of 4

Client Information				Invoice Information				Lab Use Only				TAT				State			
Client: <u>Vertex (Bill to Devon)</u>				Company: _____				Lab WO# <u>E 410231</u>				Job Number <u>21075-0074</u>				1D <input checked="" type="checkbox"/> 2D <input checked="" type="checkbox"/> 3D <input type="checkbox"/> Std <input type="checkbox"/>			
Project Name: <u>S7nd 16 1/H</u>				Address: _____				<u>01058.0007</u>								NM <input checked="" type="checkbox"/> CO <input type="checkbox"/> UT <input type="checkbox"/> TX <input type="checkbox"/>			
Project Manager: _____				City, State, Zip: _____															
Address: _____				Phone: _____															
City, State, Zip: _____				Email: _____															
Phone: _____				Miscellaneous: _____															
Email: _____																			
Sample Information								Analysis and Method								EPA Program			
Time Sampled	Date Sampled	Matrix	No of Containers	Sample ID	Field Filter	Lab Number		DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCED 1005 TX	RCRA 8 Metals	Cation/Anion Pkg	SDWA	CWA	RCRA
<u>11:25</u>	10/17/2024		1	BES24-21 @ 3'		<u>1</u>		X	X	X		X							
<u>11:40</u>	10/17/2024		1	BES24-22 @ 3'		<u>2</u>		X	X	X		X							
<u>12:00</u>	10/17/2024		1	BES24-23 @ 3'		<u>3</u>		X	X	X		X							
<u>12:15</u>	10/17/2024		1	BES24-24 @ 3'		<u>4</u>		X	X	X		X							
<u>12:30</u>	10/17/2024		1	BES24-25 @ 3'		<u>5</u>		X	X	X		X							
<u>12:45</u>	10/17/2024		1	BES24-26 @ 3'		<u>6</u>		X	X	X		X							
<u>1:10</u>	10/17/2024		1	BES24-27 @ 3'		<u>7</u>		X	X	X		X							
<u>1:30</u>	10/17/2024		1	BES24-28 @ 3'		<u>8</u>		X	X	X		X							
<u>1:40</u>	10/17/2024		1	WES24-01 @ 0-3'		<u>9</u>		X	X	X		X							
<u>1:47</u>	10/17/2024		1	WES24-02 @ 0-3'		<u>10</u>		X	X	X		X							
Additional Instructions: WO# 21420844 Jim Raley																			
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) <u>Michelle Gonzales</u>				Date <u>10/18/24</u> Time <u>4:50pm</u>				Received by: (Signature) <u>Michelle Gonzales</u>				Date <u>10-18-24</u> Time <u>1650</u>				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 6 °C on the day of receipt. Lab Use Only Received on ice: <u>0</u> / N T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4</u>			
Relinquished by: (Signature) <u>Michelle Gonzales</u>				Date <u>10-18-24</u> Time <u>2:15</u>				Received by: (Signature) <u>J.H.</u>				Date <u>10-18-24</u> Time <u>2:15</u>							
Relinquished by: (Signature) <u>J.H.</u>				Date <u>10-18-24</u> Time <u>2:40</u>				Received by: (Signature) <u>Ramon Selman</u>				Date <u>10/19/24</u> Time <u>7:30</u>							
Relinquished by: (Signature) _____				Date _____ Time _____				Received by: (Signature) _____				Date _____ Time _____							
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

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envirotech

Envirotech Analytical Laboratory

Printed: 10/21/2024 9:53:20AM

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:	10/21/24 07:30	Work Order ID:	E410231
Phone:	(575) 748-0176	Date Logged In:	10/21/24 07:50	Logged In By:	Raina Schwanz
Email:	chensley@vertexresources.com	Due Date:	10/22/24 17:00 (1 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
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? No
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: CourierComments/Resolution

Project: Spud 16 11H split between workorders E410230 & E410231. Sampler and sample matrix not marked on COC by client

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? Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

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 filtration 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

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

QUESTIONS

Action 407867

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2427745812
Incident Name	NAPP2427745812 SPUD 16 STATE 11H @ 30-015-41149
Incident Type	Produced Water Release
Incident Status	Remediation Closure Report Received
Incident Well	[30-015-41149] SPUD 16 STATE #011H

Location of Release Source	
Please answer all the questions in this group.	
Site Name	SPUD 16 STATE 11H
Date Release Discovered	10/03/2024
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 Well Produced Water Released: 17 BBL Recovered: 11 BBL Lost: 6 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)	Spill pot at wellhead was full and overflowing. Pumping unit turned off to stop leak. Estimated 17 bbls spilled. 11 bbls recovered.

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QUESTIONS, Page 2

Action 407867

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	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	No
Reasons why this would be considered a submission for a notification of a major release	Unavailable.

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@dvni.com Date: 12/03/2024
--	---

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QUESTIONS, Page 3

Action 407867

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
<i>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.</i>	
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	
<i>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.</i>	
Requesting a remediation plan approval with this submission	Yes
<i>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.</i>	
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)	32000
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	770
GRO+DRO (EPA SW-846 Method 8015M)	400
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
<i>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>	
On what estimated date will the remediation commence	10/05/2024
On what date will (or did) the final sampling or liner inspection occur	10/17/2024
On what date will (or was) the remediation complete(d)	10/16/2024
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	14668
What is the estimated volume (in cubic yards) that will be remediated	406
<i>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.</i>	
<i>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.</i>	

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QUESTIONS, Page 4

Action 407867

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
<i>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.</i>	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
<i>(Select all answers below that apply.)</i>	
(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.
<i>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>	
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@dv.com Date: 12/03/2024
<i>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.</i>	

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, Page 5

Action 407867

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	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

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QUESTIONS, Page 6

Action 407867

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	389707
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	10/03/2024
What was the (estimated) number of samples that were to be gathered	25
What was the sampling surface area in square feet	5000

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	14668
What was the total volume (cubic yards) remediated	406
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	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	Remediation Completed.

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
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QUESTIONS, Page 7

Action 407867

QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	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

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CONDITIONS

Action 407867

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 407867
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
scott.rodgers	This Remediation Closure Report is approved. Areas reasonably needed for production or subsequent drilling operations will need to be reclaimed and revegetated as soon as they are no longer reasonably needed. A report for reclamation and revegetation will need to be submitted and approved prior to this incident receiving the final status of "Restoration Complete".	1/31/2025
scott.rodgers	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. The OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	1/31/2025