Incident Number: nOY1732441110

Release Assessment and Deferral Request

Rattlesnake 13-12 Federal Com #001H

Section 13, Township 26 South, Range 34 East

API: 30-025-40912

County: Lea

Vertex File Number: 23E-02849

Prepared for:

Devon Energy Production Company, LP

Prepared by:

Vertex Resource Services Inc.

Date:

October 2024

Release Assessment and Deferral Request
Rattlesnake 13-12 Federal Com #001H
Section 13, Township 26 South, Range 34 East
API: 30-025-40912
County: Lea

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

New Mexico Oil Conservation Division – District 1
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Prepared by:
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3101 Boyd Drive
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Lakin Pullman

Lakin Pullman, B.Sc.
ENVIRONMENTAL TECHNICIAN, REPORTING

October 30, 2024
Date

Chad Hensley, B.Sc. GCNR
SENIOR PROJECT MANAGER, REPORT REVIEW

October 30, 2024
Date

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1.0 Introduction

Devon Energy Production Company, LP (Devon) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Deferral for a produced water and crude oil release that occurred on November 14, 2017, at Rattlesnake 13–12 Federal Com #001H API 30-025-40912 (hereafter referred to as the "site"). Devon submitted an initial C-141 Release Notification to New Mexico Oil Conservation Division (NMOCD) District 1 on November 14, 2017. Incident ID number nOY1732441110, 1RP-4876 was assigned to this incident.

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

2.0 Incident Description

The release occurred on November 14, 2017, due to a pin hole leak on a water dump line. The incident was reported on November 14, 2017, and involved the release of approximately 4 barrels (bbl) of produced water and 1 bbl of produced oil on the pad site. Approximately 4 bbl of free fluid was removed during the initial clean-up. Additional details relevant to the release are presented in the C-141 Report.

3.0 Site Characteristics

The site is located approximately 13.2 miles southwest of Jal, New Mexico. The legal location for the site is Section 13, Township 26 South and Range 34 East in Lea County, New Mexico. The release area is located on federal 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 Qep – Eolian and piedmont deposits (Holocene to middle Pleistocene) and is characterized as Interlayed eolian sands and piedmont-slope deposits. Predominant soil texture on the site is Pyote and Maljamar fine sand (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Additional soil characteristics include a drainage class of well drained with negligible runoff. The karst geology potential for the site is low (United States Department of the Interior, Bureau of Land Management, 2018).

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. The following sections specifically describe the release area at the site on or in proximity to the constructed pad (Figure 1). The surrounding landscape is associated with fan piedmonts, alluvial fans, and dunes with elevations ranging between 2,800 and 5,00 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 grasses and shrubs. Black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogonhallii*), dominate the historical

plant community (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

4.0 Closure Criteria Determination

The depth to groundwater was determined by drilling a borehole permitted by the New Mexico Office of the State Engineer (NMOSE) within a 0.5 mile radius of the site. The borehole was advanced to a depth of 60 feet. The borehole was left to recharge as per the requirements on the WR-07 Application for Permit to Drill a Well with No Water Rights, and an interface probe was utilized to determine whether groundwater was present at the conclusion of the 72 hour recharge period. No water was found to be present at that time. The borehole was plugged and abandoned according to the WR-08 permit, Well Plugging Plan of Operations, filed with NMOSE. Documentation related to the exploratory borehole is included in Appendix A.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream located approximately 1.35 miles east-northeast of the site (United States Fish and Wildlife Service, 2024).

At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC. Information pertaining to the closure criteria determination is summarized in Table 1 and references are included in Appendix A.

Table 1. Closure Criteria Determination			
Site Name: Rattlesnake 13-12 Federal Com #001H			
Spill Coordinates: 32.03733, -103.41576		**X: 649588**	**Y: 3545671**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	**>60**	feet
	Distance between release and nearest DTGW reference	**75**	feet
		0.01	miles
	Date of nearest DTGW reference measurement	**February 8, 2024**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	7,173	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11,458	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	37,752	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**	27,984	feet
	ii) Within 1000 feet of any fresh water well or spring	3,376	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	14,810	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	**184,744**	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	**73,147**	feet
10	Within a 100-year Floodplain	500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**125,331**	feet
11	Soil Type	Pyote and Maljamar Fine Sands	
12	Ecological Classification	Sandy	
13	Geology	Qep	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<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
51 feet - 100 feet	Chloride	10,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 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

5.0 Remedial Actions Taken

An initial site inspection of the release area was completed by Vertex between May 30, 2023, and October 3, 2024, which identified the area of the release specified in the initial C-141 Report, estimated the approximate volume of the release and white lined the area required for the One Call request. The impacted area was determined to be approximately 73 feet long and 46 feet wide; the total affected area is 2,010 square feet. The DFR associated with the site inspection is included in Appendix B.

Field screening was completed on a total of 21 sample points and 61 individual samples, and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and electroconductivity meter (chlorides). Field screening results were used to identify the impacted area. 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 3, and the laboratory data reports are included in Appendix C. Soils were determined to be below criteria limits, or below and immediately adjacent to equipment. Remedial actions selected were to leave soils in situ, deferring release until such time as all oil and gas activities are terminated and the site is reclaimed. Field screening results and DFRs documenting various phases of the characterization are presented in Appendix B.

6.0 Deferral Request

The release area was fully delineated. Characterization 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 “51 – 100 feet to groundwater”, or below and immediately adjacent to equipment as shown in Figure 1. Vertical delineation within the deferral request area was completed by mechanical excavation to a depth of 9 feet bgs.

Vertex respectfully requests the deferral to be granted as the deferral area is next to infrastructure and equipment which further excavation could cause damage to infrastructure and further contaminate the area if the infrastructure is damaged. The contamination is fully delineated and does not cause an imminent risk to human health, the environment, or groundwater. Final remediation and reclamation shall take place under 19.15.29.12 and 19.15.29.13 NMAC once the site is no longer being used for oil and gas operations.

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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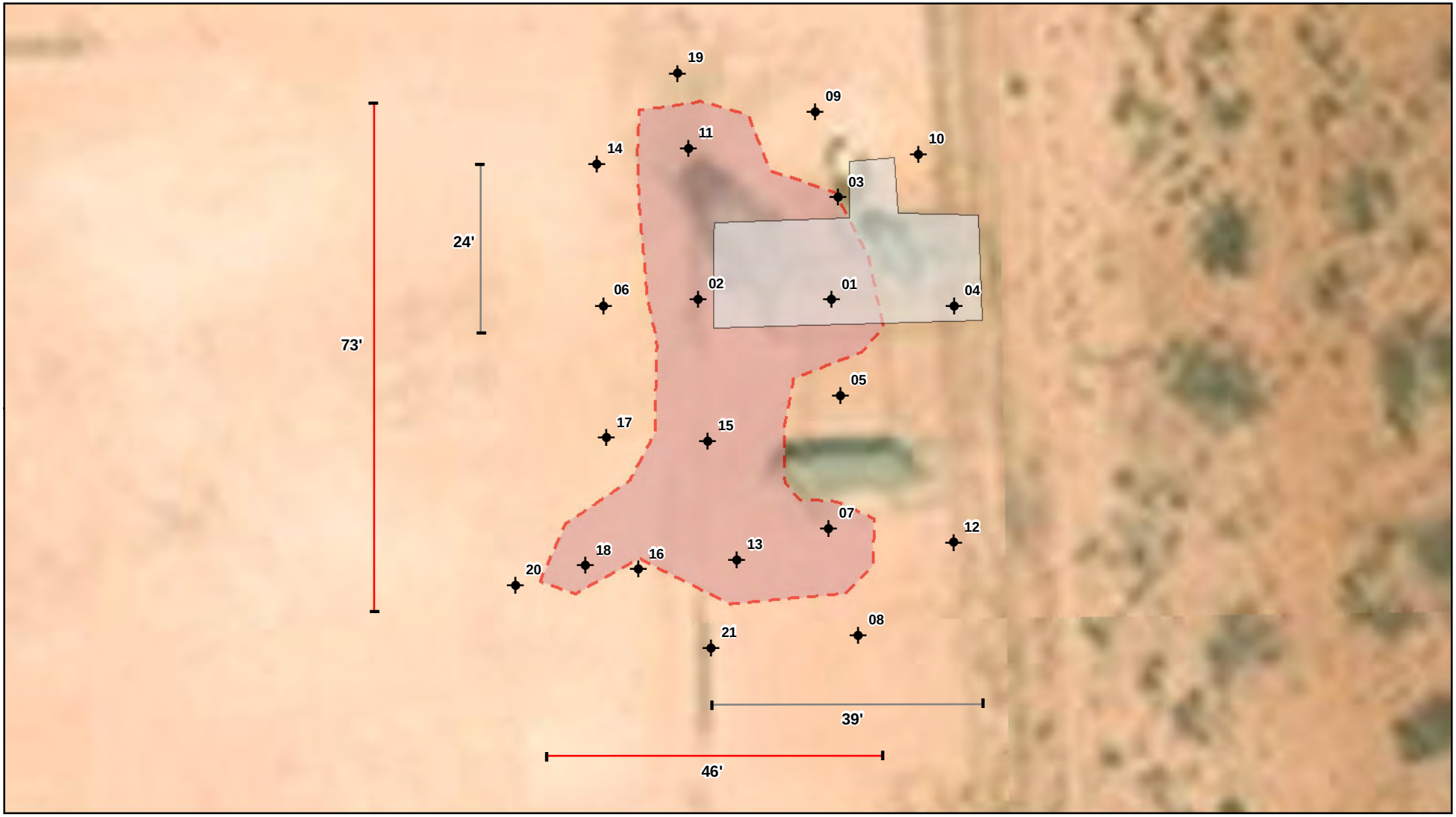
8.0 Limitations

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

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

FIGURES



Borehole (Prefixed by "BH23-")

Equipment (~652 sq. ft.)

Approximate Release Area (~2,010 sq. ft.)

VERTEX

0 5 10 20 ft

Map Center:
Lat/Long: 32.037270, -103.415809

NAD 1983 UTM Zone 13N
Date: Oct 23/23

N

Characterization Sampling Site Schematic
Rattlesnake 13-12 Federal Com #001

FIGURE:
1

devon

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

Note: Georeferenced image from Esri, 2022. Approximate lease boundary from imagery by Vertex Professional Services Ltd. (Vertex), 2023. Site features from GPS by Vertex, 2023.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\Devon Energy Corporation\2023\23E-02849 - Rattlesnake 13 12 Fed Com #001H\Figure 2 Confirmatory Sampling Site Schematic (23E-02849)ID17239.mxd

TABLES

Client Name: Devon Energy Production Company, LP
Site Name: Rattlesnake 13-12 Federal Com #001H
NMOCD Tracking #: nOY1732441110
Project #: 23E-02849
Lab Reports: 2306010, 2306492, 2309275, 885-7249-1, and 885-8376-1

Table 3. Initial Characterization Sample Field Screen and Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater 51 - 100 feet bgs							
BH23-01	0	May 30, 2023	ND	ND	ND	11,000	5,300	**11,000**	**16,300**	250
	2	May 30, 2023	ND	ND	ND	3,300	1,700	**3,300**	**5,000**	ND
	4	May 30, 2023	ND	ND	ND	1,700	940	**1,700**	**2,640**	160
	9	October 3, 2024	ND	ND	ND	ND	ND	ND	ND	89
BH23-02	0	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	750
	2	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	140
	4	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	110
	6	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BH23-03	0	May 30, 2023	ND	ND	ND	30	68	30	98	83
	2	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	1,900
	4	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	2,700
	6	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	780
	8	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	110
BH23-04	0	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	61
	2	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	ND
	4	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	ND
BH23-05	0	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	190
	2	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	100
	2	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	ND
	4	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	ND
	6	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	110
BH23-06	0	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-07	0	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	3,600
	2	May 30, 2023	ND	ND	ND	ND	ND	ND	ND	740
	2	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	1,400
	4	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	290
BH23-08	0	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	110
	2	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-09	0	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	570
	2	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-10	0	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	61
	2	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND

Client Name: Devon Energy Production Company, LP
Site Name: Rattlesnake 13-12 Federal Com #001H
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Table 3. Initial Characterization Sample Field Screen and Laboratory Results

Sample Description			Petroleum Hydrocarbons							Inorganic
			Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
			Depth to Groundwater 51 - 100 feet bgs							
BH23-11	0	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	4,300
	2	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	1,000
	4	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	690
	6	June 28, 2024	ND	ND	ND	ND	ND	ND	ND	120
BH23-12	0	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-13	0	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	780
	2	June 7, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-14	0	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	84
	2	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	63
BH23-15	0	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	93
	2	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	110
BH23-16	0	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	150
	2	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	520
BH23-17	0	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	310
BH23-18	0	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	2,200
	2	June 23, 2023	ND	ND	ND	ND	ND	ND	ND	860
BH23-19	0	September 2, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	September 2, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-20	0	September 2, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	September 2, 2023	ND	ND	ND	ND	ND	ND	ND	ND
BH23-21	0	September 2, 2023	ND	ND	ND	ND	ND	ND	ND	ND
	2	September 2, 2023	ND	ND	ND	ND	ND	ND	ND	ND

"ND" indicates not detected
"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Reclamation Closure Criteria

APPENDIX A – Closure Criteria Research Documentation

Closure Criteria Determination				
Site Name: Rattlesnake 13-12 Federal Com #001H				
Spill Coordinates: 32.03733, -103.41576		X: 649,587	Y: 3,545,670	
Site Specific Conditions		Value	Unit	Reference
1	Depth to Groundwater (nearest reference)	**>60**	feet	1
	Distance between release and nearest DTGW reference	**75**	feet	
		0.01	miles	
	Date of nearest DTGW reference measurement	**February 26, 2024**		
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	7,173	feet	2
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11,458	feet	3
4	Within 300 feet from an occupied residence, school, hospital, institution or church	37,752	feet	4
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**	27,984	feet	5
	ii) Within 1000 feet of any fresh water well or spring	29,230	feet	5
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)	6
7	Within 300 feet of a wetland	14,810	feet	7
8	Within the area overlying a subsurface mine	No	(Y/N)	8
	Distance between release and nearest registered mine	**184,744**	feet	
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low	9
	Distance between release and nearest unstable area	**81,710**	feet	
10	Within a 100-year Floodplain	500	year	10
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	**125,331**	feet	
11	Soil Type	Pyote and Maljamar Fine Sands		11
12	Ecological Classification	Loamy Sand		12
13	Geology	Qep		13
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	51-100'	<50' 51-100' >100'	

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

MADERA 24 FED

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
C-4852		C-4852-POD1

WELL OWNER NAME(S)	PHONE (OPTIONAL)
RayBaw Operating, LLC	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
2626 Cole Avenue, Suite 300	Dallas	TX	75204

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	02	05.0280	N
	LONGITUDE	-103	25	17.1156	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1833	Jason Maley	Vision Resources

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
7-3-24	7-3-24	55'	55'	N/A

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 0'

DATE STATIC MEASURED: 7-3-24

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	45	6"	PVC 2" SCH40	Thread	2"	SCH40	N/A
45	55	6"	PVC 2" SCH40	Thread	2"	SCH40	.02

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
			None pulled and plugged		

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	10	10'	Brown sand with caliche	Y ✓ N	
10	30	20'	Tan fine sand with small rock	Y ✓ N	
30	55	25'	Tan fine sand	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY: Dry hole

TOTAL ESTIMATED WELL YIELD (gpm): 0

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Jason Maley

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jason Maley

SIGNATURE OF DRILLER / PRINT SIGNEE NAME

DATE: 7/31/24

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: C-4852 POD 1

Well owner: RayBaw Operating, LLC Phone No.: _____

Mailing address: 2526 Cole Ave, Suite 300

City: Dallas State: TX Zip code: 75204

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Vision Resources

2) New Mexico Well Driller License No.: 1833 Expiration Date: 10-7-25

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jason Maley

4) Date well plugging began: 7-9-24 Date well plugging concluded: 7-9-24

5) GPS Well Location: Latitude: 32 deg, 02 min, 05.0280 sec
Longitude: -103 deg, 25 min, 17.1156 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 55 ft below ground level (bgl), by the following manner: Tape

7) Static water level measured at initiation of plugging: Dry ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 06-27-2024

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
0	77.50	77.50	Tremie Pipe Open hole	
Wyoming Bentonite					
55'					

MULTIPLY		BY		AND OBTAIN
cubic feet	x	7.4805	=	gallons
cubic yards	x	201.97	=	gallons

III. SIGNATURE:

I, Jason Maley , say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Signature of Well Driller

7/31/24
Date

Version: September 8, 2009
Page 2 of 2

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

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
C 04791 POD1	CUB	LE	4	4	4	13	26S	34E	649599	3545568	75	60		
C 04710 POD1	CUB	LE	4	4	4	22	26S	34E	646400	3543956	3588			
C 04601 POD1	CUB	LE	3	4	3	05	26S	35E	651710	3548919	3917			
C 04583 POD1	CUB	LE	3	3	3	15	26S	34E	644920	3545643	4650	55		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 4

UTMNAD83 Radius Search (in meters):

Easting (X): 649570 **Northing (Y):** 3545638 **Radius:** 5000

New Mexico Office of the State Engineer
Water Right Summary

WR File Number: C 04021 **Subbasin:** C **Cross Reference:** -

Primary Purpose: DOM 72-12-1 DOMESTIC ONE HOUSEHOLD

Primary Status: PMT PERMIT

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

Total Diversion: 1 **Cause/Case:** -

Owner: MARCOS YANEZ

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
C 04021 POD1			2	4	4	26	26S	35E	657602	3542791	91 E LEMAN RD, LOVINGTON, NM

10/16/23 3:38 PM WATER RIGHT SUMMARY

New Mexico Office of the State Engineer

Active & Inactive Points of Diversion

(with Ownership Information)

(acre ft per annum)

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

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

(quarters are smallest to largest)

(NAD83 UTM in me

WR File Nbr	Sub basin	Use	Diversion	Owner	County	POD Number	Well Tag	Code	Grant	Source	q 64	q 16	q 4	Sec	Tws	Rng	X	Y
C 04710	CUB	MON	0	DEVON ENERGY	LE	C 04710 POD1	NA				4	4	4	22	26S	34E	646399	3543956
C 04601	CUB	MON	0	MARATHON OIL	LE	C 04601 POD1	NA				3	4	3	05	26S	35E	651709	3548919
C 04583	CUB	MON	0	LUCID ENERGY GROUP	LE	C 04583 POD1	NA				3	3	3	15	26S	34E	644919	3545643

Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 649587 **Northing (Y):** 3545670 **Radius:** 5000

Sorted by: Distance

National Water Information System: Web Interface

USGS Water Resources

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

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

site_no list =

- 320150103235501

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

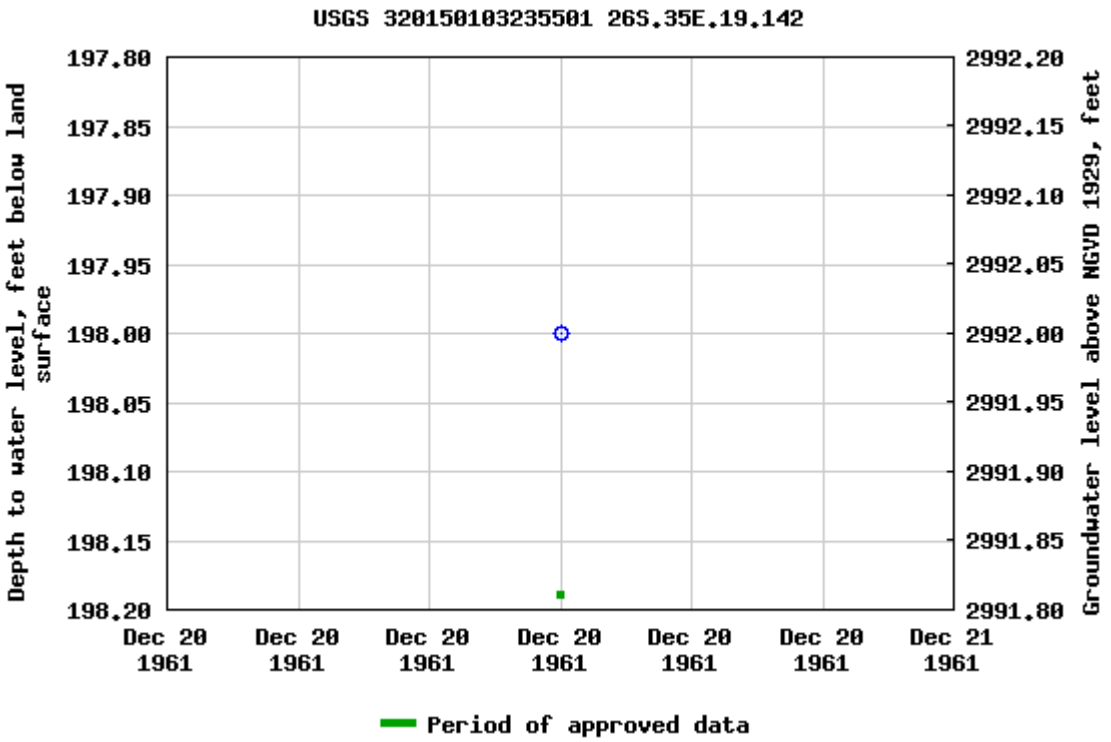
USGS 320150103235501 26S.35E.19.142

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

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°01'53", Longitude 103°24'25" NAD27
Land-surface elevation 3,190 feet above NGVD29
This well is completed in the Other aquifers (N9999OTHER) national aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



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

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

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

Page Contact Information: USGS Water Data Support Team
Page Last Modified: 2023-05-19 14:52:08 EDT
0.56 0.47 nadww02

OSE POD Location Map

3/14/2024, 9:11:04 AM

GIS WATERS PODs

- Pending

1:9,028

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

Maxar

Online web user

This is an unofficial map from the OSE's online application.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Rattlesnake 13-12 Federal Com #001H
Watercourse 7,173ft

March 18, 2024

Wetlands

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

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

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

U.S. Fish and Wildlife Service
National Wetlands Inventory

Rattlesnake 13-12 Federal Com #001H
Lake 11,458ft

May 19, 2023

Wetlands

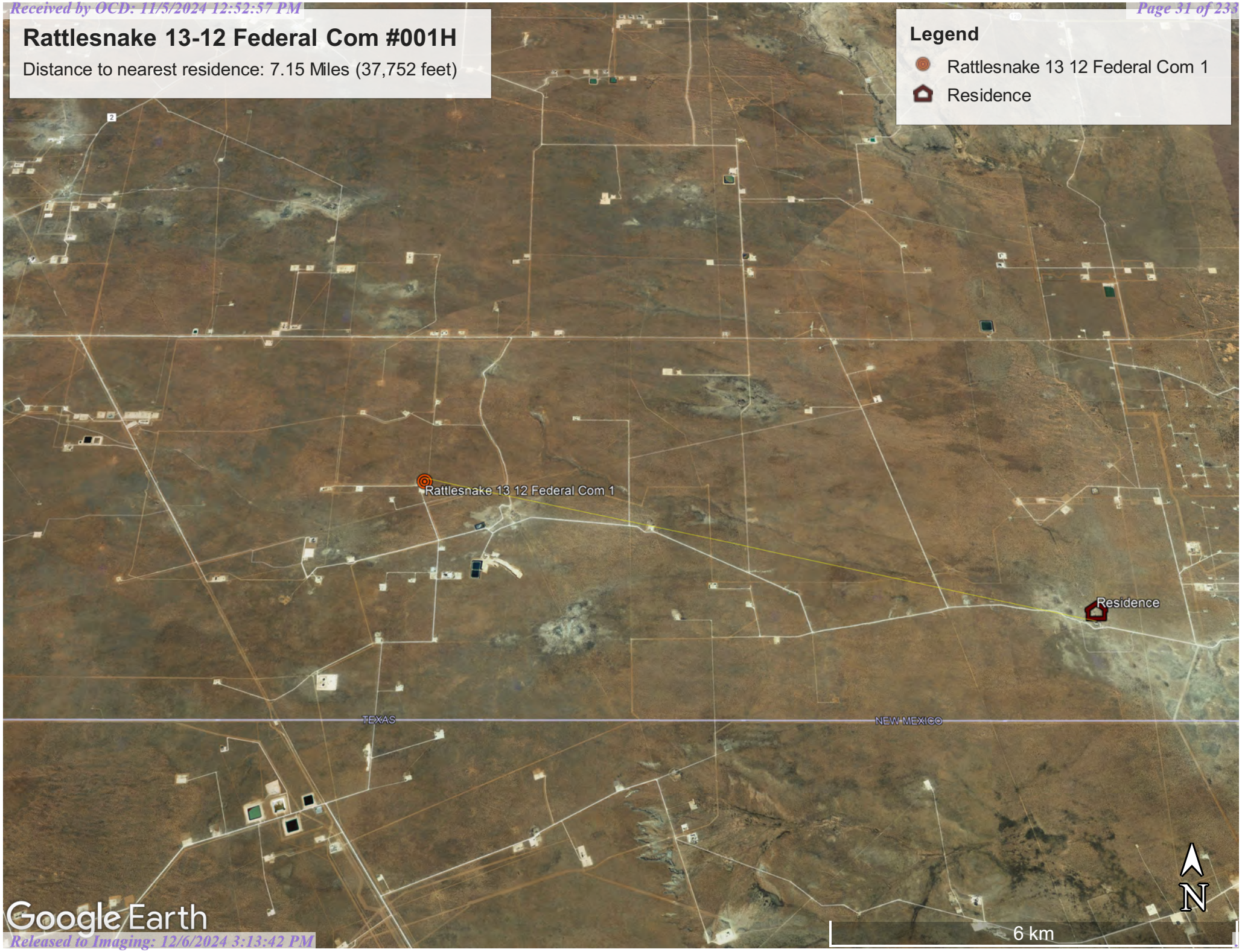
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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

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

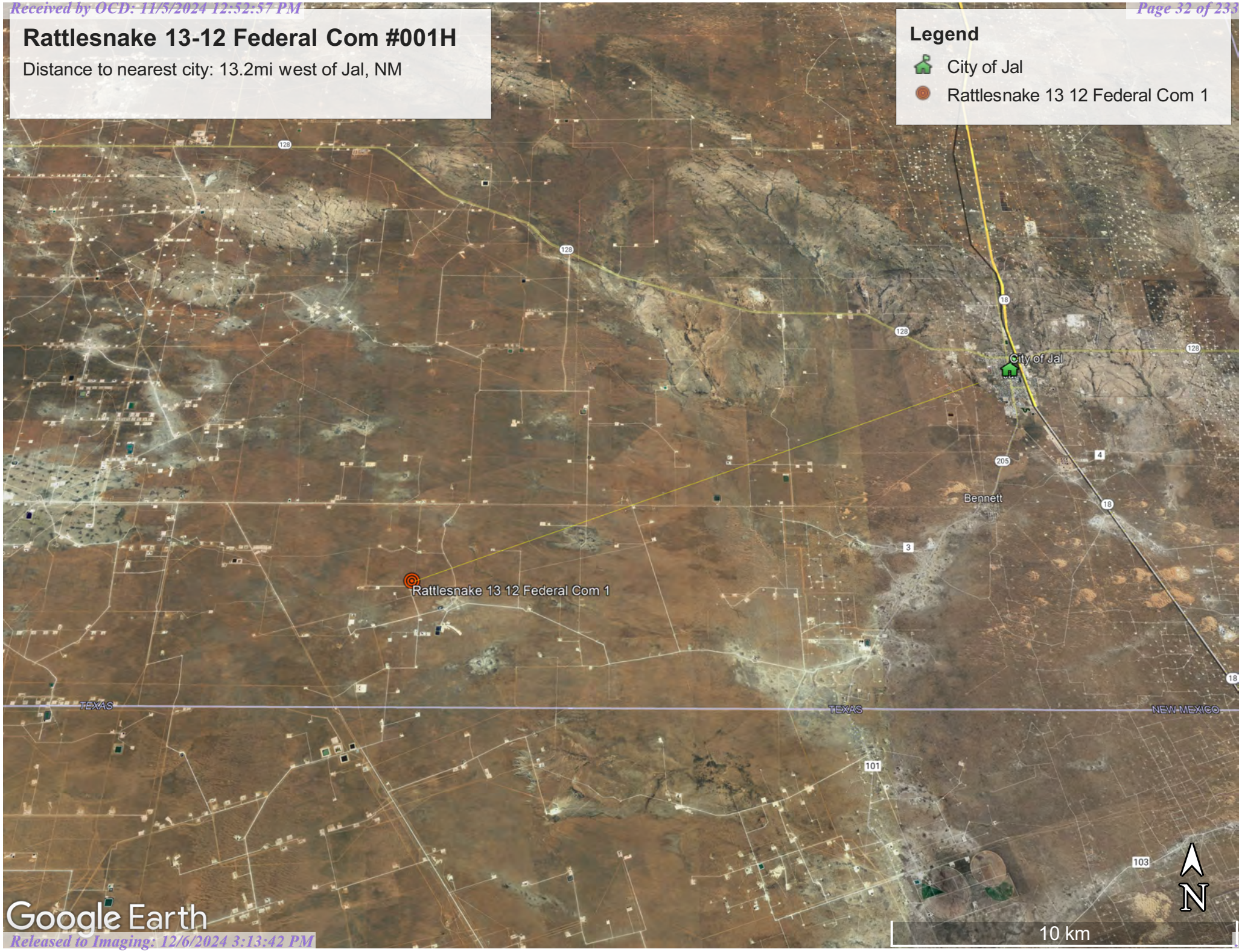
Rattlesnake 13-12 Federal Com #001H

Distance to nearest residence: 7.15 Miles (37,752 feet)



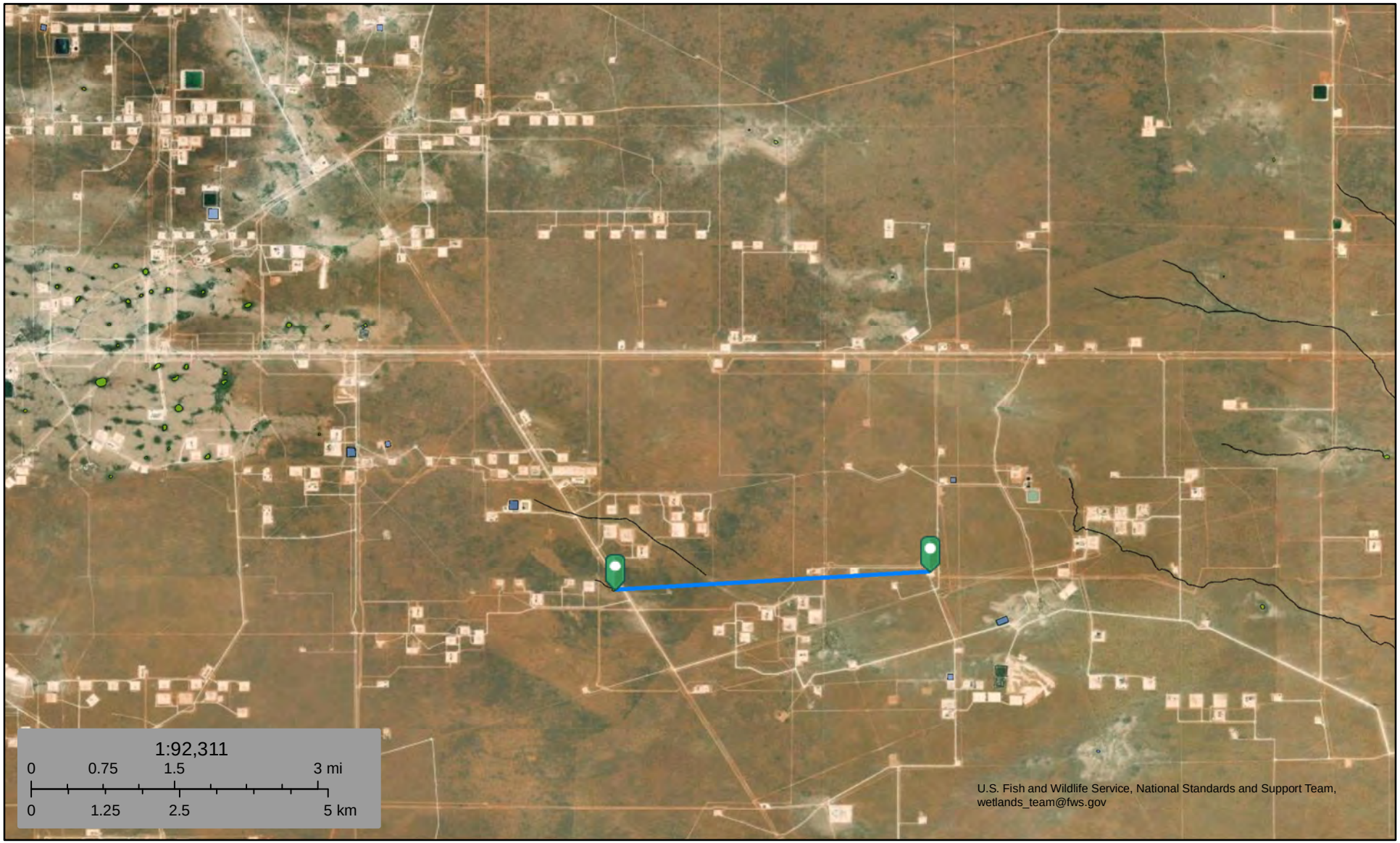
Rattlesnake 13-12 Federal Com #001H

Distance to nearest city: 13.2mi west of Jal, NM



U.S. Fish and Wildlife Service
National Wetlands Inventory

Rattlesnake 13-12 Federal Com #001H
Wetlands 14,810ft



March 18, 2024

Wetlands

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

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

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

Rattlesnake 13 12 Federal Com #001H Mine 184,744ft

3/18/2024, 8:44:03 AM

1:577,791

0 4.25 8.5 17 mi

0 5 10 20 km

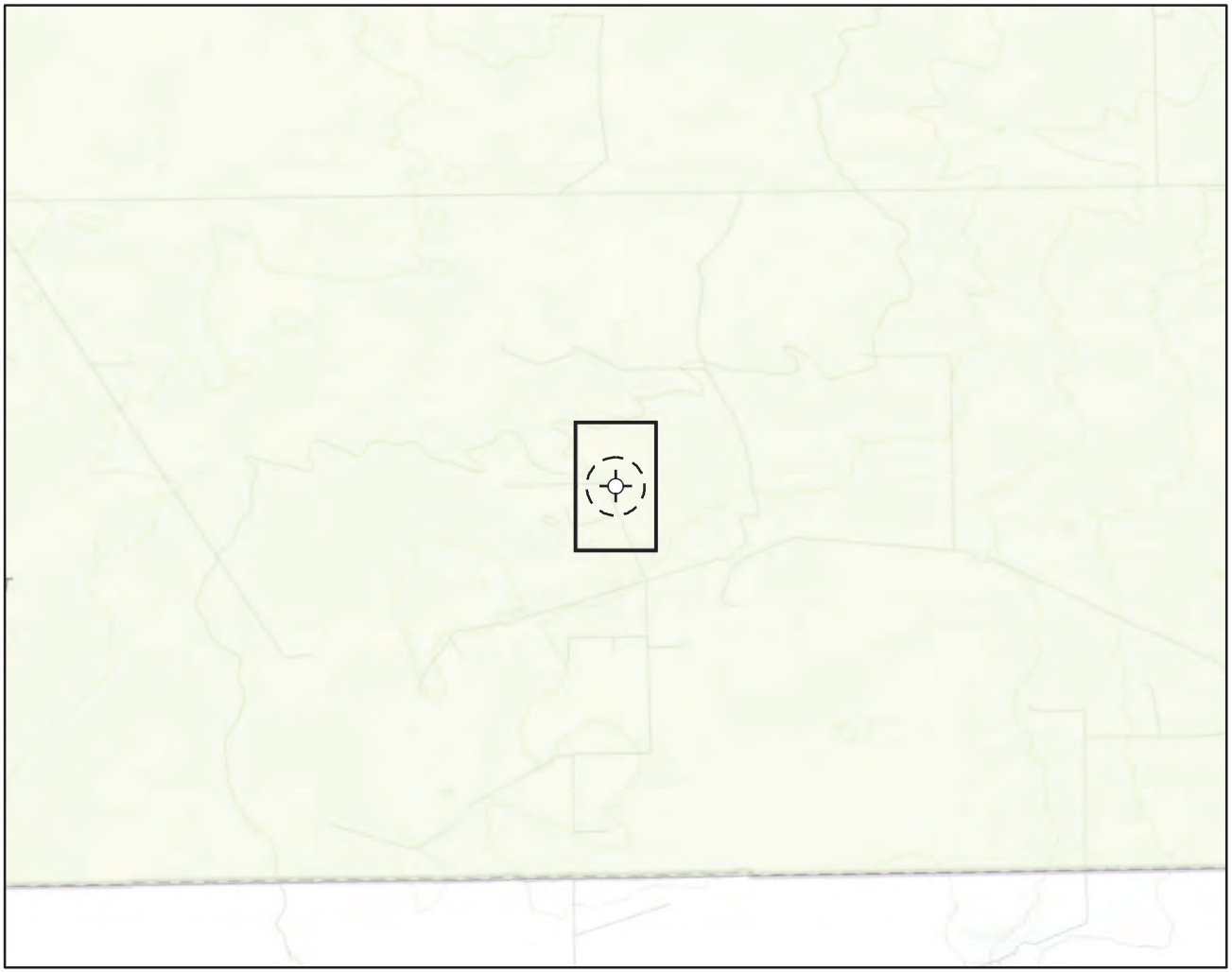
Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Industrial Minerals (Other)
- Potash
- Salt

Earthstar Geographics

EMNRD MMD GIS Coordinator

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



Karst Potential

- Critical
- High
- Medium
- Low

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

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.

VERTEX

Map Center:
Lat/Long: 32.037330, -103.415760

NAD 1983 UTM Zone 13N
Date: May 31/23

N

Karst Potential Schematic
Rattlesnake 13-12 Federal Com #001H

FIGURE:
X

devon

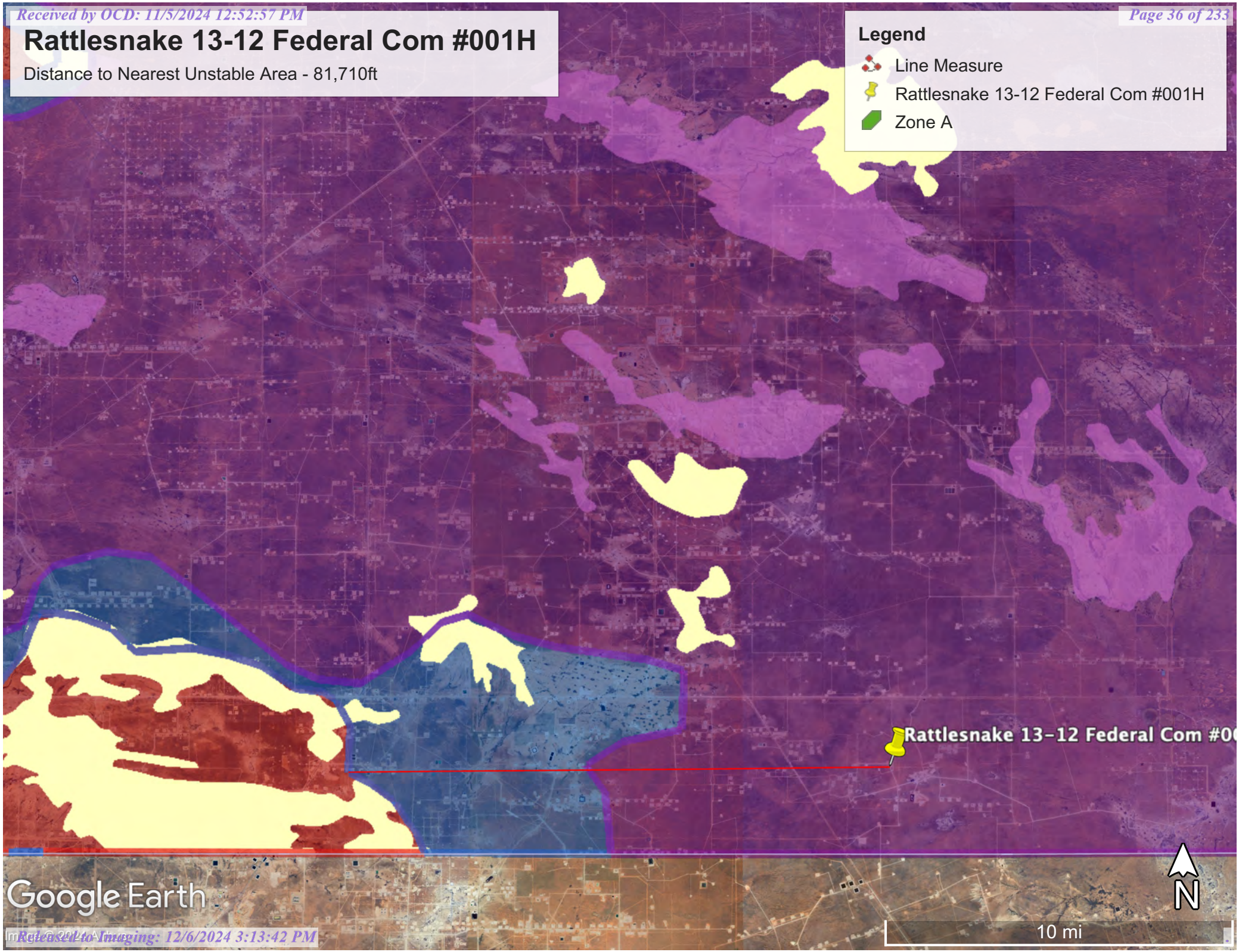
Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

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

VERSATILITY. EXPERTISE.

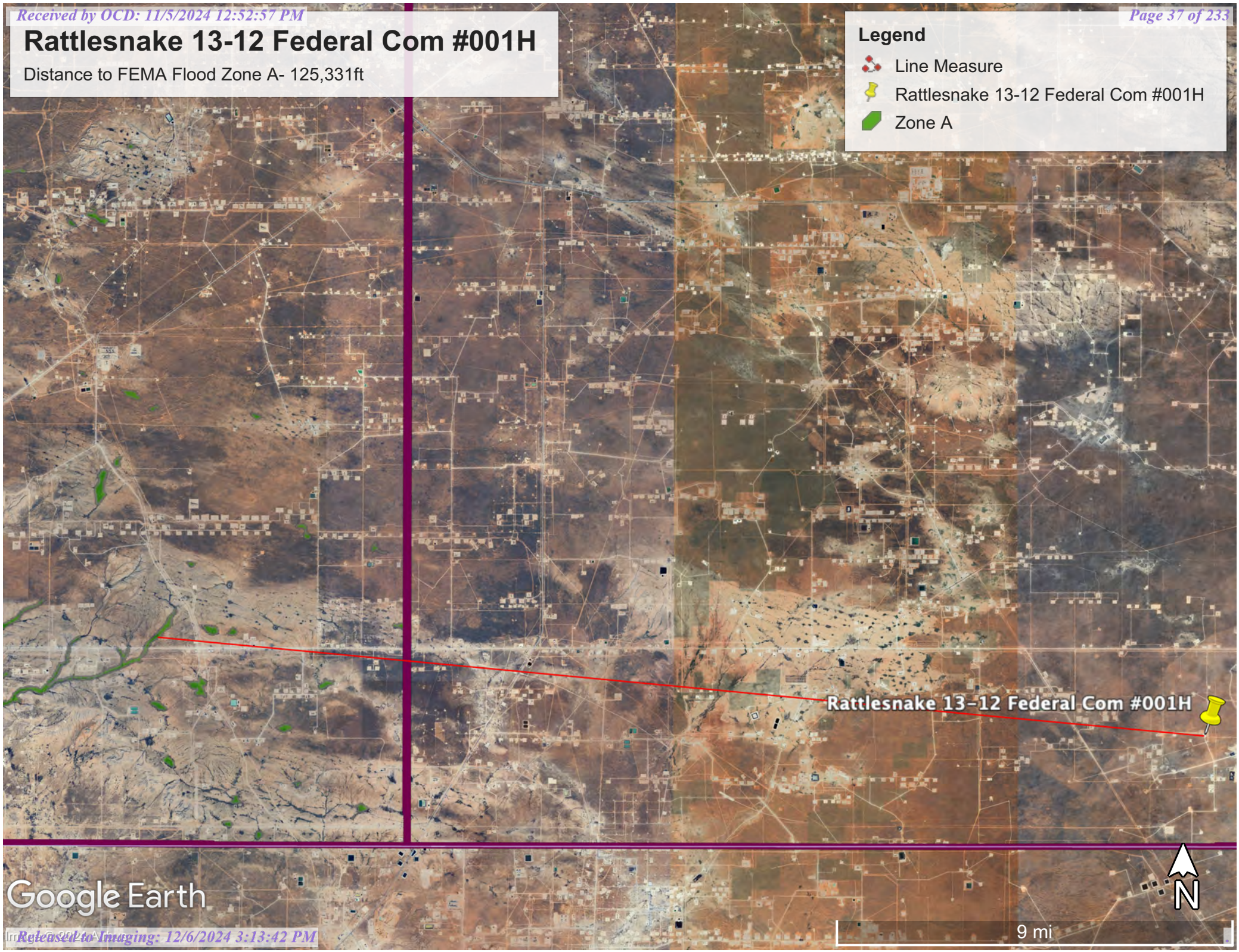
Rattlesnake 13-12 Federal Com #001H

Distance to Nearest Unstable Area - 81,710ft



Rattlesnake 13-12 Federal Com #001H

Distance to FEMA Flood Zone A- 125,331ft



National Flood Hazard Layer FIRMette

FEMA

103°25'15"W 32°2'30"N

103°24'38"W 32°1'59"N

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

1:6,000

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

Legend

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

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

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

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

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

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

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

N

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/19/2023 at 4:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Lea County, New Mexico

May 19, 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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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 19, Sep 8, 2022

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

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
PU	Pyote and Maljamar fine sands	10.5	100.0%
Totals for Area of Interest		**10.5**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Lea County, New Mexico

PU—Pyote and Maljamar fine sands

Map Unit Setting

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

Map Unit Composition

Pyote and similar soils: 46 percent
Maljamar and similar soils: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pyote

Setting

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

Typical profile

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Description of Maljamar

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R070BD003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: R070BC022NM - Sandhills
Hydric soil rating: No

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USDA Natural Resources Conservation Service

Ecological site R070BD003NM
Loamy Sand

Accessed: 05/19/2023

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.

Associated sites

R070BD004NM	**Sandy** Sandy
R070BD005NM	**Deep Sand** Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

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

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

Table 2. Representative physiographic features

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

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.
Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes.

The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.
The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.
Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

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

Table 3. Representative climatic features

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

Influencing water features

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

Soil features

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

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

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

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

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

Characteristic soils are:
Maljamar
Berino
Parjarito
Palomas
Wink
Pyote

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Fine sandy loam (3) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid

Soil depth	40–72 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–7 in
Calcium carbonate equivalent (0-40in)	3–40%
Electrical conductivity (0-40in)	2–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume <=3" (Depth not specified)	4–12%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

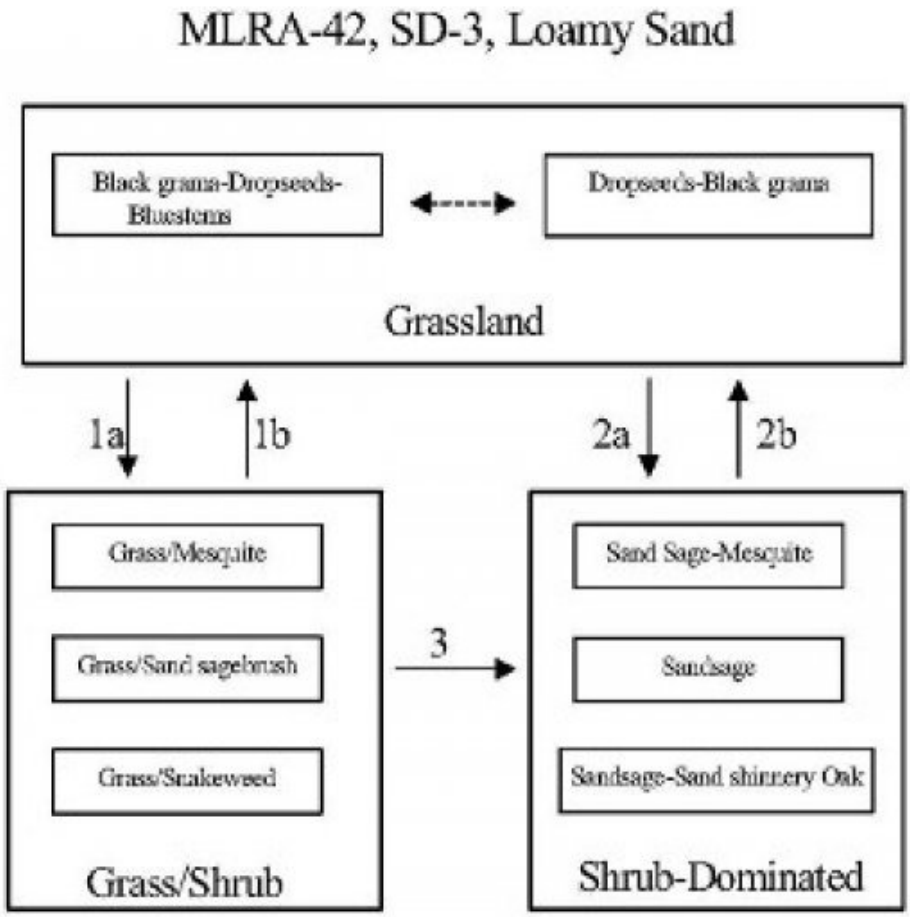
Overview

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

The historic plant community of Loamy Sand sites is dominated by black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*). Perennial and annual forb abundance and distribution are dependent on precipitation. Litter and to a lesser extent, bare ground, are a significant proportion of ground cover while grasses compose the remainder. Decreases in black grama indicate a transition to either a grass/shrub or shrub-dominated state. The grass/shrub state is composed of grasses/honey mesquite (*Prosopis glandulosa*), grasses/broom snakeweed (*Gutierrezia sarothrae*), or grasses/sand sage. The shrub-dominated state occurs after a severe loss of grass cover and a prevalence of sand sage with secondary shinnery oak and mesquite. Heavy grazing intensity and/or drought are influential drivers in decreasing black grama and bluestems and subsequently increasing shrub cover, erosion, and bare patches. Historical fire suppression also encourages shrub pervasiveness and a competitive advantage over grass species (McPherson 1995). Brush and grazing management, however, may reverse grass/shrub and shrub-dominated states toward the grassland-dominated historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram):



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

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

3. Continued loss of grass cover, erosion.

State 1
Historic Climax Plant Community

Community 1.1
Historic Climax Plant Community

Grassland: The historic plant community is a uniformly distributed grassland dominated by black grama, dropseeds, and bluestems. Sand sage and shinnery oak are evenly dispersed throughout the grassland due to the coarse soil

surface texture. Perennial and annual forbs are common but their abundance and distribution are reflective of precipitation. Bluestems initially, followed by black grama, decrease with drought and heavy grazing intensity. Historical fire frequency is unknown but likely occurred enough to remove small shrubs to the competitive advantage of grass species. Fire suppression, drought conditions, and excessive grazing drive most grass species out of competition with shrub species. Diagnosis: Grassland dominated by black grama, dropseeds, and bluestems. Shrubs, such as sand sage, shinnery oak, and mesquite are dispersed throughout the grassland. Forbs are present and populations fluctuate with precipitation variability.

Table 5. Annual production by plant type

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

Table 6. Ground cover

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

Figure 5. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community .

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

State 2
Grass/Shrub

Community 2.1
Grass/Shrub

Grass/Shrub State: The grass/shrub state is dominated by communities of grasses/mesquite, grasses/snakeweed, or grasses/sand sage. Decreases in black grama and bluestem species lead to an increase in bare patches and mesquite which further competes with grass species. An increase of dropseeds and threeawns occurs. Grass distribution becomes more patchy with an absence or severe decrease in black grama and bluestems. Mesquite provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Mesquite mortality when exposed to fire is low due to aggressive resprouting abilities. Herbicide application combined with subsequent prescribed fire may be more effective in mesquite reduction (Britton and Wright 1971). Diagnosis: This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Dropseeds and threeawns have a patchy distribution. Transition to Grass/Shrub State (1a): The historic plant community begins to shift toward the grass/shrub state as drivers such as drought, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by a decrease in black grama with a subsequent increase of dropseeds, threeawns, mesquite, and snakeweed. Snakeweed has been documented to outcompete black grama especially under conditions of fire suppression and drought (McDaniel et al. 1984). Key indicators of approach to transition: • Loss of black grama cover • Surface soil erosion • Bare patch expansion • Increased dropseed/threeawn and mesquite, snakeweed, or sand sage abundances Transition to Historic Plant Community (1b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community.

State 3
Shrub Dominated

Community 3.1
Shrub Dominated

Shrub-Dominated State: The shrub-dominated state results from a severe loss of grass cover. This state's primary species is sand sage. Shinnery oak and mesquite also occur; however, grass cover is limited to intershrub distribution. Sand sage stabilizes light sandy soils from wind erosion, which enhances protected grass/forb cover (Davis and Bonham 1979). However, shinnery oak also responds to the sandy soils with dense stands due to an

aggressive rhizome system. Shinnery oak's extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986). Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state. Key indicators of approach to transition: • Severe loss of grass species cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite abundance Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state. Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite. Key indicators of approach to transition: • Continual loss of dropseeds/threeawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threeawn and mesquite/snakeweed abundance

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Warm Season**			61–123	
	little bluestem	SCSC	*Schizachyrium scoparium*	61–123	–
2	**Warm Season**			37–61	
	sand bluestem	ANHA	*Andropogon hallii*	37–61	–
3	**Warm Season**			37–61	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	37–61	–
	silver bluestem	BOSA	*Bothriochloa saccharoides*	37–61	–
4	**Warm Season**			123–184	
	black grama	BOER4	*Bouteloua eriopoda*	123–184	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	123–184	–
5	**Warm Season**			123–184	
	thin paspalum	PASE5	*Paspalum setaceum*	123–184	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	123–184	–
	fringed signalgrass	URCI	*Urochloa ciliatissima*	123–184	–
6	**Warm Season**			123–184	
	spike dropseed	SPCO4	*Sporobolus contractus*	123–184	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	123–184	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	123–184	–
7	**Warm Season**			61–123	
	hooded windmill grass	CHCU2	*Chloris cucullata*	61–123	–
	Arizona cottontop	DICA8	*Digitaria californica*	61–123	–
9	**Other Perennial Grasses**			37–61	
	Grass, perennial	2GP	*Grass, perennial*	37–61	–
Shrub/Vine					
8	**Warm Season**			37–61	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	37–61	–
	giant dropseed	SPGI	*Sporobolus giganteus*	37–61	–
10	**Shrub**			61–123	

	sand sagebrush	ARFI2	*Artemisia filifolia*	61–123	–
	Havard oak	QUHA3	*Quercus havardii*	61–123	–
11	**Shrub**			34–61	
	fourwing saltbush	ATCA2	*Atriplex canescens*	37–61	–
	featherplume	DAFO	*Dalea formosa*	37–61	–
12	**Shrub**			37–61	
	jointfir	EPHED	*Ephedra*	37–61	–
	littleleaf ratany	KRER	*Krameria erecta*	37–61	–
13	**Other Shrubs**			37–61	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	37–61	–
Forb					
14	**Forb**			61–123	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	61–123	–
	Indian blanket	GAPU	*Gaillardia pulchella*	61–123	–
	globemallow	SPHAE	*Sphaeralcea*	61–123	–
15	**Forb**			12–37	
	woolly groundsel	PACA15	*Packera cana*	12–37	–
16	**Forb**			61–123	
	touristplant	DIWI2	*Dimorphocarpa wislizeni*	61–123	–
	woolly plantain	PLPA2	*Plantago patagonica*	61–123	–
17	**Other Forbs**			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	37–61	–

Animal community

This Ecological Site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, desert cottontail, spotted ground squirrel, black-tailed prairie dog, yellow faced pocket gopher, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, roadrunner, meadowlark, burrowing owl, white necked raven, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake, dusty hognose snake and ornate box turtle.
Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson's hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

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

Recreational uses

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

Wood products

This site has no potential for wood products.

Other products

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

Other information

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

Inventory data references

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

Other references

Literature Cited:

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Contributors

Don Sylvester
Quinn Hodgson

Rangeland health reference sheet

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

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

Indicators

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

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):**

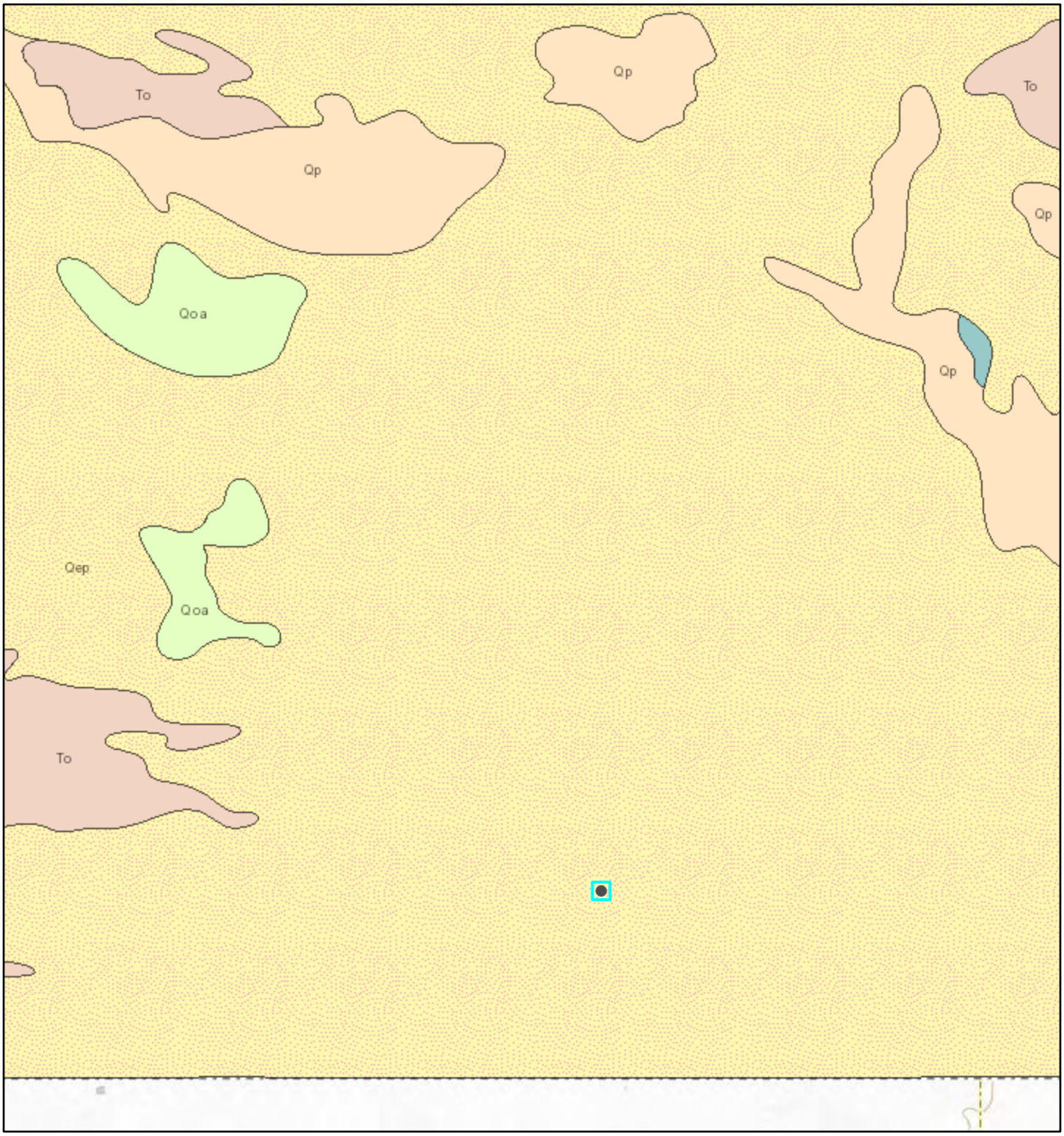
---

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:**

Rattlesnake 13 12 Federal Com 1 Geology



5/19/2023, 3:41:12 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

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 Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS

ArcGIS Web AppBuilder

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

APPENDIX B – Daily Field Reports

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/7/2023
Site Location Name:	Rattlesnake 13-12 Fed Com 1H	Report Run Date:	6/7/2023 10:24 PM
Client Contact Name:	Jim Raley	API #:	30-025-40912
Client Contact Phone #:	575-748-0176		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/7/2023 9:15 AM
Departed Site	6/7/2023 12:45 PM

Field Notes

9:38 On site, completed safety meeting

9:39 Running secondary line sweep with magnetic locator

11:48 Collected and screened samples BH23-08 through BH23-13 at 0’ and 2’ bgs

12:45 One call will need to be extended to the east and south before delineation can be completed

Next Steps & Recommendations

1 Extend one call

2 Complete delineation

Daily Site Visit Report

Site Photos

Viewing Direction: Southeast	**Viewing Direction**: South
	
Sampling area	Spill area from north
Viewing Direction: Northeast	**Viewing Direction**: Northeast
	
Samples planned and marked	Sample points from 5/30

Daily Site Visit Report

Viewing Direction: Southwest	**Viewing Direction**: East
	
Sample points from 5/30	Sample point from 5/30
Viewing Direction: Northeast	**Viewing Direction**: West
	
Sample point from 5/30	Sample point from 5/30

Daily Site Visit Report

Viewing Direction: West	**Viewing Direction**: West
	
BH23-12, 08, and 13	BH23-10, 9, and 11

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Sally Carttar

Signature:

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/23/2023
Site Location Name:	Rattlesnake 13-12 Fed Com 1H	Report Run Date:	6/23/2023 11:28 PM
Client Contact Name:	Dale Woodall	API #:	30-025-40912
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/23/2023 10:35 AM
Departed Site	6/23/2023 4:00 PM

Field Notes

10:57 Arrived on site, filling out and signing safety documents. Examined site and location to determine best location for marking sampling location following line sweep with magnetic locator.

15:52 Field screened all samples for chlorides with EC meter and BH23-11 4.5’ and BH23-16 2’ with silver nitrate titration. Field screened all surface samples and BH23-11 4.5’ for TPH with Dexsil Petroflag.

Backfilled boreholes.

Next Steps & Recommendations

1 Continue vertical delineation with mechanical assistance and potentially horizontal delineation from SW.

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: East
	
BH23-01 0ft, 2ft, 4ft collected on 5-30-23	BH23-15 0ft, 2ft (rocky, difficult to dig)
Viewing Direction: Northeast	**Viewing Direction**: East
	
BH23-16 0ft, 2ft	BH23-17 0ft, 2ft

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: East
	
Site information placard	BH23-02 0ft, 2ft collected on 5-30-23
Viewing Direction: South	**Viewing Direction**: Southwest
	
BH23-03 0ft, 2ft collected on 5-30-23	BH23-04 0ft, 2ft collected on 5-30-23

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: East
	
BH23-05 0ft, 2ft collected on 5-30-23	BH23-06 0ft, 2ft collected on 5-30-23
Viewing Direction: North	**Viewing Direction**: Southeast
	
BH23-07 0ft, 2ft collected on 5-30-23	BH23-11 4ft, 4.5ft, refusal

Daily Site Visit Report

Viewing Direction: Southeast

BH23-14 0ft, 2ft

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Stephanie McCartyM

Signature: 

Daily Site Visit Report

Client:	Devon Energy Corporation	Inspection Date:	6/26/2024
Site Location Name:	Rattlesnake 13-12 Fed Com 1H	Report Run Date:	7/1/2024 3:36 PM
Client Contact Name:	Dale Woodall	API #:	30-025-40912
Client Contact Phone #:	405-318-4697		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/26/2024 9:40 AM
Departed Site	6/26/2024 3:15 PM

Field Notes

12:42 Make up JSA

12:43 Delineate areas BH23-02 to 05 and BH23-07 & 11 to strictest criteria

12:43 Field screen samples

Next Steps & Recommendations

1 Jar and send of field screen samples to lab for analysis

Daily Site Visit Report

Site Photos

Viewing Direction: East	**Viewing Direction**: West
	
BG23-2 @ 6’	BG23-3 @ 8’
Viewing Direction: East	**Viewing Direction**: North
	
BG23-5 @ 6’	BG23-7 @ 4’

Daily Site Visit Report

Viewing Direction: South

BG24-4 @ 4’

Viewing Direction: East

BG23-11 @ 6’

Viewing Direction: North

Location placard

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Riley Plogger

Signature: 

APPENDIX C – Laboratory Data Reports and Chain of Custody Forms

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 19, 2023

Kent Stallings

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

RE: Rattlesnake 13 12 Fed Com 1 OrderNo.: 2306010

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 15 sample(s) on 6/1/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 0'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 10:30:00 AM
Lab ID: 2306010-001 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	11000	490		mg/Kg	50	6/6/2023 10:40:27 AM
Motor Oil Range Organics (MRO)	5300	2500		mg/Kg	50	6/6/2023 10:40:27 AM
Surr: DNOP	0	69-147	S	%Rec	50	6/6/2023 10:40:27 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/5/2023 11:14:02 PM
Surr: BFB	161	15-244		%Rec	1	6/5/2023 11:14:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/5/2023 11:14:02 PM
Toluene	ND	0.049		mg/Kg	1	6/5/2023 11:14:02 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/5/2023 11:14:02 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/5/2023 11:14:02 PM
Surr: 4-Bromofluorobenzene	87.0	39.1-146		%Rec	1	6/5/2023 11:14:02 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	250	60		mg/Kg	20	6/5/2023 5:40:29 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 11:05:00 AM
Lab ID: 2306010-002 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	3300	99		mg/Kg	10	6/6/2023 11:21:08 AM
Motor Oil Range Organics (MRO)	1700	500		mg/Kg	10	6/6/2023 11:21:08 AM
Surr: DNOP	0	69-147	S	%Rec	10	6/6/2023 11:21:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/5/2023 11:37:27 PM
Surr: BFB	181	15-244		%Rec	1	6/5/2023 11:37:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/5/2023 11:37:27 PM
Toluene	ND	0.049		mg/Kg	1	6/5/2023 11:37:27 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/5/2023 11:37:27 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/5/2023 11:37:27 PM
Surr: 4-Bromofluorobenzene	91.2	39.1-146		%Rec	1	6/5/2023 11:37:27 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/5/2023 6:17:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-01 4'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 1:20:00 PM
Lab ID: 2306010-003 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **DGH**
Diesel Range Organics (DRO)	1700	96		mg/Kg	10	6/6/2023 12:01:58 PM
Motor Oil Range Organics (MRO)	940	480		mg/Kg	10	6/6/2023 12:01:58 PM
Surr: DNOP	0	69-147	S	%Rec	10	6/6/2023 12:01:58 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/3/2023 8:34:55 AM
Surr: BFB	127	15-244		%Rec	1	6/3/2023 8:34:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/3/2023 8:34:55 AM
Toluene	ND	0.050		mg/Kg	1	6/3/2023 8:34:55 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/3/2023 8:34:55 AM
Xylenes, Total	ND	0.10		mg/Kg	1	6/3/2023 8:34:55 AM
Surr: 4-Bromofluorobenzene	96.9	39.1-146		%Rec	1	6/3/2023 8:34:55 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	160	60		mg/Kg	20	6/5/2023 6:30:06 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 0'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 10:45:00 AM
Lab ID: 2306010-004 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/5/2023 7:48:35 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/5/2023 7:48:35 PM
Surr: DNOP	87.5	69-147		%Rec	1	6/5/2023 7:48:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/3/2023 12:34:00 AM
Surr: BFB	86.8	15-244		%Rec	1	6/3/2023 12:34:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/3/2023 12:34:00 AM
Toluene	ND	0.048		mg/Kg	1	6/3/2023 12:34:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/3/2023 12:34:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/3/2023 12:34:00 AM
Surr: 4-Bromofluorobenzene	82.9	39.1-146		%Rec	1	6/3/2023 12:34:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/6/2023 2:40:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-02 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 11:05:00 AM
Lab ID: 2306010-005 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/5/2023 8:21:05 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/5/2023 8:21:05 PM
Surr: DNOP	89.7	69-147		%Rec	1	6/5/2023 8:21:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/3/2023 1:38:00 AM
Surr: BFB	87.2	15-244		%Rec	1	6/3/2023 1:38:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/3/2023 1:38:00 AM
Toluene	ND	0.048		mg/Kg	1	6/3/2023 1:38:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/3/2023 1:38:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/3/2023 1:38:00 AM
Surr: 4-Bromofluorobenzene	82.5	39.1-146		%Rec	1	6/3/2023 1:38:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	750	60		mg/Kg	20	6/6/2023 3:17:17 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 0'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 10:50:00 AM
Lab ID: 2306010-006 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	30	9.2		mg/Kg	1	6/5/2023 8:31:55 PM
Motor Oil Range Organics (MRO)	68	46		mg/Kg	1	6/5/2023 8:31:55 PM
Surr: DNOP	85.5	69-147		%Rec	1	6/5/2023 8:31:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/3/2023 2:43:00 AM
Surr: BFB	88.5	15-244		%Rec	1	6/3/2023 2:43:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/3/2023 2:43:00 AM
Toluene	ND	0.048		mg/Kg	1	6/3/2023 2:43:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/3/2023 2:43:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	6/3/2023 2:43:00 AM
Surr: 4-Bromofluorobenzene	83.0	39.1-146		%Rec	1	6/3/2023 2:43:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	83	60		mg/Kg	20	6/6/2023 4:05:37 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-03 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 11:15:00 AM
Lab ID: 2306010-007 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/5/2023 8:42:49 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/5/2023 8:42:49 PM
Surr: DNOP	92.9	69-147		%Rec	1	6/5/2023 8:42:49 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/3/2023 3:05:00 AM
Surr: BFB	86.6	15-244		%Rec	1	6/3/2023 3:05:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/3/2023 3:05:00 AM
Toluene	ND	0.049		mg/Kg	1	6/3/2023 3:05:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/3/2023 3:05:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/3/2023 3:05:00 AM
Surr: 4-Bromofluorobenzene	82.8	39.1-146		%Rec	1	6/3/2023 3:05:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	59		mg/Kg	20	6/6/2023 5:07:19 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 0'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 10:55:00 AM
Lab ID: 2306010-008 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/5/2023 8:53:39 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/5/2023 8:53:39 PM
Surr: DNOP	87.3	69-147		%Rec	1	6/5/2023 8:53:39 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/3/2023 3:26:00 AM
Surr: BFB	86.4	15-244		%Rec	1	6/3/2023 3:26:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/3/2023 3:26:00 AM
Toluene	ND	0.047		mg/Kg	1	6/3/2023 3:26:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/3/2023 3:26:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/3/2023 3:26:00 AM
Surr: 4-Bromofluorobenzene	83.9	39.1-146		%Rec	1	6/3/2023 3:26:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	61	60		mg/Kg	20	6/6/2023 5:44:21 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-04 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 11:20:00 AM
Lab ID: 2306010-009 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 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	6/5/2023 9:04:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/5/2023 9:04:35 PM
Surr: DNOP	87.5	69-147		%Rec	1	6/5/2023 9:04:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/3/2023 3:48:00 AM
Surr: BFB	87.4	15-244		%Rec	1	6/3/2023 3:48:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.025		mg/Kg	1	6/3/2023 3:48:00 AM
Toluene	ND	0.049		mg/Kg	1	6/3/2023 3:48:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/3/2023 3:48:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/3/2023 3:48:00 AM
Surr: 4-Bromofluorobenzene	82.4	39.1-146		%Rec	1	6/3/2023 3:48:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	60		mg/Kg	20	6/6/2023 5:56:41 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 0'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 11:00:00 AM
Lab ID: 2306010-010 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/5/2023 9:15:31 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/5/2023 9:15:31 PM
Surr: DNOP	84.9	69-147		%Rec	1	6/5/2023 9:15:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/3/2023 4:10:00 AM
Surr: BFB	84.1	15-244		%Rec	1	6/3/2023 4:10:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.023		mg/Kg	1	6/3/2023 4:10:00 AM
Toluene	ND	0.047		mg/Kg	1	6/3/2023 4:10:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/3/2023 4:10:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/3/2023 4:10:00 AM
Surr: 4-Bromofluorobenzene	81.7	39.1-146		%Rec	1	6/3/2023 4:10:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	190	60		mg/Kg	20	6/6/2023 6:09:01 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-05 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 11:40:00 AM
Lab ID: 2306010-011 **Matrix:** SOIL
Received Date: 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/5/2023 9:26:27 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/5/2023 9:26:27 PM
Surr: DNOP	90.1	69-147		%Rec	1	6/5/2023 9:26:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/5/2023 1:43:00 PM
Surr: BFB	84.2	15-244		%Rec	1	6/5/2023 1:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/5/2023 1:43:00 PM
Toluene	ND	0.049		mg/Kg	1	6/5/2023 1:43:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/5/2023 1:43:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/5/2023 1:43:00 PM
Surr: 4-Bromofluorobenzene	82.2	39.1-146		%Rec	1	6/5/2023 1:43:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	100	60		mg/Kg	20	6/6/2023 6:21:22 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-06 0'
Project: Rattlesnake 13 12 Fed Com 1 **Collection Date:** 5/30/2023 12:30:00 PM
Lab ID: 2306010-012 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 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	6/5/2023 9:48:14 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/5/2023 9:48:14 PM
Surr: DNOP	89.1	69-147		%Rec	1	6/5/2023 9:48:14 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/5/2023 2:05:00 PM
Surr: BFB	86.6	15-244		%Rec	1	6/5/2023 2:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/5/2023 2:05:00 PM
Toluene	ND	0.049		mg/Kg	1	6/5/2023 2:05:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/5/2023 2:05:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/5/2023 2:05:00 PM
Surr: 4-Bromofluorobenzene	83.2	39.1-146		%Rec	1	6/5/2023 2:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	59		mg/Kg	20	6/6/2023 6:33:42 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-06 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 12:35:00 PM
Lab ID: 2306010-013 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 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	6/5/2023 9:59:15 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/5/2023 9:59:15 PM
Surr: DNOP	86.1	69-147		%Rec	1	6/5/2023 9:59:15 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/5/2023 2:26:00 PM
Surr: BFB	87.2	15-244		%Rec	1	6/5/2023 2:26:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/5/2023 2:26:00 PM
Toluene	ND	0.049		mg/Kg	1	6/5/2023 2:26:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/5/2023 2:26:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/5/2023 2:26:00 PM
Surr: 4-Bromofluorobenzene	82.9	39.1-146		%Rec	1	6/5/2023 2:26:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	ND	61		mg/Kg	20	6/6/2023 7:10:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-07 0'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 12:55:00 PM
Lab ID: 2306010-014 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/5/2023 10:10:25 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/5/2023 10:10:25 PM
Surr: DNOP	91.1	69-147		%Rec	1	6/5/2023 10:10:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/3/2023 5:58:00 AM
Surr: BFB	90.4	15-244		%Rec	1	6/3/2023 5:58:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/3/2023 5:58:00 AM
Toluene	ND	0.049		mg/Kg	1	6/3/2023 5:58:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/3/2023 5:58:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/3/2023 5:58:00 AM
Surr: 4-Bromofluorobenzene	83.2	39.1-146		%Rec	1	6/3/2023 5:58:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **CAS**
Chloride	3600	150		mg/Kg	50	6/7/2023 9:04:20 AM

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

Qualifiers:

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

Analytical Report
Lab Order **2306010**
Date Reported: **6/19/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-07 2'
Project: Rattlesnake 13 12 Fed Com 1
Collection Date: 5/30/2023 1:00:00 PM
Lab ID: 2306010-015 **Matrix:** SOIL **Received Date:** 6/1/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	6/5/2023 10:21:37 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/5/2023 10:21:37 PM
Surr: DNOP	89.3	69-147		%Rec	1	6/5/2023 10:21:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **KMN**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/3/2023 6:19:00 AM
Surr: BFB	90.4	15-244		%Rec	1	6/3/2023 6:19:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **KMN**
Benzene	ND	0.024		mg/Kg	1	6/3/2023 6:19:00 AM
Toluene	ND	0.047		mg/Kg	1	6/3/2023 6:19:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/3/2023 6:19:00 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/3/2023 6:19:00 AM
Surr: 4-Bromofluorobenzene	84.0	39.1-146		%Rec	1	6/3/2023 6:19:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **JMT**
Chloride	740	60		mg/Kg	20	6/6/2023 7:35:25 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **MB-75328**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75328**	RunNo: **97200**							
Prep Date: **6/3/2023**	Analysis Date: **6/3/2023**	SeqNo: **3530025**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75328**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75328**	RunNo: **97200**							
Prep Date: **6/3/2023**	Analysis Date: **6/3/2023**	SeqNo: **3530026**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

Sample ID: **MB-75389**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75389**	RunNo: **97255**							
Prep Date: **6/6/2023**	Analysis Date: **6/6/2023**	SeqNo: **3532179**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-75389**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **75389**	RunNo: **97255**							
Prep Date: **6/6/2023**	Analysis Date: **6/6/2023**	SeqNo: **3532180**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.6	90	110			

Sample ID: **MB-75377**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75377**	RunNo: **97233**							
Prep Date: **6/6/2023**	Analysis Date: **6/6/2023**	SeqNo: **3532409**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **LCS-75309** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75309** RunNo: **97201**
Prep Date: **6/2/2023** Analysis Date: **6/2/2023** SeqNo: **3530054** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.5	61.9	130			
Surr: DNOP	4.1		5.000		82.6	69	147			

Sample ID: **2306010-004AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-02 0'** Batch ID: **75336** RunNo: **97202**
Prep Date: **6/5/2023** Analysis Date: **6/5/2023** SeqNo: **3530796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.7	48.50	0	95.0	54.2	135			
Surr: DNOP	4.4		4.850		91.6	69	147			

Sample ID: **2306010-004AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-02 0'** Batch ID: **75336** RunNo: **97202**
Prep Date: **6/5/2023** Analysis Date: **6/5/2023** SeqNo: **3530797** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	9.6	47.85	0	92.6	54.2	135	3.87	29.2	
Surr: DNOP	4.6		4.785		95.4	69	147	0	0	

Sample ID: **LCS-75309** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75309** RunNo: **97202**
Prep Date: **6/2/2023** Analysis Date: **6/5/2023** SeqNo: **3530844** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.6	61.9	130			
Surr: DNOP	4.6		5.000		93.0	69	147			

Sample ID: **LCS-75336** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75336** RunNo: **97202**
Prep Date: **6/5/2023** Analysis Date: **6/5/2023** SeqNo: **3530845** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.9	61.9	130			
Surr: DNOP	4.3		5.000		85.2	69	147			

Sample ID: **MB-75309** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75309** RunNo: **97202**
Prep Date: **6/2/2023** Analysis Date: **6/5/2023** SeqNo: **3530847** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **MB-75309**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75309**	RunNo: **97202**
Prep Date: **6/2/2023**	Analysis Date: **6/5/2023**	SeqNo: **3530847** 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	9.1		10.00		91.3	69	147			

Sample ID: **MB-75336**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **75336**	RunNo: **97202**
Prep Date: **6/5/2023**	Analysis Date: **6/5/2023**	SeqNo: **3530848** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		84.6	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **2306010-004ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-02 0'**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/3/2023**	SeqNo: **3529896** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.8	24.08	0	78.9	70	130			
Surr: BFB	1900		963.4		199	15	244			

Sample ID: **2306010-004amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-02 0'**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/3/2023**	SeqNo: **3529897** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.9	24.27	0	79.4	70	130	1.43	20	
Surr: BFB	1900		970.9		195	15	244	0	0	

Sample ID: **lcs-75307**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3529970** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	5.0	25.00	0	73.8	70	130			
Surr: BFB	1800		1000		181	15	244			

Sample ID: **mb-75307**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/3/2023**	SeqNo: **3529971** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		88.1	15	244			

Sample ID: **lcs-75303**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75303**	RunNo: **97172**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3530143** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	5.0	25.00	0	77.5	70	130			
Surr: BFB	4500		1000		453	15	244			S

Sample ID: **mb-75303**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75303**	RunNo: **97172**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3530144** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **mb-75303**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75303**	RunNo: **97172**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3530144** 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	660		1000		65.7	15	244			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **lcs-75307**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3529944** 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	85.1	70	130			
Toluene	0.84	0.050	1.000	0	84.2	70	130			
Ethylbenzene	0.82	0.050	1.000	0	81.7	70	130			
Xylenes, Total	2.4	0.10	3.000	0	80.9	70	130			
Surr: 4-Bromofluorobenzene	0.83		1.000		83.1	39.1	146			

Sample ID: **mb-75307**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/3/2023**	SeqNo: **3529945** 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	0.83		1.000		83.2	39.1	146			

Sample ID: **2306010-005ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-02 2'**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/3/2023**	SeqNo: **3529948** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.024	0.9643	0	91.5	70	130			
Toluene	0.88	0.048	0.9643	0	90.9	70	130			
Ethylbenzene	0.86	0.048	0.9643	0	89.5	70	130			
Xylenes, Total	2.6	0.096	2.893	0	88.2	70	130			
Surr: 4-Bromofluorobenzene	0.82		0.9643		84.9	39.1	146			

Sample ID: **2306010-005amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-02 2'**	Batch ID: **75307**	RunNo: **97197**
Prep Date: **6/1/2023**	Analysis Date: **6/3/2023**	SeqNo: **3529949** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9634	0	90.2	70	130	1.58	20	
Toluene	0.87	0.048	0.9634	0	90.3	70	130	0.782	20	
Ethylbenzene	0.85	0.048	0.9634	0	88.4	70	130	1.30	20	
Xylenes, Total	2.5	0.096	2.890	0	87.4	70	130	0.974	20	
Surr: 4-Bromofluorobenzene	0.82		0.9634		84.8	39.1	146	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306010**

19-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Fed Com 1

Sample ID: **LCS-75303**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75303**	RunNo: **97172**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3530200** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	87.5	70	130			
Toluene	0.88	0.050	1.000	0	87.6	70	130			
Ethylbenzene	0.87	0.050	1.000	0	87.1	70	130			
Xylenes, Total	2.6	0.10	3.000	0	87.4	70	130			
Surr: 4-Bromofluorobenzene	0.99		1.000		99.2	39.1	146			

Sample ID: **mb-75303**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75303**	RunNo: **97172**
Prep Date: **6/1/2023**	Analysis Date: **6/2/2023**	SeqNo: **3530201** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.94		1.000		94.2	39.1	146			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2306010

RcptNo: 1

Received By: Tracy Casarrubias 6/1/2023 7:30:00 AM

Completed By: Tracy Casarrubias 6/1/2023 8:18:02 AM

Reviewed By: KPG 6.1.23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: TMC 6.1.23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: Mailing address, phone number, and Email are missing on COC- TMC 6/1/23

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.9	Good	Yes	Morty		
2	5.1	Good	Yes	Morty		

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush 5 Day

Project Name: Rattlesnake B 12 Fed Com 1

Project #: 23E-02849

Project Manager: Kent Stallings

Sampler: ZE

On Ice: ☑ Yes ☐ No monty

# of Coolers: 2

Cooler Temp(Including CF): 5.0 - 0.1 = 4.9 (°C)

5.2 - 0.1 = 5.1 °C

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2301010	BTEX / MTBE / TMB's (8021)	TPH 8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
5-30-23	10:30	soil	BH23-01 0	1 jar 4oz.	ice	001	YES									
	11:05		BH23-01 2			002										
	13:20		BH23-01 4			003										
	10:45		BH23-02 0			004										
	11:05		BH23-02 2			005										
	10:50		BH23-03 0			006										
	11:15		BH23-03 2			007										
	10:55		BH23-04 0			008										
	11:20		BH23-04 2			009										
	11:00		BH23-05 0			010										
	11:40		BH23-05 2			011										
	12:30		BH23-06 0			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
5-30-23	1700	Zach Englebert			5/31/23	1225
5/31/23	1900			cabrie	6/1/23	7:30

Remarks: Direct Bill to Devon

Run Btex, TPH, Cl on all samples

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.

1 of 2

Chain-of-Custody Record

Client: Vertex (Devon)

Mailing Address: on file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: RattleSnake 13 12 Fed Com 1

Project #: 23E-02849

Project Manager: Kent Stallings

Sampler: Zach Englebert

On Ice: ☑ Yes ☐ No marty

# of Coolers: 2

Cooler Temp(including CF): 5.0 -0.1 =4.9 (°C)
5.2 -0.1 = 5.1 °C

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2306010
5-30-23	12:35	soil	BH23-06	1 jar 4oz	ice	013
	12:55		BH23-07			014
	1300		BH23-07			015
			~~BH23~~			

Analysis Request

BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
X	X					X			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
5-30-23	17:00	Zach Englebert			5/31/23	1225
5/31/23	1900			courier	6/1/23	7:30

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 22, 2023

Kent Stallings

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

RE: Rattelsnake 13 12 Fed Com 1 OrderNo.: 2306492

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 12 sample(s) on 6/9/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-08 0'
Project: Rattelsnake 13 12 Fed Com 1
Collection Date: 6/7/2023 10:20:00 AM
Lab ID: 2306492-001 **Matrix:** SOIL
Received Date: 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	6/13/2023 11:57:45 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/13/2023 11:57:45 AM
Surr: DNOP	98.8	69-147		%Rec	1	6/13/2023 11:57:45 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 12:40:59 AM
Surr: BFB	99.9	15-244		%Rec	1	6/15/2023 12:40:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 12:40:59 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 12:40:59 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 12:40:59 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/15/2023 12:40:59 AM
Surr: 4-Bromofluorobenzene	87.6	39.1-146		%Rec	1	6/15/2023 12:40:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	110	60		mg/Kg	20	6/15/2023 1:31:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-08 2'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:26:00 AM
Lab ID: 2306492-002 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 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	6/13/2023 12:29:43 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/13/2023 12:29:43 PM
Surr: DNOP	98.4	69-147		%Rec	1	6/13/2023 12:29:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 1:04:26 AM
Surr: BFB	100	15-244		%Rec	1	6/15/2023 1:04:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 1:04:26 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 1:04:26 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 1:04:26 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/15/2023 1:04:26 AM
Surr: 4-Bromofluorobenzene	86.7	39.1-146		%Rec	1	6/15/2023 1:04:26 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/15/2023 1:43:57 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 0'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:25:00 AM
Lab ID: 2306492-003 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	6/13/2023 12:40:25 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	6/13/2023 12:40:25 PM
Surr: DNOP	92.4	69-147		%Rec	1	6/13/2023 12:40:25 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 1:27:47 AM
Surr: BFB	98.6	15-244		%Rec	1	6/15/2023 1:27:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/15/2023 1:27:47 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 1:27:47 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 1:27:47 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/15/2023 1:27:47 AM
Surr: 4-Bromofluorobenzene	86.4	39.1-146		%Rec	1	6/15/2023 1:27:47 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	570	60		mg/Kg	20	6/15/2023 1:56:17 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-09 2'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:35:00 AM
Lab ID: 2306492-004 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	6/13/2023 12:51:06 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/13/2023 12:51:06 PM
Surr: DNOP	102	69-147		%Rec	1	6/13/2023 12:51:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/15/2023 1:51:09 AM
Surr: BFB	99.9	15-244		%Rec	1	6/15/2023 1:51:09 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/15/2023 1:51:09 AM
Toluene	ND	0.050		mg/Kg	1	6/15/2023 1:51:09 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/15/2023 1:51:09 AM
Xylenes, Total	ND	0.10		mg/Kg	1	6/15/2023 1:51:09 AM
Surr: 4-Bromofluorobenzene	87.7	39.1-146		%Rec	1	6/15/2023 1:51:09 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	59		mg/Kg	20	6/15/2023 2:33:20 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-10 0'
Project: Rattelsnake 13 12 Fed Com 1
Collection Date: 6/7/2023 10:15:00 AM
Lab ID: 2306492-005 **Matrix:** SOIL
Received Date: 6/9/2023 7:45:00 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	6/13/2023 1:01:50 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/13/2023 1:01:50 PM
Surr: DNOP	78.4	69-147		%Rec	1	6/13/2023 1:01:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/15/2023 2:14:33 AM
Surr: BFB	98.9	15-244		%Rec	1	6/15/2023 2:14:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	6/15/2023 2:14:33 AM
Toluene	ND	0.046		mg/Kg	1	6/15/2023 2:14:33 AM
Ethylbenzene	ND	0.046		mg/Kg	1	6/15/2023 2:14:33 AM
Xylenes, Total	ND	0.093		mg/Kg	1	6/15/2023 2:14:33 AM
Surr: 4-Bromofluorobenzene	87.0	39.1-146		%Rec	1	6/15/2023 2:14:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	61	61		mg/Kg	20	6/15/2023 2:45:41 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-10 2'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:20:00 AM
Lab ID: 2306492-006 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/13/2023 1:12:43 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	6/13/2023 1:12:43 PM
Surr: DNOP	93.1	69-147		%Rec	1	6/13/2023 1:12:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 2:37:59 AM
Surr: BFB	99.0	15-244		%Rec	1	6/15/2023 2:37:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 2:37:59 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 2:37:59 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 2:37:59 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/15/2023 2:37:59 AM
Surr: 4-Bromofluorobenzene	87.1	39.1-146		%Rec	1	6/15/2023 2:37:59 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/15/2023 2:58:02 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 0'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:38:00 AM
Lab ID: 2306492-007 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 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	6/13/2023 1:23:34 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/13/2023 1:23:34 PM
Surr: DNOP	91.4	69-147		%Rec	1	6/13/2023 1:23:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/15/2023 3:01:35 AM
Surr: BFB	95.0	15-244		%Rec	1	6/15/2023 3:01:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 3:01:35 AM
Toluene	ND	0.048		mg/Kg	1	6/15/2023 3:01:35 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/15/2023 3:01:35 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/15/2023 3:01:35 AM
Surr: 4-Bromofluorobenzene	82.2	39.1-146		%Rec	1	6/15/2023 3:01:35 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	4300	150		mg/Kg	50	6/21/2023 2:36:40 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-11 2'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:50:00 AM
Lab ID: 2306492-008 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	6/13/2023 1:34:26 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/13/2023 1:34:26 PM
Surr: DNOP	120	69-147		%Rec	1	6/13/2023 1:34:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 3:24:54 AM
Surr: BFB	97.6	15-244		%Rec	1	6/15/2023 3:24:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 3:24:54 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 3:24:54 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 3:24:54 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/15/2023 3:24:54 AM
Surr: 4-Bromofluorobenzene	85.2	39.1-146		%Rec	1	6/15/2023 3:24:54 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	1200	60		mg/Kg	20	6/15/2023 3:22:43 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-12 0'
Project: Rattelsnake 13 12 Fed Com 1
Collection Date: 6/7/2023 10:29:00 AM
Lab ID: 2306492-009 **Matrix:** SOIL
Received Date: 6/9/2023 7:45:00 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	6/13/2023 1:45:16 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/13/2023 1:45:16 PM
Surr: DNOP	95.5	69-147		%Rec	1	6/13/2023 1:45:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/15/2023 5:46:05 AM
Surr: BFB	97.8	15-244		%Rec	1	6/15/2023 5:46:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.023		mg/Kg	1	6/15/2023 5:46:05 AM
Toluene	ND	0.047		mg/Kg	1	6/15/2023 5:46:05 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/15/2023 5:46:05 AM
Xylenes, Total	ND	0.094		mg/Kg	1	6/15/2023 5:46:05 AM
Surr: 4-Bromofluorobenzene	86.5	39.1-146		%Rec	1	6/15/2023 5:46:05 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/15/2023 3:35:04 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-12 2'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:34:00 AM
Lab ID: 2306492-010 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	6/13/2023 1:56:06 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	6/13/2023 1:56:06 PM
Surr: DNOP	106	69-147		%Rec	1	6/13/2023 1:56:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/15/2023 6:09:37 AM
Surr: BFB	97.3	15-244		%Rec	1	6/15/2023 6:09:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 6:09:37 AM
Toluene	ND	0.048		mg/Kg	1	6/15/2023 6:09:37 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/15/2023 6:09:37 AM
Xylenes, Total	ND	0.095		mg/Kg	1	6/15/2023 6:09:37 AM
Surr: 4-Bromofluorobenzene	84.7	39.1-146		%Rec	1	6/15/2023 6:09:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/15/2023 3:47:24 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-13 0'
Project: Rattelsnake 13 12 Fed Com 1
Collection Date: 6/7/2023 10:45:00 AM
Lab ID: 2306492-011 **Matrix:** SOIL
Received Date: 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	6/13/2023 2:06:54 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	6/13/2023 2:06:54 PM
Surr: DNOP	80.2	69-147		%Rec	1	6/13/2023 2:06:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 6:33:12 AM
Surr: BFB	94.0	15-244		%Rec	1	6/15/2023 6:33:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	6/15/2023 6:33:12 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 6:33:12 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 6:33:12 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/15/2023 6:33:12 AM
Surr: 4-Bromofluorobenzene	81.8	39.1-146		%Rec	1	6/15/2023 6:33:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	780	61		mg/Kg	20	6/15/2023 3:59:45 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2306492**
Date Reported: **6/22/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-13 2'
Project: Rattelsnake 13 12 Fed Com 1 **Collection Date:** 6/7/2023 10:52:00 AM
Lab ID: 2306492-012 **Matrix:** SOIL **Received Date:** 6/9/2023 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **PRD**
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	6/13/2023 2:17:42 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	6/13/2023 2:17:42 PM
Surr: DNOP	103	69-147		%Rec	1	6/13/2023 2:17:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/15/2023 6:56:43 AM
Surr: BFB	97.3	15-244		%Rec	1	6/15/2023 6:56:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	6/15/2023 6:56:43 AM
Toluene	ND	0.049		mg/Kg	1	6/15/2023 6:56:43 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/15/2023 6:56:43 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/15/2023 6:56:43 AM
Surr: 4-Bromofluorobenzene	84.5	39.1-146		%Rec	1	6/15/2023 6:56:43 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	6/15/2023 5:01:30 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306492**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattelsnake 13 12 Fed Com 1

Sample ID: **MB-75617**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **75617**	RunNo: **97494**							
Prep Date: **6/15/2023**	Analysis Date: **6/15/2023**	SeqNo: **3542499**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306492**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattelsnake 13 12 Fed Com 1

Sample ID: **LCS-75540** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **75540** RunNo: **97392**
Prep Date: **6/12/2023** Analysis Date: **6/13/2023** SeqNo: **3538144** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.0	61.9	130			
Surr: DNOP	5.0		5.000		99.8	69	147			

Sample ID: **MB-75540** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **75540** RunNo: **97392**
Prep Date: **6/12/2023** Analysis Date: **6/13/2023** SeqNo: **3538146** 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	9.3		10.00		93.0	69	147			

Sample ID: **2306492-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-08 0'** Batch ID: **75540** RunNo: **97392**
Prep Date: **6/12/2023** Analysis Date: **6/13/2023** SeqNo: **3539301** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	8.8	44.01	0	87.2	54.2	135			
Surr: DNOP	4.3		4.401		97.8	69	147			

Sample ID: **2306492-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **BH23-08 0'** Batch ID: **75540** RunNo: **97392**
Prep Date: **6/12/2023** Analysis Date: **6/13/2023** SeqNo: **3539302** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	9.1	45.33	0	83.4	54.2	135	1.54	29.2	
Surr: DNOP	4.0		4.533		88.9	69	147	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306492**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattelsnake 13 12 Fed Com 1

Sample ID: **lcs-75536**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **75536**	RunNo: **97399**
Prep Date: **6/12/2023**	Analysis Date: **6/13/2023**	SeqNo: **3538745** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	99.8	70	130			
Surr: BFB	2100		1000		208	15	244			

Sample ID: **mb-75536**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **75536**	RunNo: **97399**
Prep Date: **6/12/2023**	Analysis Date: **6/13/2023**	SeqNo: **3538746** 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	970		1000		97.4	15	244			

Sample ID: **2306492-001ams**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 0'**	Batch ID: **75536**	RunNo: **97434**
Prep Date: **6/12/2023**	Analysis Date: **6/15/2023**	SeqNo: **3540854** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.41	0	95.1	70	130			
Surr: BFB	2000		976.6		209	15	244			

Sample ID: **2306492-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **BH23-08 0'**	Batch ID: **75536**	RunNo: **97434**
Prep Date: **6/12/2023**	Analysis Date: **6/15/2023**	SeqNo: **3540855** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	4.9	24.37	0	92.5	70	130	2.92	20	
Surr: BFB	2000		974.7		203	15	244	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2306492**

22-Jun-23

Client: Vertex Resources Services, Inc.

Project: Rattelsnake 13 12 Fed Com 1

Sample ID: **LCS-75536**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **75536**	RunNo: **97399**
Prep Date: **6/12/2023**	Analysis Date: **6/13/2023**	SeqNo: **3538747** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.80	0.025	1.000	0	79.8	70	130			
Toluene	0.81	0.050	1.000	0	81.3	70	130			
Ethylbenzene	0.81	0.050	1.000	0	81.0	70	130			
Xylenes, Total	2.5	0.10	3.000	0	81.9	70	130			
Surr: 4-Bromofluorobenzene	0.91		1.000		91.2	39.1	146			

Sample ID: **mb-75536**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **75536**	RunNo: **97399**
Prep Date: **6/12/2023**	Analysis Date: **6/13/2023**	SeqNo: **3538748** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.85		1.000		85.4	39.1	146			

Sample ID: **2306492-002ams**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-08 2'**	Batch ID: **75536**	RunNo: **97434**
Prep Date: **6/12/2023**	Analysis Date: **6/15/2023**	SeqNo: **3540935** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.76	0.024	0.9728	0	78.0	70	130			
Toluene	0.78	0.049	0.9728	0	80.1	70	130			
Ethylbenzene	0.78	0.049	0.9728	0	79.7	70	130			
Xylenes, Total	2.3	0.097	2.918	0	80.1	70	130			
Surr: 4-Bromofluorobenzene	0.87		0.9728		89.6	39.1	146			

Sample ID: **2306492-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **BH23-08 2'**	Batch ID: **75536**	RunNo: **97434**
Prep Date: **6/12/2023**	Analysis Date: **6/15/2023**	SeqNo: **3540936** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.70	0.024	0.9766	0	71.7	70	130	7.96	20	
Toluene	0.73	0.049	0.9766	0	75.0	70	130	6.15	20	
Ethylbenzene	0.73	0.049	0.9766	0	74.6	70	130	6.13	20	
Xylenes, Total	2.2	0.098	2.930	0	75.5	70	130	5.49	20	
Surr: 4-Bromofluorobenzene	0.87		0.9766		88.6	39.1	146	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2306492

RcptNo: 1

Received By: Juan Rojas 6/9/2023 7:45:00 AM

Completed By: Cheyenne Cason 6/9/2023 9:02:03 AM

Reviewed By: CMC 6/9/23

Chain of Custody

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

Log In

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

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

Adjusted? _____

Checked by: _____

SCM 06/09/23

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

16. Additional remarks:

Client information lacking address, phone and email - CMC 6/9/23

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Not Present	Yogi		

Chain-of-Custody Record

Client: Devon (Vertex)

Mailing Address: on file

Phone #:

email or Fax#:

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

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush

Project Name: 13 12 Rattlesnake ~~Unit~~ Fed Com 1

Project #: 23E-02849

Project Manager: Kent Stallings

Sampler: SM

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Yogi

Cooler Temp(including CF): 0.9-0=0.9 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2306492	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6/7/23	1020	Soil	BH23-08 0'	4oz jar	ice	001	✓	✓					✓			
	1026		BH23-08 2'			002										
	1025		BH23-09 0'			003										
	1035		BH23-09 2'			004										
	1015		BH23-10 0'			005										
	1020		BH23-10 2'			006										
	1038		BH23-11 0'			007										
	1050		BH23-11 2'			008										
	1029		BH23-12 0'			009										
	1034		BH23-12 2'			010										
	1045		BH23-13 0'			011										
	1052		BH23-13 2'			012										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
6/7/23	1803	Sally Carttar			6/8/23	905
6/8/23	1900			Courier	6/9/23	7:45

Remarks:
WO # 21163257

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 14, 2023

Kent Stallings

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

RE: Rattlesnake 13 12 Federal Com 1 OrderNo.: 2309275

Dear Kent Stallings:

Hall Environmental Analysis Laboratory received 6 sample(s) on 9/7/2023 for the analyses presented in the following report.

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

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

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

Sincerely,

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2309275**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-19 0'
Project: Rattlesnake 13 12 Federal Com 1 **Collection Date:** 9/2/2023 2:25:00 PM
Lab ID: 2309275-001 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/8/2023 10:10:17 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	9/8/2023 10:10:17 PM
Surr: DNOP	141	69-147		%Rec	1	9/8/2023 10:10:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/8/2023 10:31:18 PM
Surr: BFB	98.6	15-244		%Rec	1	9/8/2023 10:31:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.025		mg/Kg	1	9/8/2023 10:31:18 PM
Toluene	ND	0.049		mg/Kg	1	9/8/2023 10:31:18 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/8/2023 10:31:18 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/8/2023 10:31:18 PM
Surr: 4-Bromofluorobenzene	110	39.1-146		%Rec	1	9/8/2023 10:31:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/9/2023 2:11:11 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309275**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-19 2'
Project: Rattlesnake 13 12 Federal Com 1
Collection Date: 9/2/2023 2:25:00 PM
Lab ID: 2309275-002 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/8/2023 10:21:16 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/8/2023 10:21:16 PM
Surr: DNOP	128	69-147		%Rec	1	9/8/2023 10:21:16 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/8/2023 10:54:40 PM
Surr: BFB	100	15-244		%Rec	1	9/8/2023 10:54:40 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/8/2023 10:54:40 PM
Toluene	ND	0.049		mg/Kg	1	9/8/2023 10:54:40 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/8/2023 10:54:40 PM
Xylenes, Total	ND	0.098		mg/Kg	1	9/8/2023 10:54:40 PM
Surr: 4-Bromofluorobenzene	112	39.1-146		%Rec	1	9/8/2023 10:54:40 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/9/2023 2:23:36 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309275**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-20 0'
Project: Rattlesnake 13 12 Federal Com 1 **Collection Date:** 9/2/2023 2:35:00 PM
Lab ID: 2309275-003 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/8/2023 10:32:31 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/8/2023 10:32:31 PM
Surr: DNOP	101	69-147		%Rec	1	9/8/2023 10:32:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	9/8/2023 11:18:17 PM
Surr: BFB	99.6	15-244		%Rec	1	9/8/2023 11:18:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/8/2023 11:18:17 PM
Toluene	ND	0.049		mg/Kg	1	9/8/2023 11:18:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	9/8/2023 11:18:17 PM
Xylenes, Total	ND	0.097		mg/Kg	1	9/8/2023 11:18:17 PM
Surr: 4-Bromofluorobenzene	111	39.1-146		%Rec	1	9/8/2023 11:18:17 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/9/2023 2:36:00 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309275**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-20 2'
Project: Rattlesnake 13 12 Federal Com 1 **Collection Date:** 9/2/2023 2:35:00 PM
Lab ID: 2309275-004 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	9/8/2023 10:43:42 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	9/8/2023 10:43:42 PM
Surr: DNOP	105	69-147		%Rec	1	9/8/2023 10:43:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/8/2023 11:41:35 PM
Surr: BFB	97.0	15-244		%Rec	1	9/8/2023 11:41:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/8/2023 11:41:35 PM
Toluene	ND	0.048		mg/Kg	1	9/8/2023 11:41:35 PM
Ethylbenzene	ND	0.048		mg/Kg	1	9/8/2023 11:41:35 PM
Xylenes, Total	ND	0.096		mg/Kg	1	9/8/2023 11:41:35 PM
Surr: 4-Bromofluorobenzene	108	39.1-146		%Rec	1	9/8/2023 11:41:35 PM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/9/2023 2:48:25 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309275**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.
Client Sample ID: BH23-21 0'
Project: Rattlesnake 13 12 Federal Com 1
Collection Date: 9/2/2023 2:45:00 PM
Lab ID: 2309275-005 **Matrix:** SOIL
Received Date: 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	9/8/2023 10:54:55 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/8/2023 10:54:55 PM
Surr: DNOP	148	69-147	S	%Rec	1	9/8/2023 10:54:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/9/2023 12:04:56 AM
Surr: BFB	101	15-244		%Rec	1	9/9/2023 12:04:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 12:04:56 AM
Toluene	ND	0.047		mg/Kg	1	9/9/2023 12:04:56 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/9/2023 12:04:56 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/9/2023 12:04:56 AM
Surr: 4-Bromofluorobenzene	112	39.1-146		%Rec	1	9/9/2023 12:04:56 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/9/2023 3:00:49 PM

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

Qualifiers:

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

Analytical Report
Lab Order **2309275**
Date Reported: **9/14/2023**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc. **Client Sample ID:** BH23-21 2'
Project: Rattlesnake 13 12 Federal Com 1 **Collection Date:** 9/2/2023 2:45:00 PM
Lab ID: 2309275-006 **Matrix:** SOIL **Received Date:** 9/7/2023 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	9/8/2023 11:06:01 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	9/8/2023 11:06:01 PM
Surr: DNOP	141	69-147		%Rec	1	9/8/2023 11:06:01 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **JJP**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	9/9/2023 12:28:27 AM
Surr: BFB	96.8	15-244		%Rec	1	9/9/2023 12:28:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **JJP**
Benzene	ND	0.024		mg/Kg	1	9/9/2023 12:28:27 AM
Toluene	ND	0.047		mg/Kg	1	9/9/2023 12:28:27 AM
Ethylbenzene	ND	0.047		mg/Kg	1	9/9/2023 12:28:27 AM
Xylenes, Total	ND	0.094		mg/Kg	1	9/9/2023 12:28:27 AM
Surr: 4-Bromofluorobenzene	109	39.1-146		%Rec	1	9/9/2023 12:28:27 AM
EPA METHOD 300.0: ANIONS						Analyst: **SNS**
Chloride	ND	60		mg/Kg	20	9/9/2023 3:13:14 PM

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309275**

14-Sep-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Federal Com 1

Sample ID: **MB-77401**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **77401**	RunNo: **99580**
Prep Date: **9/9/2023**	Analysis Date: **9/9/2023**	SeqNo: **3637203** Units: **mg/Kg**

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

Sample ID: **LCS-77401**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **77401**	RunNo: **99580**
Prep Date: **9/9/2023**	Analysis Date: **9/9/2023**	SeqNo: **3637204** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309275**

14-Sep-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Federal Com 1

Sample ID: **MB-77368**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **77368**	RunNo: **99545**
Prep Date: **9/7/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636490** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	13		10.00		130	69	147			

Sample ID: **LCS-77368**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **77368**	RunNo: **99545**
Prep Date: **9/7/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636493** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	10	50.00	0	115	61.9	130			
Surr: DNOP	6.0		5.000		120	69	147			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309275**

14-Sep-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Federal Com 1

Sample ID: **lcs-77363**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **77363**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636898** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.4	70	130			
Surr: BFB	2000		1000		205	15	244			

Sample ID: **mb-77363**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **77363**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636901** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	15	244			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2309275**

14-Sep-23

Client: Vertex Resources Services, Inc.

Project: Rattlesnake 13 12 Federal Com 1

Sample ID: **LCS-77363**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **77363**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636989** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.4	70	130			
Toluene	0.99	0.050	1.000	0	99.5	70	130			
Ethylbenzene	1.0	0.050	1.000	0	101	70	130			
Xylenes, Total	3.1	0.10	3.000	0	102	70	130			
Surr: 4-Bromofluorobenzene	1.1		1.000		110	39.1	146			

Sample ID: **mb-77363**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **77363**	RunNo: **99554**
Prep Date: **9/7/2023**	Analysis Date: **9/8/2023**	SeqNo: **3636992** 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		111	39.1	146			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc.

Work Order Number: 2309275

RcptNo: 1

Received By: Juan Rojas 9/7/2023 7:30:00 AM

Completed By: Tracy Casarrubias 9/7/2023 8:26:47 AM

Reviewed By: SCM 9/7/23

Chain of Custody

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

Log In

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

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 9/7/23

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.4	Good	Yes	Yogi		

Chain-of-Custody Record

Client: **Vertex**

(direct bill to Devon, work order 21163257)

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 X **Rush_72-hour rush**

Project Name:

Rattlesnake 13 12 Federal Com 1

Project #:

23E-02849

Project Manager:

Kent Stallings

kstallings@vertex.ca

Sampler: L. Pullman

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 1 Yes

Cooler Temp(including CF): 5.4-0=5.4

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2309275	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
09/02/23	14:25	Soil	BH23-19 0'	1, 4oz jar		001	X	X					X			
09/02/23	14:25	Soil	BH23-19 2'	1, 4oz jar		002	X	X					X			
09/02/23	14:35	Soil	BH23-20 0'	1, 4oz jar		003	X	X					X			
09/02/23	14:35	Soil	BH23-20 2'	1, 4oz jar		004	X	X					X			
09/02/23	14:45	Soil	BH23-21 0'	1, 4oz jar		005	X	X					X			
09/02/23	14:45	Soil	BH23-21 2'	1, 4oz jar		006	X	X					X			

Analysis Request

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
9-5-23	07:00				9/6/23	930
9/6/23	1900			Courier	9/6/23	7:20

Remarks:
Direct bill to Devon work order 21163257 Dale Woodall
cc. KStallings@vertex.ca, SMcCarty@vertex.ca for Final Report

1/1

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

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 7/26/2024 9:39:34 AM

JOB DESCRIPTION

Rattlesnake 13-12 Fed 1

JOB NUMBER

885-7249-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
7/26/2024 9:39:34 AM

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

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Laboratory Job ID: 885-7249-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Qualifiers

GC VOA

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

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

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: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Job ID: 885-7249-1 Eurofins Albuquerque

Job Narrative
885-7249-1

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 7/2/2024 8:03 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.6°C.

Gasoline Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Diesel Range Organics
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 02 @2'
Date Collected: 06/28/24 10:12
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-1
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/02/24 16:14	07/04/24 07:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*07/02/24 16:14*	*07/04/24 07:11*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/02/24 16:14	07/04/24 07:11	1
Ethylbenzene	ND		0.047		mg/Kg		07/02/24 16:14	07/04/24 07:11	1
Toluene	ND		0.047		mg/Kg		07/02/24 16:14	07/04/24 07:11	1
Xylenes, Total	ND		0.095		mg/Kg		07/02/24 16:14	07/04/24 07:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/02/24 16:14*	*07/04/24 07:11*	*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		8.4		mg/Kg		07/03/24 13:32	07/03/24 21:35	1
Motor Oil Range Organics [C28-C40]	ND		42		mg/Kg		07/03/24 13:32	07/03/24 21:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/03/24 13:32*	*07/03/24 21:35*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**140**		60		mg/Kg		07/03/24 15:45	07/05/24 14:36	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 02 @4'
Date Collected: 06/28/24 10:18
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-2
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.6		mg/Kg		07/02/24 16:14	07/04/24 07:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/02/24 16:14*	*07/04/24 07:33*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/02/24 16:14	07/04/24 07:33	1
Ethylbenzene	ND		0.046		mg/Kg		07/02/24 16:14	07/04/24 07:33	1
Toluene	ND		0.046		mg/Kg		07/02/24 16:14	07/04/24 07:33	1
Xylenes, Total	ND		0.093		mg/Kg		07/02/24 16:14	07/04/24 07:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/02/24 16:14*	*07/04/24 07:33*	*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		10		mg/Kg		07/03/24 13:32	07/03/24 21:46	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/03/24 13:32	07/03/24 21:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/03/24 13:32*	*07/03/24 21:46*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	110		60		mg/Kg		07/03/24 15:45	07/05/24 14:49	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 02 @6'

Date Collected: 06/28/24 10:27
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-3

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.7		mg/Kg		07/03/24 08:25	07/08/24 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/03/24 08:25*	*07/08/24 14:26*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 14:26	1
Ethylbenzene	ND		0.047		mg/Kg		07/03/24 08:25	07/08/24 14:26	1
Toluene	ND		0.047		mg/Kg		07/03/24 08:25	07/08/24 14:26	1
Xylenes, Total	ND		0.095		mg/Kg		07/03/24 08:25	07/08/24 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/03/24 08:25*	*07/08/24 14:26*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/03/24 14:13	07/05/24 11:07	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/03/24 14:13	07/05/24 11:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*111*		*62 - 134*	*07/03/24 14:13*	*07/05/24 11:07*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/05/24 11:52	07/05/24 14:38	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 03 @2'
Date Collected: 06/28/24 10:41
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-4
Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/03/24 08:25	07/08/24 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/03/24 08:25*	*07/08/24 14:48*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 14:48	1
Ethylbenzene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 14:48	1
Toluene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 14:48	1
Xylenes, Total	ND		0.097		mg/Kg		07/03/24 08:25	07/08/24 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/03/24 08:25*	*07/08/24 14:48*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		07/03/24 14:13	07/05/24 11:18	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/03/24 14:13	07/05/24 11:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*07/03/24 14:13*	*07/05/24 11:18*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1900**		60		mg/Kg		07/05/24 11:52	07/05/24 14:51	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 03 @4'

Date Collected: 06/28/24 10:49
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-5

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/03/24 08:25	07/08/24 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/03/24 08:25*	*07/08/24 15:10*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/03/24 08:25	07/08/24 15:10	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 15:10	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 15:10	1
Xylenes, Total	ND		0.098		mg/Kg		07/03/24 08:25	07/08/24 15:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/03/24 08:25*	*07/08/24 15:10*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.1		mg/Kg		07/03/24 14:13	07/05/24 11:39	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		07/03/24 14:13	07/05/24 11:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*96*		*62 - 134*	*07/03/24 14:13*	*07/05/24 11:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2700**		150		mg/Kg		07/05/24 11:52	07/08/24 17:52	50

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 03 @6'

Date Collected: 06/28/24 10:57
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-6

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/03/24 08:25	07/08/24 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*07/03/24 08:25*	*07/08/24 15:32*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 15:32	1
Ethylbenzene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 15:32	1
Toluene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 15:32	1
Xylenes, Total	ND		0.097		mg/Kg		07/03/24 08:25	07/08/24 15:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*48 - 145*	*07/03/24 08:25*	*07/08/24 15:32*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.0		mg/Kg		07/03/24 14:13	07/05/24 11:50	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		07/03/24 14:13	07/05/24 11:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*07/03/24 14:13*	*07/05/24 11:50*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**780**		61		mg/Kg		07/05/24 11:52	07/05/24 15:15	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 03 @8'

Date Collected: 06/28/24 11:11
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-7

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/03/24 08:25	07/08/24 16:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/03/24 08:25*	*07/08/24 16:16*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 16:16	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 16:16	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 16:16	1
Xylenes, Total	ND		0.097		mg/Kg		07/03/24 08:25	07/08/24 16:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/03/24 08:25*	*07/08/24 16:16*	*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		9.6		mg/Kg		07/03/24 14:13	07/05/24 12:01	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/03/24 14:13	07/05/24 12:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*07/03/24 14:13*	*07/05/24 12:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		60		mg/Kg		07/05/24 11:52	07/05/24 15:28	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 04 @2'

Date Collected: 06/28/24 11:34
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-8

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/03/24 08:25	07/08/24 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*07/03/24 08:25*	*07/08/24 16:38*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/03/24 08:25	07/08/24 16:38	1
Ethylbenzene	ND		0.050		mg/Kg		07/03/24 08:25	07/08/24 16:38	1
Toluene	ND		0.050		mg/Kg		07/03/24 08:25	07/08/24 16:38	1
Xylenes, Total	ND		0.10		mg/Kg		07/03/24 08:25	07/08/24 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/03/24 08:25*	*07/08/24 16:38*	*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		9.7		mg/Kg		07/03/24 14:13	07/05/24 12:12	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/03/24 14:13	07/05/24 12:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*110*		*62 - 134*	*07/03/24 14:13*	*07/05/24 12:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/05/24 11:52	07/05/24 16:05	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 04 @4'

Date Collected: 06/28/24 11:42
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-9

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/03/24 08:25	07/08/24 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*35 - 166*	*07/03/24 08:25*	*07/08/24 16:59*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/03/24 08:25	07/08/24 16:59	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 16:59	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 16:59	1
Xylenes, Total	ND		0.099		mg/Kg		07/03/24 08:25	07/08/24 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/03/24 08:25*	*07/08/24 16:59*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		8.5		mg/Kg		07/03/24 14:13	07/05/24 12:22	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		07/03/24 14:13	07/05/24 12:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*102*		*62 - 134*	*07/03/24 14:13*	*07/05/24 12:22*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/05/24 11:52	07/05/24 16:17	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 05 @2'

Date Collected: 06/28/24 11:57
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-10

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/03/24 08:25	07/08/24 17:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*07/03/24 08:25*	*07/08/24 17:21*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 17:21	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 17:21	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 17:21	1
Xylenes, Total	ND		0.097		mg/Kg		07/03/24 08:25	07/08/24 17:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/03/24 08:25*	*07/08/24 17:21*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		07/03/24 14:13	07/05/24 12:33	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/03/24 14:13	07/05/24 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/03/24 14:13*	*07/05/24 12:33*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/05/24 11:52	07/05/24 16:30	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 05 @4'

Date Collected: 06/28/24 12:09
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-11

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/03/24 08:25	07/08/24 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/03/24 08:25*	*07/08/24 17:43*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/03/24 08:25	07/08/24 17:43	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 17:43	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 17:43	1
Xylenes, Total	ND		0.099		mg/Kg		07/03/24 08:25	07/08/24 17:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/03/24 08:25*	*07/08/24 17:43*	*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		8.9		mg/Kg		07/03/24 14:13	07/05/24 12:44	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		07/03/24 14:13	07/05/24 12:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*89*		*62 - 134*	*07/03/24 14:13*	*07/05/24 12:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/05/24 11:52	07/05/24 17:07	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 05 @6'

Date Collected: 06/28/24 12:18
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-12

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.9		mg/Kg		07/03/24 08:25	07/08/24 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*35 - 166*	*07/03/24 08:25*	*07/08/24 18:05*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 18:05	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 18:05	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 18:05	1
Xylenes, Total	ND		0.098		mg/Kg		07/03/24 08:25	07/08/24 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/03/24 08:25*	*07/08/24 18:05*	*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		9.3		mg/Kg		07/03/24 14:13	07/05/24 12:55	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/03/24 14:13	07/05/24 12:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/03/24 14:13*	*07/05/24 12:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**110**		60		mg/Kg		07/05/24 11:52	07/05/24 17:19	20

Client Sample Results

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 07 @2'
Lab Sample ID: 885-7249-13
Date Collected: 06/28/24 13:09
Matrix: Solid
Date Received: 07/02/24 08:03

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		07/03/24 08:25	07/08/24 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/03/24 08:25*	*07/08/24 18:27*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 18:27	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 18:27	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 18:27	1
Xylenes, Total	ND		0.098		mg/Kg		07/03/24 08:25	07/08/24 18:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/03/24 08:25*	*07/08/24 18:27*	*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		9.3		mg/Kg		07/03/24 14:13	07/05/24 13:06	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/03/24 14:13	07/05/24 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*07/03/24 14:13*	*07/05/24 13:06*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1400**		60		mg/Kg		07/05/24 11:52	07/05/24 17:31	20

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 07 @4'

Date Collected: 06/28/24 13:18
Date Received: 07/02/24 08:03

Lab Sample ID: 885-7249-14

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/03/24 08:25	07/08/24 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*35 - 166*	*07/03/24 08:25*	*07/08/24 18:49*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 18:49	1
Ethylbenzene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 18:49	1
Toluene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 18:49	1
Xylenes, Total	ND		0.096		mg/Kg		07/03/24 08:25	07/08/24 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/03/24 08:25*	*07/08/24 18:49*	*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		9.6		mg/Kg		07/03/24 14:13	07/05/24 13:17	1
Motor Oil Range Organics [C28-C40]	ND		48		mg/Kg		07/03/24 14:13	07/05/24 13:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*88*		*62 - 134*	*07/03/24 14:13*	*07/05/24 13:17*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**290**		60		mg/Kg		07/05/24 11:52	07/05/24 18:08	20

Client Sample Results

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 11 @2'
Lab Sample ID: 885-7249-15
Date Collected: 06/28/24 14:04
Matrix: Solid
Date Received: 07/02/24 08:03

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		07/03/24 08:25	07/08/24 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*35 - 166*	*07/03/24 08:25*	*07/08/24 19:11*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 19:11	1
Ethylbenzene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 19:11	1
Toluene	ND		0.048		mg/Kg		07/03/24 08:25	07/08/24 19:11	1
Xylenes, Total	ND		0.096		mg/Kg		07/03/24 08:25	07/08/24 19:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/03/24 08:25*	*07/08/24 19:11*	*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		8.5		mg/Kg		07/03/24 14:13	07/05/24 13:28	1
Motor Oil Range Organics [C28-C40]	ND		42		mg/Kg		07/03/24 14:13	07/05/24 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*	*07/03/24 14:13*	*07/05/24 13:28*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**1000**		60		mg/Kg		07/05/24 11:52	07/05/24 18:21	20

Client Sample Results

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 11 @4'
Lab Sample ID: 885-7249-16
Date Collected: 06/28/24 14:18
Matrix: Solid
Date Received: 07/02/24 08:03

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		07/03/24 08:25	07/08/24 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*35 - 166*	*07/03/24 08:25*	*07/08/24 19:32*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/03/24 08:25	07/08/24 19:32	1
Ethylbenzene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 19:32	1
Toluene	ND		0.049		mg/Kg		07/03/24 08:25	07/08/24 19:32	1
Xylenes, Total	ND		0.098		mg/Kg		07/03/24 08:25	07/08/24 19:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/03/24 08:25*	*07/08/24 19:32*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.8		mg/Kg		07/03/24 14:13	07/05/24 13:39	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/03/24 14:13	07/05/24 13:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*91*		*62 - 134*	*07/03/24 14:13*	*07/05/24 13:39*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**690**		60		mg/Kg		07/05/24 11:52	07/05/24 18:33	20

Client Sample Results

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 11 @6'
Lab Sample ID: 885-7249-17
Date Collected: 06/28/24 14:27
Matrix: Solid
Date Received: 07/02/24 08:03

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		07/03/24 10:43	07/06/24 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/03/24 10:43*	*07/06/24 03:57*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/03/24 10:43	07/06/24 03:57	1
Ethylbenzene	ND		0.050		mg/Kg		07/03/24 10:43	07/06/24 03:57	1
Toluene	ND		0.050		mg/Kg		07/03/24 10:43	07/06/24 03:57	1
Xylenes, Total	ND		0.099		mg/Kg		07/03/24 10:43	07/06/24 03:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*07/03/24 10:43*	*07/06/24 03:57*	*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]	ND		9.8		mg/Kg		07/03/24 15:14	07/03/24 22:52	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/03/24 15:14	07/03/24 22:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*07/03/24 15:14*	*07/03/24 22:52*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**120**		60		mg/Kg		07/05/24 11:52	07/05/24 18:45	20

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

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

Lab Sample ID: MB 885-7806/1-A
Matrix: Solid
Analysis Batch: 7936

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7806

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/02/24 13:17	07/03/24 11:30	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*35 - 166*	*07/02/24 13:17*	*07/03/24 11:30*	*1*

Lab Sample ID: MB 885-7824/1-A
Matrix: Solid
Analysis Batch: 7936

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7824

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/02/24 16:14	07/03/24 22:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*35 - 166*	*07/02/24 16:14*	*07/03/24 22:28*	*1*

Lab Sample ID: LCS 885-7824/2-A
Matrix: Solid
Analysis Batch: 7936

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7824

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	24.9		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*204*	*S1+*	*35 - 166*

Lab Sample ID: MB 885-7846/1-A
Matrix: Solid
Analysis Batch: 8101

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7846

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/03/24 08:25	07/08/24 10:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/03/24 08:25*	*07/08/24 10:26*	*1*

Lab Sample ID: LCS 885-7846/2-A
Matrix: Solid
Analysis Batch: 8101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7846

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	23.2		mg/Kg		93	70 - 130		

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

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

Lab Sample ID: LCS 885-7846/2-A
Matrix: Solid
Analysis Batch: 8101

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7846

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	201	S1+	35 - 166

Lab Sample ID: MB 885-7870/1-A
Matrix: Solid
Analysis Batch: 7988

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7870

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/03/24 10:43	07/06/24 00:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		35 - 166	07/03/24 10:43	07/06/24 00:02	1

Lab Sample ID: LCS 885-7870/2-A
Matrix: Solid
Analysis Batch: 7988

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7870

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	22.8		mg/Kg		91	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	201	S1+	35 - 166

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-7806/1-A
Matrix: Solid
Analysis Batch: 7937

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7806

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/02/24 13:17	07/03/24 11:30	1
Ethylbenzene	ND		0.050		mg/Kg		07/02/24 13:17	07/03/24 11:30	1
Toluene	ND		0.050		mg/Kg		07/02/24 13:17	07/03/24 11:30	1
Xylenes, Total	ND		0.10		mg/Kg		07/02/24 13:17	07/03/24 11:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145	07/02/24 13:17	07/03/24 11:30	1

Lab Sample ID: MB 885-7824/1-A
Matrix: Solid
Analysis Batch: 7937

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7824

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/02/24 16:14	07/03/24 22:28	1
Ethylbenzene	ND		0.050		mg/Kg		07/02/24 16:14	07/03/24 22:28	1
Toluene	ND		0.050		mg/Kg		07/02/24 16:14	07/03/24 22:28	1
Xylenes, Total	ND		0.10		mg/Kg		07/02/24 16:14	07/03/24 22:28	1

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

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

Lab Sample ID: MB 885-7824/1-A
Matrix: Solid
Analysis Batch: 7937

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7824

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		48 - 145	07/02/24 16:14	07/03/24 22:28	1

Lab Sample ID: LCS 885-7824/3-A
Matrix: Solid
Analysis Batch: 7937

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7824

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.962		mg/Kg		96	70 - 130
Ethylbenzene	1.00	0.956		mg/Kg		96	70 - 130
m-Xylene & p-Xylene	2.00	1.90		mg/Kg		95	70 - 130
o-Xylene	1.00	0.954		mg/Kg		95	70 - 130
Toluene	1.00	0.949		mg/Kg		95	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		48 - 145

Lab Sample ID: MB 885-7846/1-A
Matrix: Solid
Analysis Batch: 8102

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7846

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025	mg/Kg		07/03/24 08:25	07/08/24 10:26	1
Ethylbenzene	ND		0.050	mg/Kg		07/03/24 08:25	07/08/24 10:26	1
Toluene	ND		0.050	mg/Kg		07/03/24 08:25	07/08/24 10:26	1
Xylenes, Total	ND		0.10	mg/Kg		07/03/24 08:25	07/08/24 10:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		48 - 145	07/03/24 08:25	07/08/24 10:26	1

Lab Sample ID: LCS 885-7846/3-A
Matrix: Solid
Analysis Batch: 8102

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7846

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	1.00	0.922		mg/Kg		92	70 - 130
Ethylbenzene	1.00	0.917		mg/Kg		92	70 - 130
m-Xylene & p-Xylene	2.00	1.84		mg/Kg		92	70 - 130
o-Xylene	1.00	0.915		mg/Kg		91	70 - 130
Toluene	1.00	0.922		mg/Kg		92	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		48 - 145

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

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

Lab Sample ID: MB 885-7870/1-A
Matrix: Solid
Analysis Batch: 7946

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7870

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/03/24 10:43	07/06/24 00:02	1
Ethylbenzene	ND		0.050		mg/Kg		07/03/24 10:43	07/06/24 00:02	1
Toluene	ND		0.050		mg/Kg		07/03/24 10:43	07/06/24 00:02	1
Xylenes, Total	ND		0.10		mg/Kg		07/03/24 10:43	07/06/24 00:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*48 - 145*	*07/03/24 10:43*	*07/06/24 00:02*	*1*

Lab Sample ID: LCS 885-7870/3-A
Matrix: Solid
Analysis Batch: 7946

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7870

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.873		mg/Kg		87	70 - 130		
Ethylbenzene			1.00	0.803		mg/Kg		80	70 - 130		
m-Xylene & p-Xylene			2.00	1.64		mg/Kg		82	70 - 130		
o-Xylene			1.00	0.792		mg/Kg		79	70 - 130		
Toluene			1.00	0.806		mg/Kg		81	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*48 - 145*

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

Lab Sample ID: MB 885-7882/1-A
Matrix: Solid
Analysis Batch: 7876

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7882

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/03/24 13:32	07/03/24 17:39	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/03/24 13:32	07/03/24 17:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*85*		*62 - 134*	*07/03/24 13:32*	*07/03/24 17:39*	*1*

Lab Sample ID: LCS 885-7882/2-A
Matrix: Solid
Analysis Batch: 7876

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7882

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	44.6		mg/Kg		89	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*87*		*62 - 134*

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

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

Lab Sample ID: 885-7249-2 MS
Matrix: Solid
Analysis Batch: 7876

Client Sample ID: BH23- 02 @4'
Prep Type: Total/NA
Prep Batch: 7882

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND		47.1	44.9		mg/Kg		95	44 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*

Lab Sample ID: 885-7249-2 MSD
Matrix: Solid
Analysis Batch: 7876

Client Sample ID: BH23- 02 @4'
Prep Type: Total/NA
Prep Batch: 7882

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		49.7	47.7		mg/Kg		96	44 - 136	6	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*92*		*62 - 134*

Lab Sample ID: MB 885-7883/1-A
Matrix: Solid
Analysis Batch: 7925

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7883

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/03/24 14:13	07/05/24 09:42	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/03/24 14:13	07/05/24 09:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*99*		*62 - 134*	*07/03/24 14:13*	*07/05/24 09:42*	*1*

Lab Sample ID: LCS 885-7883/2-A
Matrix: Solid
Analysis Batch: 7925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7883

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]			50.0	47.9		mg/Kg		96	60 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*

Lab Sample ID: 885-7249-16 MS
Matrix: Solid
Analysis Batch: 7925

Client Sample ID: BH23- 11 @4'
Prep Type: Total/NA
Prep Batch: 7883

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Diesel Range Organics [C10-C28]	ND		43.6	41.7		mg/Kg		96	44 - 136

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

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

Lab Sample ID: 885-7249-16 MS
Matrix: Solid
Analysis Batch: 7925

Client Sample ID: BH23- 11 @4'
Prep Type: Total/NA
Prep Batch: 7883

Surrogate	MS %Recovery	MS Qualifier	Limits
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*

Lab Sample ID: 885-7249-16 MSD
Matrix: Solid
Analysis Batch: 7925

Client Sample ID: BH23- 11 @4'
Prep Type: Total/NA
Prep Batch: 7883

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		49.3	49.0		mg/Kg		99	44 - 136	16	32

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Di-n-octyl phthalate (Surr)	*98*		*62 - 134*

Lab Sample ID: MB 885-7885/1-A
Matrix: Solid
Analysis Batch: 7876

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7885

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/03/24 15:14	07/03/24 22:30	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/03/24 15:14	07/03/24 22:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	*86*		*62 - 134*	*07/03/24 15:14*	*07/03/24 22:30*	*1*

Lab Sample ID: LCS 885-7885/2-A
Matrix: Solid
Analysis Batch: 7876

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7885

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	47.6		mg/Kg		95	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 885-7888/1-A
Matrix: Solid
Analysis Batch: 8024

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7888

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/03/24 15:45	07/05/24 08:48	1

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 885-7888/2-A
Matrix: Solid
Analysis Batch: 8024

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7888

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	27.9		mg/Kg		93	90 - 110		

Lab Sample ID: MB 885-7943/1-A
Matrix: Solid
Analysis Batch: 8013

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7943

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/05/24 11:52	07/05/24 12:30	1

Lab Sample ID: LCS 885-7943/2-A
Matrix: Solid
Analysis Batch: 8013

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7943

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	29.6		mg/Kg		99	90 - 110		

Lab Sample ID: 885-7249-7 MS
Matrix: Solid
Analysis Batch: 8013

Client Sample ID: BH23- 03 @8'
Prep Type: Total/NA
Prep Batch: 7943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	110		30.0	130		mg/Kg		70	50 - 150		

Lab Sample ID: 885-7249-7 MSD
Matrix: Solid
Analysis Batch: 8013

Client Sample ID: BH23- 03 @8'
Prep Type: Total/NA
Prep Batch: 7943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	110		29.8	131		mg/Kg		73	50 - 150	1	20

Lab Sample ID: 885-7249-13 MS
Matrix: Solid
Analysis Batch: 8013

Client Sample ID: BH23- 07 @2'
Prep Type: Total/NA
Prep Batch: 7943

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride	1400		29.9	1360	4	mg/Kg		-36	50 - 150		

Lab Sample ID: 885-7249-13 MSD
Matrix: Solid
Analysis Batch: 8013

Client Sample ID: BH23- 07 @2'
Prep Type: Total/NA
Prep Batch: 7943

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1400		30.2	1360	4	mg/Kg		-41	50 - 150	0	20

Lab Sample ID: MB 885-8013/4
Matrix: Solid
Analysis Batch: 8013

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			07/05/24 10:52	1

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MRL 885-8013/3
Matrix: Solid
Analysis Batch: 8013

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	0.564		mg/L		113	50 - 150		

Lab Sample ID: MB 885-8025/1-A
Matrix: Solid
Analysis Batch: 8052

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8025

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/08/24 12:29	07/08/24 15:56	1

Lab Sample ID: LCS 885-8025/2-A
Matrix: Solid
Analysis Batch: 8052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8025

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	31.0		mg/Kg		103	90 - 110		

Lab Sample ID: MRL 885-8025/20-A
Matrix: Solid
Analysis Batch: 8052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8025

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			3.00	3.40		mg/L		113	50 - 150		

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

GC VOA

Prep Batch: 7806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-7806/1-A	Method Blank	Total/NA	Solid	5030C	

Prep Batch: 7824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	5030C	
885-7249-2	BH23- 02 @4'	Total/NA	Solid	5030C	
MB 885-7824/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7824/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7824/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 7846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	5030C	
885-7249-4	BH23- 03 @2'	Total/NA	Solid	5030C	
885-7249-5	BH23- 03 @4'	Total/NA	Solid	5030C	
885-7249-6	BH23- 03 @6'	Total/NA	Solid	5030C	
885-7249-7	BH23- 03 @8'	Total/NA	Solid	5030C	
885-7249-8	BH23- 04 @2'	Total/NA	Solid	5030C	
885-7249-9	BH23- 04 @4'	Total/NA	Solid	5030C	
885-7249-10	BH23- 05 @2'	Total/NA	Solid	5030C	
885-7249-11	BH23- 05 @4'	Total/NA	Solid	5030C	
885-7249-12	BH23- 05 @6'	Total/NA	Solid	5030C	
885-7249-13	BH23- 07 @2'	Total/NA	Solid	5030C	
885-7249-14	BH23- 07 @4'	Total/NA	Solid	5030C	
885-7249-15	BH23- 11 @2'	Total/NA	Solid	5030C	
885-7249-16	BH23- 11 @4'	Total/NA	Solid	5030C	
MB 885-7846/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7846/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7846/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Prep Batch: 7870

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-17	BH23- 11 @6'	Total/NA	Solid	5030C	
MB 885-7870/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-7870/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-7870/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 7936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	8015M/D	7824
885-7249-2	BH23- 02 @4'	Total/NA	Solid	8015M/D	7824
MB 885-7806/1-A	Method Blank	Total/NA	Solid	8015M/D	7806
MB 885-7824/1-A	Method Blank	Total/NA	Solid	8015M/D	7824
LCS 885-7824/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7824

Analysis Batch: 7937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	8021B	7824
885-7249-2	BH23- 02 @4'	Total/NA	Solid	8021B	7824
MB 885-7806/1-A	Method Blank	Total/NA	Solid	8021B	7806
MB 885-7824/1-A	Method Blank	Total/NA	Solid	8021B	7824

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

GC VOA (Continued)

Analysis Batch: 7937 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 885-7824/3-A	Lab Control Sample	Total/NA	Solid	8021B	7824

Analysis Batch: 7946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-17	BH23- 11 @6'	Total/NA	Solid	8021B	7870
MB 885-7870/1-A	Method Blank	Total/NA	Solid	8021B	7870
LCS 885-7870/3-A	Lab Control Sample	Total/NA	Solid	8021B	7870

Analysis Batch: 7988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-17	BH23- 11 @6'	Total/NA	Solid	8015M/D	7870
MB 885-7870/1-A	Method Blank	Total/NA	Solid	8015M/D	7870
LCS 885-7870/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7870

Analysis Batch: 8101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	8015M/D	7846
885-7249-4	BH23- 03 @2'	Total/NA	Solid	8015M/D	7846
885-7249-5	BH23- 03 @4'	Total/NA	Solid	8015M/D	7846
885-7249-6	BH23- 03 @6'	Total/NA	Solid	8015M/D	7846
885-7249-7	BH23- 03 @8'	Total/NA	Solid	8015M/D	7846
885-7249-8	BH23- 04 @2'	Total/NA	Solid	8015M/D	7846
885-7249-9	BH23- 04 @4'	Total/NA	Solid	8015M/D	7846
885-7249-10	BH23- 05 @2'	Total/NA	Solid	8015M/D	7846
885-7249-11	BH23- 05 @4'	Total/NA	Solid	8015M/D	7846
885-7249-12	BH23- 05 @6'	Total/NA	Solid	8015M/D	7846
885-7249-13	BH23- 07 @2'	Total/NA	Solid	8015M/D	7846
885-7249-14	BH23- 07 @4'	Total/NA	Solid	8015M/D	7846
885-7249-15	BH23- 11 @2'	Total/NA	Solid	8015M/D	7846
885-7249-16	BH23- 11 @4'	Total/NA	Solid	8015M/D	7846
MB 885-7846/1-A	Method Blank	Total/NA	Solid	8015M/D	7846
LCS 885-7846/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7846

Analysis Batch: 8102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	8021B	7846
885-7249-4	BH23- 03 @2'	Total/NA	Solid	8021B	7846
885-7249-5	BH23- 03 @4'	Total/NA	Solid	8021B	7846
885-7249-6	BH23- 03 @6'	Total/NA	Solid	8021B	7846
885-7249-7	BH23- 03 @8'	Total/NA	Solid	8021B	7846
885-7249-8	BH23- 04 @2'	Total/NA	Solid	8021B	7846
885-7249-9	BH23- 04 @4'	Total/NA	Solid	8021B	7846
885-7249-10	BH23- 05 @2'	Total/NA	Solid	8021B	7846
885-7249-11	BH23- 05 @4'	Total/NA	Solid	8021B	7846
885-7249-12	BH23- 05 @6'	Total/NA	Solid	8021B	7846
885-7249-13	BH23- 07 @2'	Total/NA	Solid	8021B	7846
885-7249-14	BH23- 07 @4'	Total/NA	Solid	8021B	7846
885-7249-15	BH23- 11 @2'	Total/NA	Solid	8021B	7846
885-7249-16	BH23- 11 @4'	Total/NA	Solid	8021B	7846
MB 885-7846/1-A	Method Blank	Total/NA	Solid	8021B	7846
LCS 885-7846/3-A	Lab Control Sample	Total/NA	Solid	8021B	7846

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

GC Semi VOA

Analysis Batch: 7876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	8015M/D	7882
885-7249-2	BH23- 02 @4'	Total/NA	Solid	8015M/D	7882
885-7249-17	BH23- 11 @6'	Total/NA	Solid	8015M/D	7885
MB 885-7882/1-A	Method Blank	Total/NA	Solid	8015M/D	7882
MB 885-7885/1-A	Method Blank	Total/NA	Solid	8015M/D	7885
LCS 885-7882/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7882
LCS 885-7885/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7885
885-7249-2 MS	BH23- 02 @4'	Total/NA	Solid	8015M/D	7882
885-7249-2 MSD	BH23- 02 @4'	Total/NA	Solid	8015M/D	7882

Prep Batch: 7882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	SHAKE	
885-7249-2	BH23- 02 @4'	Total/NA	Solid	SHAKE	
MB 885-7882/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-7882/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-7249-2 MS	BH23- 02 @4'	Total/NA	Solid	SHAKE	
885-7249-2 MSD	BH23- 02 @4'	Total/NA	Solid	SHAKE	

Prep Batch: 7883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	SHAKE	
885-7249-4	BH23- 03 @2'	Total/NA	Solid	SHAKE	
885-7249-5	BH23- 03 @4'	Total/NA	Solid	SHAKE	
885-7249-6	BH23- 03 @6'	Total/NA	Solid	SHAKE	
885-7249-7	BH23- 03 @8'	Total/NA	Solid	SHAKE	
885-7249-8	BH23- 04 @2'	Total/NA	Solid	SHAKE	
885-7249-9	BH23- 04 @4'	Total/NA	Solid	SHAKE	
885-7249-10	BH23- 05 @2'	Total/NA	Solid	SHAKE	
885-7249-11	BH23- 05 @4'	Total/NA	Solid	SHAKE	
885-7249-12	BH23- 05 @6'	Total/NA	Solid	SHAKE	
885-7249-13	BH23- 07 @2'	Total/NA	Solid	SHAKE	
885-7249-14	BH23- 07 @4'	Total/NA	Solid	SHAKE	
885-7249-15	BH23- 11 @2'	Total/NA	Solid	SHAKE	
885-7249-16	BH23- 11 @4'	Total/NA	Solid	SHAKE	
MB 885-7883/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-7883/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-7249-16 MS	BH23- 11 @4'	Total/NA	Solid	SHAKE	
885-7249-16 MSD	BH23- 11 @4'	Total/NA	Solid	SHAKE	

Prep Batch: 7885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-17	BH23- 11 @6'	Total/NA	Solid	SHAKE	
MB 885-7885/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-7885/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 7925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	8015M/D	7883
885-7249-4	BH23- 03 @2'	Total/NA	Solid	8015M/D	7883
885-7249-5	BH23- 03 @4'	Total/NA	Solid	8015M/D	7883

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

GC Semi VOA (Continued)

Analysis Batch: 7925 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-6	BH23- 03 @6'	Total/NA	Solid	8015M/D	7883
885-7249-7	BH23- 03 @8'	Total/NA	Solid	8015M/D	7883
885-7249-8	BH23- 04 @2'	Total/NA	Solid	8015M/D	7883
885-7249-9	BH23- 04 @4'	Total/NA	Solid	8015M/D	7883
885-7249-10	BH23- 05 @2'	Total/NA	Solid	8015M/D	7883
885-7249-11	BH23- 05 @4'	Total/NA	Solid	8015M/D	7883
885-7249-12	BH23- 05 @6'	Total/NA	Solid	8015M/D	7883
885-7249-13	BH23- 07 @2'	Total/NA	Solid	8015M/D	7883
885-7249-14	BH23- 07 @4'	Total/NA	Solid	8015M/D	7883
885-7249-15	BH23- 11 @2'	Total/NA	Solid	8015M/D	7883
885-7249-16	BH23- 11 @4'	Total/NA	Solid	8015M/D	7883
MB 885-7883/1-A	Method Blank	Total/NA	Solid	8015M/D	7883
LCS 885-7883/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	7883
885-7249-16 MS	BH23- 11 @4'	Total/NA	Solid	8015M/D	7883
885-7249-16 MSD	BH23- 11 @4'	Total/NA	Solid	8015M/D	7883

HPLC/IC

Prep Batch: 7888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	300_Prep	
885-7249-2	BH23- 02 @4'	Total/NA	Solid	300_Prep	
MB 885-7888/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-7888/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Prep Batch: 7943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	300_Prep	
885-7249-4	BH23- 03 @2'	Total/NA	Solid	300_Prep	
885-7249-5	BH23- 03 @4'	Total/NA	Solid	300_Prep	
885-7249-6	BH23- 03 @6'	Total/NA	Solid	300_Prep	
885-7249-7	BH23- 03 @8'	Total/NA	Solid	300_Prep	
885-7249-8	BH23- 04 @2'	Total/NA	Solid	300_Prep	
885-7249-9	BH23- 04 @4'	Total/NA	Solid	300_Prep	
885-7249-10	BH23- 05 @2'	Total/NA	Solid	300_Prep	
885-7249-11	BH23- 05 @4'	Total/NA	Solid	300_Prep	
885-7249-12	BH23- 05 @6'	Total/NA	Solid	300_Prep	
885-7249-13	BH23- 07 @2'	Total/NA	Solid	300_Prep	
885-7249-14	BH23- 07 @4'	Total/NA	Solid	300_Prep	
885-7249-15	BH23- 11 @2'	Total/NA	Solid	300_Prep	
885-7249-16	BH23- 11 @4'	Total/NA	Solid	300_Prep	
885-7249-17	BH23- 11 @6'	Total/NA	Solid	300_Prep	
MB 885-7943/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-7943/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
885-7249-7 MS	BH23- 03 @8'	Total/NA	Solid	300_Prep	
885-7249-7 MSD	BH23- 03 @8'	Total/NA	Solid	300_Prep	
885-7249-13 MS	BH23- 07 @2'	Total/NA	Solid	300_Prep	
885-7249-13 MSD	BH23- 07 @2'	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

HPLC/IC

Analysis Batch: 8013

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-3	BH23- 02 @6'	Total/NA	Solid	300.0	7943
885-7249-4	BH23- 03 @2'	Total/NA	Solid	300.0	7943
885-7249-6	BH23- 03 @6'	Total/NA	Solid	300.0	7943
885-7249-7	BH23- 03 @8'	Total/NA	Solid	300.0	7943
885-7249-8	BH23- 04 @2'	Total/NA	Solid	300.0	7943
885-7249-9	BH23- 04 @4'	Total/NA	Solid	300.0	7943
885-7249-10	BH23- 05 @2'	Total/NA	Solid	300.0	7943
885-7249-11	BH23- 05 @4'	Total/NA	Solid	300.0	7943
885-7249-12	BH23- 05 @6'	Total/NA	Solid	300.0	7943
885-7249-13	BH23- 07 @2'	Total/NA	Solid	300.0	7943
885-7249-14	BH23- 07 @4'	Total/NA	Solid	300.0	7943
885-7249-15	BH23- 11 @2'	Total/NA	Solid	300.0	7943
885-7249-16	BH23- 11 @4'	Total/NA	Solid	300.0	7943
885-7249-17	BH23- 11 @6'	Total/NA	Solid	300.0	7943
MB 885-7943/1-A	Method Blank	Total/NA	Solid	300.0	7943
MB 885-8013/4	Method Blank	Total/NA	Solid	300.0	
LCS 885-7943/2-A	Lab Control Sample	Total/NA	Solid	300.0	7943
MRL 885-8013/3	Lab Control Sample	Total/NA	Solid	300.0	
885-7249-7 MS	BH23- 03 @8'	Total/NA	Solid	300.0	7943
885-7249-7 MSD	BH23- 03 @8'	Total/NA	Solid	300.0	7943
885-7249-13 MS	BH23- 07 @2'	Total/NA	Solid	300.0	7943
885-7249-13 MSD	BH23- 07 @2'	Total/NA	Solid	300.0	7943

Analysis Batch: 8024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-1	BH23- 02 @2'	Total/NA	Solid	300.0	7888
885-7249-2	BH23- 02 @4'	Total/NA	Solid	300.0	7888
MB 885-7888/1-A	Method Blank	Total/NA	Solid	300.0	7888
LCS 885-7888/2-A	Lab Control Sample	Total/NA	Solid	300.0	7888

Prep Batch: 8025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 885-8025/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-8025/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
MRL 885-8025/20-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 8052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-7249-5	BH23- 03 @4'	Total/NA	Solid	300.0	7943
MB 885-8025/1-A	Method Blank	Total/NA	Solid	300.0	8025
LCS 885-8025/2-A	Lab Control Sample	Total/NA	Solid	300.0	8025
MRL 885-8025/20-A	Lab Control Sample	Total/NA	Solid	300.0	8025

Lab Chronicle

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 02 @2'
Lab Sample ID: 885-7249-1
Date Collected: 06/28/24 10:12
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7824	AT	EET ALB	07/02/24 16:14
Total/NA	Analysis	8015M/D		1	7936	AT	EET ALB	07/04/24 07:11
Total/NA	Prep	5030C			7824	AT	EET ALB	07/02/24 16:14
Total/NA	Analysis	8021B		1	7937	AT	EET ALB	07/04/24 07:11
Total/NA	Prep	SHAKE			7882	KR	EET ALB	07/03/24 13:32
Total/NA	Analysis	8015M/D		1	7876	PD	EET ALB	07/03/24 21:35
Total/NA	Prep	300_Prep			7888	RC	EET ALB	07/03/24 15:45
Total/NA	Analysis	300.0		20	8024	JT	EET ALB	07/05/24 14:36

Client Sample ID: BH23- 02 @4'
Lab Sample ID: 885-7249-2
Date Collected: 06/28/24 10:18
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7824	AT	EET ALB	07/02/24 16:14
Total/NA	Analysis	8015M/D		1	7936	AT	EET ALB	07/04/24 07:33
Total/NA	Prep	5030C			7824	AT	EET ALB	07/02/24 16:14
Total/NA	Analysis	8021B		1	7937	AT	EET ALB	07/04/24 07:33
Total/NA	Prep	SHAKE			7882	KR	EET ALB	07/03/24 13:32
Total/NA	Analysis	8015M/D		1	7876	PD	EET ALB	07/03/24 21:46
Total/NA	Prep	300_Prep			7888	RC	EET ALB	07/03/24 15:45
Total/NA	Analysis	300.0		20	8024	JT	EET ALB	07/05/24 14:49

Client Sample ID: BH23- 02 @6'
Lab Sample ID: 885-7249-3
Date Collected: 06/28/24 10:27
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 14:26
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 14:26
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 11:07
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 14:38

Client Sample ID: BH23- 03 @2'
Lab Sample ID: 885-7249-4
Date Collected: 06/28/24 10:41
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 14:48

Lab Chronicle

Client: Vertex
Project/Site: Rattlesnake 13-12 Fed 1

Job ID: 885-7249-1

Client Sample ID: BH23- 03 @2'

Lab Sample ID: 885-7249-4
Matrix: Solid
Date Collected: 06/28/24 10:41
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 14:48
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 11:18
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 14:51

Client Sample ID: BH23- 03 @4'

Lab Sample ID: 885-7249-5
Matrix: Solid
Date Collected: 06/28/24 10:49
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 15:10
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 15:10
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 11:39
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		50	8052	JT	EET ALB	07/08/24 17:52

Client Sample ID: BH23- 03 @6'

Lab Sample ID: 885-7249-6
Matrix: Solid
Date Collected: 06/28/24 10:57
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 15:32
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 15:32
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 11:50
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 15:15

Client Sample ID: BH23- 03 @8'

Lab Sample ID: 885-7249-7
Matrix: Solid
Date Collected: 06/28/24 11:11
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 16:16
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 16:16

Lab Chronicle

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 03 @8'
Lab Sample ID: 885-7249-7
Date Collected: 06/28/24 11:11
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 12:01
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 15:28

Client Sample ID: BH23- 04 @2'
Lab Sample ID: 885-7249-8
Date Collected: 06/28/24 11:34
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 16:38
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 16:38
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 12:12
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 16:05

Client Sample ID: BH23- 04 @4'
Lab Sample ID: 885-7249-9
Date Collected: 06/28/24 11:42
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 16:59
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 16:59
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 12:22
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 16:17

Client Sample ID: BH23- 05 @2'
Lab Sample ID: 885-7249-10
Date Collected: 06/28/24 11:57
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 17:21
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 17:21
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 12:33

Lab Chronicle

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 05 @2'
Lab Sample ID: 885-7249-10
Date Collected: 06/28/24 11:57
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 16:30

Client Sample ID: BH23- 05 @4'
Lab Sample ID: 885-7249-11
Date Collected: 06/28/24 12:09
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 17:43
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 17:43
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 12:44
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 17:07

Client Sample ID: BH23- 05 @6'
Lab Sample ID: 885-7249-12
Date Collected: 06/28/24 12:18
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 18:05
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 18:05
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 12:55
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 17:19

Client Sample ID: BH23- 07 @2'
Lab Sample ID: 885-7249-13
Date Collected: 06/28/24 13:09
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 18:27
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 18:27
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 13:06
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 17:31

Lab Chronicle

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 07 @4'
Lab Sample ID: 885-7249-14
Date Collected: 06/28/24 13:18
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 18:49
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 18:49
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 13:17
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 18:08

Client Sample ID: BH23- 11 @2'
Lab Sample ID: 885-7249-15
Date Collected: 06/28/24 14:04
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 19:11
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 19:11
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 13:28
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 18:21

Client Sample ID: BH23- 11 @4'
Lab Sample ID: 885-7249-16
Date Collected: 06/28/24 14:18
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8015M/D		1	8101	RA	EET ALB	07/08/24 19:32
Total/NA	Prep	5030C			7846	AT	EET ALB	07/03/24 08:25
Total/NA	Analysis	8021B		1	8102	RA	EET ALB	07/08/24 19:32
Total/NA	Prep	SHAKE			7883	DH	EET ALB	07/03/24 14:13
Total/NA	Analysis	8015M/D		1	7925	KR	EET ALB	07/05/24 13:39
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 18:33

Client Sample ID: BH23- 11 @6'
Lab Sample ID: 885-7249-17
Date Collected: 06/28/24 14:27
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7870	AT	EET ALB	07/03/24 10:43
Total/NA	Analysis	8015M/D		1	7988	JP	EET ALB	07/06/24 03:57

Lab Chronicle

Client: Vertex
Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 1

Client Sample ID: BH23- 11 @6'
Lab Sample ID: 885-7249-17
Date Collected: 06/28/24 14:27
Matrix: Solid
Date Received: 07/02/24 08:03

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			7870	AT	EET ALB	07/03/24 10:43
Total/NA	Analysis	8021B		1	7946	JP	EET ALB	07/06/24 03:57
Total/NA	Prep	SHAKE			7885	KR	EET ALB	07/03/24 15:14
Total/NA	Analysis	8015M/D		1	7876	PD	EET ALB	07/03/24 22:52
Total/NA	Prep	300_Prep			7943	JT	EET ALB	07/05/24 11:52
Total/NA	Analysis	300.0		20	8013	JT	EET ALB	07/05/24 18:45

Laboratory References:

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

Accreditation/Certification Summary

Client: Vertex Job ID: 885-7249-1
Project/Site: Rattlesnake 13-12 Fed 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 5 Day

Project Name: Rattlesnake 13-12 Fed 1

Project #: 23E-02849

Project Manager: Chad Hensley
cHensley@vertexresource.com
RPlogger@vertexresource.com

Sampler: Riley Plogger

On Ice: ☑ Yes ☐ No

# of Coolers: 1 Yoyo

Cooler Temp(including CF): 0-7-0.1=0.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-7249 COC

1/2

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
6.28.24	10:12	Soil	BH23-02 @ 2'	4oz Jar	Ice	1	X	X					X			
	10:18		BH23-02 @ 4'			2	X	X					X			
	10:27		BH23-02 @ 6'			3	X	X					X			
	10:41		BH23-03 @ 2'			4	X	X					X			
	10:49		BH23-03 @ 4'			5	X	X					X			
	10:57		BH23-03 @ 6'			6	X	X					X			
	11:11		BH23-03 @ 8'			7	X	X					X			
	11:34		BH23-04 @ 2'			8	X	X					X			
	11:42		BH23-04 @ 4'			9	X	X					X			
	11:57		BH23-05 @ 2'			10	X	X					X			
	12:09		BH23-05 @ 4'			11	X	X					X			
	12:18		BH23-05 @ 6'			12	X	X					X			

Date	Time	Relinquished by	Received by	Via	Date	Time
					7/1/24	1000
7/1/24	1900			Courier	7/2/24	8:03

Remarks:
WO # 21163257
Dale Woodall

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

Chain-of-Custody Record

Client: vertex (Bill to Devon)

Mailing Address:

Phone #:

email or Fax#:

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

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

Turn-Around Time:
☑ Standard ☑ Rush 5 Day

Project Name: Rattlesnake 13 12 Fed 1

Project #: 23E-02849

Project Manager: Chad Hensley
chensley@vertexresource.com
RPrlogger@vertexresource.com

Sampler: Riley Prlogger

On Ice: ☑ Yes ☐ No

# of Coolers: 1 YG9

Cooler Temp(including CF): 6.7-0.1=0.6 (°C)

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

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Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl) F, Br, NO_3, NO_2, PO_4, SO_4	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)						
6.28.24	1:09	Soil	BH23-07 @ 2'	4oz Jar	Ice	13	X	X					X									
↓	1:18	↓	BH23-07 @ 4'	↓	↓	14	X	X					X									
↓	2:04	↓	BH23-11 @ 2'	↓	↓	15	X	X					X									
↓	2:18	↓	BH23-11 @ 4'	↓	↓	16	X	X					X									
↓	2:27	↓	BH23-11 @ 6'	↓	↓	17	X	X					X									

Date	Time:	Relinquished by	Received by:	Via	Date	Time
			[signature]		7/1/24	1000
7/1/24	1900	[signature]	[signature]	courier	7/2/24	8:03

Remarks:
WO# 21163257
Dale Woodall

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-7249-1

Login Number: 7249 **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	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Kent Stallings
Vertex
3101 Boyd Dr
Carlsbad, New Mexico 88220

Generated 8/1/2024 11:30:00 AM

JOB DESCRIPTION

Rattlesnake 13 12 Fed Com 1

JOB NUMBER

885-8376-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
8/1/2024 11:30:00 AM

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

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Laboratory Job ID: 885-8376-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 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.

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 Job ID: 885-8376-1
Project: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1 Eurofins Albuquerque

Job Narrative
885-8376-1

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 7/20/2024 7:30 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 0.4°C.

Receipt Exceptions
The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): BH23-03@2' (885-8376-1), BH23-03@4' (885-8376-2), BH23-03@6' (885-8376-3), BH23-04@2' (885-8376-4), BH23-04@4' (885-8376-5), BH23-04@6' (885-8376-6), BH23-07@2' (885-8376-7) and BH23-07@4' (885-8376-8). The container labels lists a collection date of 7/17/24, while the COC lists a collection date of 7/18/2024. Attempted to contact client via phone (Chad Hensley/business phone - number not in service. Dale Woodall - left VM, Erin Cummings - unable to reach). Email was sent to Riley, Chad, & Erin for guidance, however, for now, we will be moving forward with the samples as logged in per COC. Email recieved back from sampler Riley Plogger - samples were collected on 7/17. Login updated and new labels attached to containers.

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: BH23-03@4' (885-8376-2) and BH23-04@6' (885-8376-6). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8015D_DRO: Surrogate recovery for the following CCV is outside the lower control limit: (CCV 885-9050/22). Samples with failing low surrogate will be re-ran.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

Client Sample ID: BH23-03@2'

Date Collected: 07/17/24 13:02
Date Received: 07/20/24 07:30

Lab Sample ID: 885-8376-1

Matrix: Solid

Method: SW846 8015M/D - Gasoline Range Organics (GRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		4.8		mg/Kg		07/23/24 13:05	07/24/24 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*35 - 166*	*07/23/24 13:05*	*07/24/24 17:01*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/23/24 13:05	07/24/24 17:01	1
Ethylbenzene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 17:01	1
Toluene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 17:01	1
Xylenes, Total	ND		0.097		mg/Kg		07/23/24 13:05	07/24/24 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/23/24 13:05*	*07/24/24 17:01*	*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		07/23/24 15:16	07/24/24 19:15	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/23/24 15:16	07/24/24 19:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*104*		*62 - 134*	*07/23/24 15:16*	*07/24/24 19:15*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 08:19	07/24/24 16:25	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-03@4'
Lab Sample ID: 885-8376-2
Date Collected: 07/17/24 13:12
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*35 - 166*	*07/23/24 13:05*	*07/24/24 17:23*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.023		mg/Kg		07/23/24 13:05	07/24/24 17:23	1
Ethylbenzene	ND		0.047		mg/Kg		07/23/24 13:05	07/24/24 17:23	1
Toluene	ND		0.047		mg/Kg		07/23/24 13:05	07/24/24 17:23	1
Xylenes, Total	ND		0.093		mg/Kg		07/23/24 13:05	07/24/24 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/23/24 13:05*	*07/24/24 17:23*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		07/23/24 15:16	07/24/24 19:26	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/23/24 15:16	07/24/24 19:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*149*	*S1+*	*62 - 134*	*07/23/24 15:16*	*07/24/24 19:26*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 14:31	07/24/24 19:37	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-03@6'
Lab Sample ID: 885-8376-3
Date Collected: 07/17/24 13:19
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/23/24 13:05*	*07/24/24 17:45*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/23/24 13:05	07/24/24 17:45	1
Ethylbenzene	ND		0.050		mg/Kg		07/23/24 13:05	07/24/24 17:45	1
Toluene	ND		0.050		mg/Kg		07/23/24 13:05	07/24/24 17:45	1
Xylenes, Total	ND		0.10		mg/Kg		07/23/24 13:05	07/24/24 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/23/24 13:05*	*07/24/24 17:45*	*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		9.0		mg/Kg		07/23/24 15:16	07/24/24 19:38	1
Motor Oil Range Organics [C28-C40]	ND		45		mg/Kg		07/23/24 15:16	07/24/24 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*07/23/24 15:16*	*07/24/24 19:38*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**160**		60		mg/Kg		07/24/24 14:31	07/24/24 20:51	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-04@2'
Lab Sample ID: 885-8376-4
Date Collected: 07/17/24 13:24
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/23/24 13:05*	*07/24/24 18:06*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/23/24 13:05	07/24/24 18:06	1
Ethylbenzene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 18:06	1
Toluene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 18:06	1
Xylenes, Total	ND		0.097		mg/Kg		07/23/24 13:05	07/24/24 18:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*48 - 145*	*07/23/24 13:05*	*07/24/24 18:06*	*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		8.9		mg/Kg		07/23/24 15:16	07/24/24 19:49	1
Motor Oil Range Organics [C28-C40]	ND		44		mg/Kg		07/23/24 15:16	07/24/24 19:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*121*		*62 - 134*	*07/23/24 15:16*	*07/24/24 19:49*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 14:31	07/24/24 21:04	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-04@4'
Lab Sample ID: 885-8376-5
Date Collected: 07/17/24 13:27
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/23/24 13:05*	*07/24/24 18:28*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/23/24 13:05	07/24/24 18:28	1
Ethylbenzene	ND		0.047		mg/Kg		07/23/24 13:05	07/24/24 18:28	1
Toluene	ND		0.047		mg/Kg		07/23/24 13:05	07/24/24 18:28	1
Xylenes, Total	ND		0.095		mg/Kg		07/23/24 13:05	07/24/24 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*48 - 145*	*07/23/24 13:05*	*07/24/24 18:28*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.4		mg/Kg		07/23/24 15:16	07/24/24 20:01	1
Motor Oil Range Organics [C28-C40]	ND		47		mg/Kg		07/23/24 15:16	07/24/24 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*103*		*62 - 134*	*07/23/24 15:16*	*07/24/24 20:01*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 14:31	07/24/24 21:16	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-04@6'
Lab Sample ID: 885-8376-6
Date Collected: 07/17/24 13:34
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*35 - 166*	*07/23/24 13:05*	*07/24/24 18:50*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/23/24 13:05	07/24/24 18:50	1
Ethylbenzene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 18:50	1
Toluene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 18:50	1
Xylenes, Total	ND		0.095		mg/Kg		07/23/24 13:05	07/24/24 18:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/23/24 13:05*	*07/24/24 18:50*	*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]	ND		8.6		mg/Kg		07/23/24 15:16	07/24/24 20:12	1
Motor Oil Range Organics [C28-C40]	ND		43		mg/Kg		07/23/24 15:16	07/24/24 20:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*136*	*S1+*	*62 - 134*	*07/23/24 15:16*	*07/24/24 20:12*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 14:31	07/24/24 21:28	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-07@2'
Lab Sample ID: 885-8376-7
Date Collected: 07/17/24 13:45
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*35 - 166*	*07/23/24 13:05*	*07/24/24 19:12*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.024		mg/Kg		07/23/24 13:05	07/24/24 19:12	1
Ethylbenzene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 19:12	1
Toluene	ND		0.048		mg/Kg		07/23/24 13:05	07/24/24 19:12	1
Xylenes, Total	ND		0.095		mg/Kg		07/23/24 13:05	07/24/24 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*48 - 145*	*07/23/24 13:05*	*07/24/24 19:12*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		07/24/24 12:14	07/25/24 02:44	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		07/24/24 12:14	07/25/24 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*108*		*62 - 134*	*07/24/24 12:14*	*07/25/24 02:44*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 14:31	07/24/24 21:41	20

Client Sample Results

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-07@4'
Lab Sample ID: 885-8376-8
Date Collected: 07/17/24 13:47
Matrix: Solid
Date Received: 07/20/24 07:30

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		07/23/24 13:05	07/24/24 19:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*35 - 166*	*07/23/24 13:05*	*07/24/24 19:34*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/23/24 13:05	07/24/24 19:34	1
Ethylbenzene	ND		0.050		mg/Kg		07/23/24 13:05	07/24/24 19:34	1
Toluene	ND		0.050		mg/Kg		07/23/24 13:05	07/24/24 19:34	1
Xylenes, Total	ND		0.10		mg/Kg		07/23/24 13:05	07/24/24 19:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*48 - 145*	*07/23/24 13:05*	*07/24/24 19:34*	*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		9.8		mg/Kg		07/24/24 12:14	07/25/24 02:55	1
Motor Oil Range Organics [C28-C40]	ND		49		mg/Kg		07/24/24 12:14	07/25/24 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*106*		*62 - 134*	*07/24/24 12:14*	*07/25/24 02:55*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		60		mg/Kg		07/24/24 14:31	07/24/24 21:53	20

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

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

Lab Sample ID: MB 885-8985/1-A
Matrix: Solid
Analysis Batch: 9162

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8985

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	ND		5.0		mg/Kg		07/23/24 13:05	07/24/24 14:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*35 - 166*	*07/23/24 13:05*	*07/24/24 14:28*	*1*

Lab Sample ID: LCS 885-8985/2-A
Matrix: Solid
Analysis Batch: 9162

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8985

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	21.6		mg/Kg		86	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*212*	*S1+*	*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-8985/1-A
Matrix: Solid
Analysis Batch: 9163

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8985

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		07/23/24 13:05	07/24/24 14:28	1
Ethylbenzene	ND		0.050		mg/Kg		07/23/24 13:05	07/24/24 14:28	1
Toluene	ND		0.050		mg/Kg		07/23/24 13:05	07/24/24 14:28	1
Xylenes, Total	ND		0.10		mg/Kg		07/23/24 13:05	07/24/24 14:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*48 - 145*	*07/23/24 13:05*	*07/24/24 14:28*	*1*

Lab Sample ID: LCS 885-8985/3-A
Matrix: Solid
Analysis Batch: 9163

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8985

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			1.00	0.913		mg/Kg		91	70 - 130		
Ethylbenzene			1.00	0.913		mg/Kg		91	70 - 130		
m-Xylene & p-Xylene			2.00	1.82		mg/Kg		91	70 - 130		
o-Xylene			1.00	0.909		mg/Kg		91	70 - 130		
Toluene			1.00	0.914		mg/Kg		91	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*48 - 145*

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

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

Lab Sample ID: MB 885-8999/1-A
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 8999

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/23/24 15:16	07/24/24 15:14	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/23/24 15:16	07/24/24 15:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*109*		*62 - 134*	*07/23/24 15:16*	*07/24/24 15:14*	*1*

Lab Sample ID: LCS 885-8999/2-A
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8999

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	45.4		mg/Kg		91	60 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*94*		*62 - 134*

Lab Sample ID: 885-8376-6 MS
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: BH23-04@6'
Prep Type: Total/NA
Prep Batch: 8999

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]	ND		49.5	60.6		mg/Kg		122	44 - 136		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*132*		*62 - 134*

Lab Sample ID: 885-8376-6 MSD
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: BH23-04@6'
Prep Type: Total/NA
Prep Batch: 8999

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	54.9		mg/Kg		120	44 - 136	10	32

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Di-n-octyl phthalate (Surr)	*129*		*62 - 134*

Lab Sample ID: MB 885-9060/1-A
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 9060

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		10		mg/Kg		07/24/24 12:14	07/25/24 01:48	1
Motor Oil Range Organics [C28-C40]	ND		50		mg/Kg		07/24/24 12:14	07/25/24 01:48	1

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

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

Lab Sample ID: MB 885-9060/1-A
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 9060

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Di-n-octyl phthalate (Surr)	104		62 - 134	07/24/24 12:14	07/25/24 01:48	1

Lab Sample ID: LCS 885-9060/2-A
Matrix: Solid
Analysis Batch: 9050

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 9060

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel Range Organics [C10-C28]			50.0	47.0		mg/Kg		94	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 885-9028/1-A
Matrix: Solid
Analysis Batch: 9034

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 9028

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/24/24 08:19	07/24/24 10:13	1

Lab Sample ID: LCS 885-9028/2-A
Matrix: Solid
Analysis Batch: 9034

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 9028

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.1		mg/Kg		94	90 - 110		

Lab Sample ID: MB 885-9074/1-A
Matrix: Solid
Analysis Batch: 9136

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 9074

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		3.0		mg/Kg		07/24/24 14:31	07/24/24 19:12	1

Lab Sample ID: LCS 885-9074/2-A
Matrix: Solid
Analysis Batch: 9136

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 9074

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chloride			30.0	28.4		mg/Kg		95	90 - 110		

Lab Sample ID: MB 885-9136/4
Matrix: Solid
Analysis Batch: 9136

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			07/24/24 08:18	1

QC Sample Results

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MRL 885-9136/3
Matrix: Solid
Analysis Batch: 9136

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	0.526		mg/L		105	50 - 150		

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

GC VOA

Prep Batch: 8985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	5030C	
885-8376-2	BH23-03@4'	Total/NA	Solid	5030C	
885-8376-3	BH23-03@6'	Total/NA	Solid	5030C	
885-8376-4	BH23-04@2'	Total/NA	Solid	5030C	
885-8376-5	BH23-04@4'	Total/NA	Solid	5030C	
885-8376-6	BH23-04@6'	Total/NA	Solid	5030C	
885-8376-7	BH23-07@2'	Total/NA	Solid	5030C	
885-8376-8	BH23-07@4'	Total/NA	Solid	5030C	
MB 885-8985/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-8985/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-8985/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 9162

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	8015M/D	8985
885-8376-2	BH23-03@4'	Total/NA	Solid	8015M/D	8985
885-8376-3	BH23-03@6'	Total/NA	Solid	8015M/D	8985
885-8376-4	BH23-04@2'	Total/NA	Solid	8015M/D	8985
885-8376-5	BH23-04@4'	Total/NA	Solid	8015M/D	8985
885-8376-6	BH23-04@6'	Total/NA	Solid	8015M/D	8985
885-8376-7	BH23-07@2'	Total/NA	Solid	8015M/D	8985
885-8376-8	BH23-07@4'	Total/NA	Solid	8015M/D	8985
MB 885-8985/1-A	Method Blank	Total/NA	Solid	8015M/D	8985
LCS 885-8985/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8985

Analysis Batch: 9163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	8021B	8985
885-8376-2	BH23-03@4'	Total/NA	Solid	8021B	8985
885-8376-3	BH23-03@6'	Total/NA	Solid	8021B	8985
885-8376-4	BH23-04@2'	Total/NA	Solid	8021B	8985
885-8376-5	BH23-04@4'	Total/NA	Solid	8021B	8985
885-8376-6	BH23-04@6'	Total/NA	Solid	8021B	8985
885-8376-7	BH23-07@2'	Total/NA	Solid	8021B	8985
885-8376-8	BH23-07@4'	Total/NA	Solid	8021B	8985
MB 885-8985/1-A	Method Blank	Total/NA	Solid	8021B	8985
LCS 885-8985/3-A	Lab Control Sample	Total/NA	Solid	8021B	8985

GC Semi VOA

Prep Batch: 8999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	SHAKE	
885-8376-2	BH23-03@4'	Total/NA	Solid	SHAKE	
885-8376-3	BH23-03@6'	Total/NA	Solid	SHAKE	
885-8376-4	BH23-04@2'	Total/NA	Solid	SHAKE	
885-8376-5	BH23-04@4'	Total/NA	Solid	SHAKE	
885-8376-6	BH23-04@6'	Total/NA	Solid	SHAKE	
MB 885-8999/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-8999/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
885-8376-6 MS	BH23-04@6'	Total/NA	Solid	SHAKE	

QC Association Summary

Client: Vertex
Project/Site: Rattlesnake 13 12 Fed Com 1

Job ID: 885-8376-1

GC Semi VOA (Continued)

Prep Batch: 8999 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-6 MSD	BH23-04@6'	Total/NA	Solid	SHAKE	

Analysis Batch: 9050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	8015M/D	8999
885-8376-2	BH23-03@4'	Total/NA	Solid	8015M/D	8999
885-8376-3	BH23-03@6'	Total/NA	Solid	8015M/D	8999
885-8376-4	BH23-04@2'	Total/NA	Solid	8015M/D	8999
885-8376-5	BH23-04@4'	Total/NA	Solid	8015M/D	8999
885-8376-6	BH23-04@6'	Total/NA	Solid	8015M/D	8999
885-8376-7	BH23-07@2'	Total/NA	Solid	8015M/D	9060
885-8376-8	BH23-07@4'	Total/NA	Solid	8015M/D	9060
MB 885-8999/1-A	Method Blank	Total/NA	Solid	8015M/D	8999
MB 885-9060/1-A	Method Blank	Total/NA	Solid	8015M/D	9060
LCS 885-8999/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	8999
LCS 885-9060/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	9060
885-8376-6 MS	BH23-04@6'	Total/NA	Solid	8015M/D	8999
885-8376-6 MSD	BH23-04@6'	Total/NA	Solid	8015M/D	8999

Prep Batch: 9060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-7	BH23-07@2'	Total/NA	Solid	SHAKE	
885-8376-8	BH23-07@4'	Total/NA	Solid	SHAKE	
MB 885-9060/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 885-9060/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

HPLC/IC

Prep Batch: 9028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	300_Prep	
MB 885-9028/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-9028/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 9034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-1	BH23-03@2'	Total/NA	Solid	300.0	9028
MB 885-9028/1-A	Method Blank	Total/NA	Solid	300.0	9028
LCS 885-9028/2-A	Lab Control Sample	Total/NA	Solid	300.0	9028

Prep Batch: 9074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-2	BH23-03@4'	Total/NA	Solid	300_Prep	
885-8376-3	BH23-03@6'	Total/NA	Solid	300_Prep	
885-8376-4	BH23-04@2'	Total/NA	Solid	300_Prep	
885-8376-5	BH23-04@4'	Total/NA	Solid	300_Prep	
885-8376-6	BH23-04@6'	Total/NA	Solid	300_Prep	
885-8376-7	BH23-07@2'	Total/NA	Solid	300_Prep	
885-8376-8	BH23-07@4'	Total/NA	Solid	300_Prep	
MB 885-9074/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 885-9074/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

QC Association Summary

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

HPLC/IC

Analysis Batch: 9136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-8376-2	BH23-03@4'	Total/NA	Solid	300.0	9074
885-8376-3	BH23-03@6'	Total/NA	Solid	300.0	9074
885-8376-4	BH23-04@2'	Total/NA	Solid	300.0	9074
885-8376-5	BH23-04@4'	Total/NA	Solid	300.0	9074
885-8376-6	BH23-04@6'	Total/NA	Solid	300.0	9074
885-8376-7	BH23-07@2'	Total/NA	Solid	300.0	9074
885-8376-8	BH23-07@4'	Total/NA	Solid	300.0	9074
MB 885-9074/1-A	Method Blank	Total/NA	Solid	300.0	9074
MB 885-9136/4	Method Blank	Total/NA	Solid	300.0	
LCS 885-9074/2-A	Lab Control Sample	Total/NA	Solid	300.0	9074
MRL 885-9136/3	Lab Control Sample	Total/NA	Solid	300.0	

Lab Chronicle

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-03@2'
Lab Sample ID: 885-8376-1
Date Collected: 07/17/24 13:02
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 17:01
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 17:01
Total/NA	Prep	SHAKE			8999	KR	EET ALB	07/23/24 15:16
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/24/24 19:15
Total/NA	Prep	300_Prep			9028	JT	EET ALB	07/24/24 08:19
Total/NA	Analysis	300.0		20	9034	RC	EET ALB	07/24/24 16:25

Client Sample ID: BH23-03@4'
Lab Sample ID: 885-8376-2
Date Collected: 07/17/24 13:12
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 17:23
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 17:23
Total/NA	Prep	SHAKE			8999	KR	EET ALB	07/23/24 15:16
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/24/24 19:26
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 19:37

Client Sample ID: BH23-03@6'
Lab Sample ID: 885-8376-3
Date Collected: 07/17/24 13:19
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 17:45
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 17:45
Total/NA	Prep	SHAKE			8999	KR	EET ALB	07/23/24 15:16
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/24/24 19:38
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 20:51

Client Sample ID: BH23-04@2'
Lab Sample ID: 885-8376-4
Date Collected: 07/17/24 13:24
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 18:06

Lab Chronicle

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-04@2'
Lab Sample ID: 885-8376-4
Date Collected: 07/17/24 13:24
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 18:06
Total/NA	Prep	SHAKE			8999	KR	EET ALB	07/23/24 15:16
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/24/24 19:49
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 21:04

Client Sample ID: BH23-04@4'
Lab Sample ID: 885-8376-5
Date Collected: 07/17/24 13:27
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 18:28
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 18:28
Total/NA	Prep	SHAKE			8999	KR	EET ALB	07/23/24 15:16
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/24/24 20:01
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 21:16

Client Sample ID: BH23-04@6'
Lab Sample ID: 885-8376-6
Date Collected: 07/17/24 13:34
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 18:50
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 18:50
Total/NA	Prep	SHAKE			8999	KR	EET ALB	07/23/24 15:16
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/24/24 20:12
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 21:28

Client Sample ID: BH23-07@2'
Lab Sample ID: 885-8376-7
Date Collected: 07/17/24 13:45
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 19:12
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 19:12

Lab Chronicle

Client: Vertex
Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 1

Client Sample ID: BH23-07@2'
Lab Sample ID: 885-8376-7
Date Collected: 07/17/24 13:45
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			9060	KR	EET ALB	07/24/24 12:14
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/25/24 02:44
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 21:41

Client Sample ID: BH23-07@4'
Lab Sample ID: 885-8376-8
Date Collected: 07/17/24 13:47
Matrix: Solid
Date Received: 07/20/24 07:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8015M/D		1	9162	RA	EET ALB	07/24/24 19:34
Total/NA	Prep	5030C			8985	JP	EET ALB	07/23/24 13:05
Total/NA	Analysis	8021B		1	9163	RA	EET ALB	07/24/24 19:34
Total/NA	Prep	SHAKE			9060	KR	EET ALB	07/24/24 12:14
Total/NA	Analysis	8015M/D		1	9050	KR	EET ALB	07/25/24 02:55
Total/NA	Prep	300_Prep			9074	EH	EET ALB	07/24/24 14:31
Total/NA	Analysis	300.0		20	9136	RC	EET ALB	07/24/24 21:53

Laboratory References:

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

Accreditation/Certification Summary

Client: Vertex Job ID: 885-8376-1
Project/Site: Rattlesnake 13 12 Fed Com 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 5 DAY

Project Name:
Rattlesnake 13 12 Fed com 1

Project #:
23E-02849

Project Manager: Chad Hensley
Chensley@vertexresource.com
rplogger@vertexresource.com

Sampler: Riley Plogger
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 0.3+0.1=0.4

HALL ENVIRONMENTAL ANALYSIS LABORA
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 8710
Tel. 505-345-3975 Fax 505-345-4107

885-8376 COC

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	(BTEX) MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO_3, NO_2, PO_4, SO	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
7.18.24	1:02	Soil	BH23-03 @ 2'	1, 4oz jar	ICE	1	X	X					X			
	1:12		BH23-03 @ 4'			2										
	1:19		BH23-03 @ 6'			3										
	1:24		BH23-04 @ 2'			4										
	1:27		BH23-04 @ 4'			5										
	1:34		BH23-04 @ 6'			6										
	1:45		BH23-07 @ 2'			7										
	1:47		BH23-07 @ 4'			8										

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
					7/19/24	1100
7/19/24	1900			Courier	7/20/24	7:30

Remarks:
WO# 21163257
Dale Woodall

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-8376-1

Login Number: 8376 **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.	False	IDs on containers do not match the COC. Logged in per COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

Generated 10/10/2024 8:18:51 PM

JOB DESCRIPTION

Rattlesnake 13-12 Federal Com #001H

JOB NUMBER

885-13237-1

Eurofins Albuquerque
4901 Hawkins NE
Albuquerque NM 87109

See page two for job notes and contact information.

Eurofins Albuquerque

Job Notes

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing South Central, LLC Project Manager.

Authorization

Generated
10/10/2024 8:18:51 PM

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

Client: Vertex
Project/Site: Rattlesnake 13-12 Federal Com #001H

Laboratory Job ID: 885-13237-1

Table of Contents

Definitions/Glossary

Client: Vertex Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

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 Job ID: 885-13237-1
Project: Rattlesnake 13-12 Federal Com #001H

Job ID: 885-13237-1 Eurofins Albuquerque

Job Narrative
885-13237-1

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 sample was received on 10/6/2024 10:08 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice.

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.

Client Sample Results

Client: Vertex
Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

Client Sample ID: BH23-01 9'
Lab Sample ID: 885-13237-1
Date Collected: 10/03/24 12:00
Matrix: Solid
Date Received: 10/06/24 10:08

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		10/07/24 11:06	10/08/24 22:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*35 - 166*	*10/07/24 11:06*	*10/08/24 22:09*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		10/07/24 11:06	10/08/24 22:09	1
Ethylbenzene	ND		0.049		mg/Kg		10/07/24 11:06	10/08/24 22:09	1
Toluene	ND		0.049		mg/Kg		10/07/24 11:06	10/08/24 22:09	1
Xylenes, Total	ND		0.099		mg/Kg		10/07/24 11:06	10/08/24 22:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*	*10/07/24 11:06*	*10/08/24 22:09*	*1*

Method: SW846 8015M/D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		9.2		mg/Kg		10/08/24 11:46	10/08/24 20:41	1
Motor Oil Range Organics [C28-C40]	ND		46		mg/Kg		10/08/24 11:46	10/08/24 20:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Di-n-octyl phthalate (Surr)	*74*		*62 - 134*	*10/08/24 11:46*	*10/08/24 20:41*	*1*

Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**89**		60		mg/Kg		10/08/24 12:40	10/08/24 19:32	20

QC Sample Results

Client: Vertex
Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

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

Lab Sample ID: MB 885-13804/1-A
Matrix: Solid
Analysis Batch: 13938

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13804

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 11:06	10/08/24 12:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*35 - 166*	*10/07/24 11:06*	*10/08/24 12:23*	*1*

Lab Sample ID: LCS 885-13804/2-A
Matrix: Solid
Analysis Batch: 13938

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13804

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (GRO)-C6-C10			25.0	25.3		mg/Kg		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*211*		*35 - 166*

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 885-13804/1-A
Matrix: Solid
Analysis Batch: 13939

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 13804

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.025		mg/Kg		10/07/24 11:06	10/08/24 12:23	1
Ethylbenzene	ND		0.050		mg/Kg		10/07/24 11:06	10/08/24 12:23	1
Toluene	ND		0.050		mg/Kg		10/07/24 11:06	10/08/24 12:23	1
Xylenes, Total	ND		0.10		mg/Kg		10/07/24 11:06	10/08/24 12:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*48 - 145*	*10/07/24 11:06*	*10/08/24 12:23*	*1*

Lab Sample ID: LCS 885-13804/3-A
Matrix: Solid
Analysis Batch: 13939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 13804

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	1.00		mg/Kg		100	70 - 130		
m-Xylene & p-Xylene			2.00	2.05		mg/Kg		102	70 - 130		
o-Xylene			1.00	1.00		mg/Kg		100	70 - 130		
Toluene			1.00	0.997		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*48 - 145*

QC Sample Results

Client: Vertex
Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

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*

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		

QC Association Summary

Client: Vertex Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

GC VOA

Prep Batch: 13804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13237-1	BH23-01 9'	Total/NA	Solid	5030C	
MB 885-13804/1-A	Method Blank	Total/NA	Solid	5030C	
LCS 885-13804/2-A	Lab Control Sample	Total/NA	Solid	5030C	
LCS 885-13804/3-A	Lab Control Sample	Total/NA	Solid	5030C	

Analysis Batch: 13938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13237-1	BH23-01 9'	Total/NA	Solid	8015M/D	13804
MB 885-13804/1-A	Method Blank	Total/NA	Solid	8015M/D	13804
LCS 885-13804/2-A	Lab Control Sample	Total/NA	Solid	8015M/D	13804

Analysis Batch: 13939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13237-1	BH23-01 9'	Total/NA	Solid	8021B	13804
MB 885-13804/1-A	Method Blank	Total/NA	Solid	8021B	13804
LCS 885-13804/3-A	Lab Control Sample	Total/NA	Solid	8021B	13804

GC Semi VOA

Analysis Batch: 13871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13237-1	BH23-01 9'	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

Prep Batch: 13886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13237-1	BH23-01 9'	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	

HPLC/IC

Prep Batch: 13889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
885-13237-1	BH23-01 9'	Total/NA	Solid	300_Prep	
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
885-13237-1	BH23-01 9'	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

Lab Chronicle

Client: Vertex
Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

Client Sample ID: BH23-01 9'
Lab Sample ID: 885-13237-1

Date Collected: 10/03/24 12:00
Matrix: Solid
Date Received: 10/06/24 10:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5030C			13804	JP	EET ALB	10/07/24 11:06
Total/NA	Analysis	8015M/D		1	13938	JP	EET ALB	10/08/24 22:09
Total/NA	Prep	5030C			13804	JP	EET ALB	10/07/24 11:06
Total/NA	Analysis	8021B		1	13939	JP	EET ALB	10/08/24 22:09
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 20:41
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 19:32

Laboratory References:

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

Accreditation/Certification Summary

Client: Vertex Job ID: 885-13237-1
Project/Site: Rattlesnake 13-12 Federal Com #001H

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 3101 Boyd Dr
Carlsbad, NM 88220

Phone : 575-725-5001

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:
Rattlesnake 13-12 Federal Com #001H

Project #:
23E-02849

Project Manager:
Chad Hensley
Chensley@vertexresource.com

Sampler: J. Rewis
On Ice: ☑ Yes ☐ No
# of Coolers: 1
Cooler Temp(including CF): 5.4 +0 = 5.4

HALL ENVIRONMENTAL ANALYSIS LABORA
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

885-13237 COC

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	(Cl, F, Br, NO_3, NO_2, PO_4, SO_4)	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
10.3.24	12:00	Soil	BH23-01 9'	4oz jar	ICE	1 ~~25~~	x	x					x			

Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time
10/4/24	0800				10/4/24	0800
Date:	Time:	Relinquished by:	Received by:	Via: courier	Date	Time
10/4/24	1900				10/5/24	9:00

Remarks:
Direct Bill to Devon Enevry Production Company
Work Order# 21163257
CC.Chensley@vertexresource.com for Final Report.
Jrewis@vertex resource.com

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

Login Sample Receipt Checklist

Client: Vertex Job Number: 885-13237-1

Login Number: 13237 **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	

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 399659
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1732441110**
Incident Name	**NOY1732441110 RATTLESNAKE 13 12 FEDERAL COM #001H @ 30-025-40912**
Incident Type	**Produced Water Release**
Incident Status	**Deferral Request Received**
Incident Well	**[30-025-40912] RATTLESNAKE 13 12 FEDERAL COM #001H**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	RATTLESNAKE 13 12 FEDERAL COM #001H
Date Release Discovered	11/14/2017
Surface Owner	Federal

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	Cause: | Dump Line | Crude Oil | Released: 1 BBL | Recovered: 0 BBL | Lost: 1 BBL.
Produced Water Released (bbls) Details	Cause: Corrosion | Dump Line | Produced Water | Released: 4 BBL | Recovered: 3 BBL | Lost: 1 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	Cause: Corrosion | Dump Line | Crude Oil | Released: 1 BBL | Recovered: 0 BBL | Lost: 1 BBL.
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 399659
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

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@dvn.com Date: 11/05/2024

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QUESTIONS (continued)

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QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)
What method was used to determine the depth to ground water	OCD Imaging Records Lookup
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 1 and 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Greater than 5 (mi.)
Any other fresh water well or spring	Between ½ and 1 (mi.)
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	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	4300
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	16300
GRO+DRO (EPA SW-846 Method 8015M)	11000
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	01/01/2050
On what date will (or did) the final sampling or liner inspection occur	10/06/2024
On what date will (or was) the remediation complete(d)	07/26/2024
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	1971
What is the estimated volume (in cubic yards) that will be remediated	220
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
I hereby agree and sign off to the above statement	Name: James Raley Title: EHS Professional Email: jim.raley@dvn.com Date: 11/05/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

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	Action Number: 399659
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

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	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Is the remaining contamination in areas immediately under or around production equipment where remediation could cause a major facility deconstruction	Yes
Please list or describe the production equipment and how (re)moving the equipment would cause major facility deconstruction	Pumpjacks, separators and supporting infrastructure.
What is the remaining surface area (in square feet) that will still need to be remediated if a deferral is granted	652
What is the remaining volume (in cubic yards) that will still need to be remediated if a deferral is granted	160
Per Paragraph (2) of Subsection C of 19.15.29.12 NMAC if contamination is located in areas immediately under or around production equipment such as production tanks, wellheads and pipelines where remediation could cause a major facility deconstruction, the remediation, restoration and reclamation may be deferred with division written approval until the equipment is removed during other operations, or when the well or facility is plugged or abandoned, whichever comes first.	
Enter the facility ID (f#) on which this deferral should be granted	RATTLESNAKE 13-12 FED COM 1H WELLPAD [fAPP2130624218]
Enter the well API (30-) on which this deferral should be granted	30-025-40912 RATTLESNAKE 13 12 FEDERAL COM #001H
Contamination does not cause an imminent risk to human health, the environment, or groundwater	True
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
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QUESTIONS (continued)

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DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	Action Number: 399659
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	*{Unavailable.}*

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	No

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CONDITIONS

Operator:	OGRID:
DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	6137
	Action Number: 399659
	Action Type: [C-141] Deferral Request C-141 (C-141-v-Deferral)

CONDITIONS

Created By	Condition	Condition Date
scwells	Deferral approved. Deferral of BH23-01 is approved until plugging and abandonment or a major facility deconstruction, whichever comes first. A complete and accurate remediation report and/or reclamation report will need to be submitted at that time.	12/6/2024
scwells	Operator failed to provide proper Sampling Notification pursuant to 19.15.29.12.D.(1).(a) NMAC. Failure to provide proper sampling notice is a compliance issue and the OCD may pursue compliance actions pursuant to 19.15.5 NMAC. Operator shall ensure future compliance with 19.15.29.12.D.(1).(a) NMAC.	12/6/2024